47, Westmorland Road,
Newcastle-on-Tyne.

9th May 1906

To
The Dean of the Faculty of Medicine
Edinburgh University.

The thesis is partly research
and partly original work.
The research work was undertaken
entirely by myself.

Most of the original work is
clinical and post-mortem observation,
and is my own save for pages
114 and 115.

These contain a report of our
microscopical sections made
for me by W. Eastes
62 Queen Anne St, London.

9th May 1906.
and their introduction seemed to me necessary for the completion of the report on one case. All else in this thesis is my own work.

With this declaration of the authenticity of the work, I here submit my thesis for the consideration of the Medical Faculty with the hope that the University may grant me the degree of Doctor of Medicine.

Permit me to remain

Yours ever truly

[Signature]
ADIPOSIS DOLOROSA

--and--

SOME SEEMINGLY ALLIED DISEASES

--by--

JAMES S. MCCracken  M.B., C.M.,
Concerning the early recognition of the disease; together with an account of the cases of the disease reported, and the literature published on the subject up to 1898.

Dercum, who was the first to recognise the disease, describes it as a disorder which is characterised by an irregular, though sometimes symmetrical deposit of fatty masses in various portions of the body, the deposit being preceded or attended by pain.

The name by which it is now known — often in association with his own, viz., Adiposis Dolorosa or Dercum's disease — was first proposed by Dercum in a paper which he read before a meeting of the American Neurological Society in 1892. In this paper he gives an analysis of the symptoms found in the three cases that had been recognised up to that time, all of which had at some time or other in their history been under his personal observation.

"Certainly these masses differ radically from ordinary cases of lipomatosis and certainly the ner-
vous symptoms present are not without a special significance", he writes, and again at the conclusion, "Inasmuch as fatty swelling and pain are the two most prominent features of the disease, I propose for it the name "Adiposis Dolorosa". (1)

As early as 1888 one of the cases above alluded to had been most fully described and reported by Dercum under the title "A subcutaneous connective-tissue dystrophy of the arms and back associated with symptoms resembling Myxoedema" (2) "denomination malheureuse", says M. Ballet in speaking of the subject, (3) "parce que cette dystrophie etait plutot de l'hypertrophie et parce qu'entre le myxoedeme et cette affection on trouve surtout des dissemblances". This case is of peculiar interest not only in being the first described but also in that it was under Dercum's observation evidently from near the onset until it had become typically developed. In reading the notes you can watch the growing interest, marked by an increasing attention to details, in this "anomalous case found in the Hospital wards in which it was not possible to classify the condition found."

In some ways also it is the most typical of any published with illustrations, and these illustrations are habitually used in articles on the disease.

Dercum himself seems of the same opinion as in my investigations I have found the case notes
given by him in extenso on three occasions.

I give it somewhat fully on account of it illustrating the course of the disease.

A widow aged 57, with nothing characteristic in her family or personal history but a suspicion of alcoholism. Menopause had set in abruptly at 35. Enjoyed good health. At 48 she noticed that her arms were becoming very large. No history of this enlargement being attended by pain. Some time later pain and swelling came on in the knee, and a little later sharp darting pains came into the right arm. The character of the pain varied, was burning, scalding, and tearing by turns with paroxysmal exacerbations. No rise in temperature occurred. She came under Dercum's observation in the hospital in 1887 and up to the time of the report he had enjoyed ample opportunity of observation, not only the conditions but the mode of development of the various symptoms.

There was enormous enlargement of shoulders, arms, back, and sides of chest; those in back and arms were pendulous, elastic, yet firm to the touch and did not pit on pressure. The skin was neither adherent, nor swollen. It was dry and smooth, and in some places pigmented. The mass in the right arm was excessively tender. Some of the nerve trunks were exquisitely tender, but the painful condition was not limited to them but permeated the swollen condition as a whole. The muscles did not participate in the masses as seen by movement, but
the whole musculature was weakened. Cutaneous
sensibility to touch, heat, and cold, was found
diminished in unsymmetrical patches. Face and
mucous membranes were pale. Hair natural. Memory
slightly impaired. No distinctive character in
voice. Temperature was not subnormal. Developed
Herpes Zoster in Hospital. Had attacks of bronchitis
and dyspnoea, with sometimes expectoration of blood-
stained mucous. During a paroxysm of pain the
swelling in the right arm became more sensitive and
hard cake-like masses were to be felt in it. This
caking was subsequently repeatedly noticed during
paroxysms of pain. Soon afterwards had an attack
of pain in one knee, and a diffused painful swell-
ing came in the popliteal space. On one occasion
the face and neck became distinctly swollen and pre-
ated to the touch a nodulated feel; this swelling
affected also her tongue and pharynx; a painful welt-
like swelling came over the shoulder, and, later on,
one of the same nature came in the lumber region;
pains came on suddenly at various times over arms,
trunk, abdominal wall, thighs, and knees, always
followed by diffuse cake-like swellings. She im-
proved greatly in summer.

In 1891 the second of the three original
cases was reported by Dr. F. P. Henry under the
title of "Myxoedematoid Dystrophy"; (4) adapting the
term dystrophy in order to bring the case into the
same category with the very similar one reported
by Dercum." This case had afterwards come under the observation of Dercum, and was reported on in the paper in which he proposed the name "Adiposis Dolorosa." The reports agree in the main; but while to Henry the patient stated that pain had never been a well marked feature of the disease, her statement to Dercum was exactly the reverse. However pain of a localized character in the swellings or their immediate neighbourhood of a greater or less degree is given by both observers.

This was the case of a married woman aged 64, with a strong neuropathic family history. There was a history of epilepsy in childhood, syphilis acquired in married life, and immoderate drinking. Menstruation ceased abruptly at 35. The disease began when she was 49. The swellings started in the knees, became of great size, and were preceded by a feeling of cold at these parts. As seen from the illustrations, fatty accumulations reduced her trunk into a huge segmented mass.

Swelling is described as appearing in the epigastrium and gradually increasing until it resembled the breasts in shape. From the knee the process extended up to the thighs and large masses appeared on their outer side, and about the hips. She seldom perspired. Uterine haemorrhage came on at times. On first appearance she looked only an excessively obese person, and only examination revealed that the
enlarged tissue was very unevenly distributed. Shooting pains were referred to these masses in various situations, but no pain on pressure at present time. Had a sensation of scalding on inside of one cheek, and same side of tongue. Muscularity poor; no knee jerks; subject to headaches, and cardiac dyspnoea. She died of intercurrent lung conditions, and at the autopsy the most striking feature was induration and calcareous infiltration of both lobes of the thyroid.

The third case is given by Dercum in the paper, along with illustrations of each case, in which, as said, the first analysis of the symptoms was made. (1)

This was the case of a widow aged sixty. The family history was unimportant, and the patient's history was meagre from her defective memory. Onset of swellings dated back many years and had appeared on various points of the body. Menstrual flow had been greater than normal. Climacteric at forty-six. Mental impairment had been noticed two years before, and she was quite apathetic. Large masses over the belly separated above the umbilicus by a deep transverse furrow, another mass over the mons veneris. In upper parts of back of thorax were large masses like cushions. The forearms, hands, face, thighs, legs, and buttocks were free of deposits, the gluteal region in fact seemed flattened out. These masses were exquisitely
painful on pressure. From symptoms observed there was a strong suspicion of syphilis. Patient died of dementia deepening into coma. At the autopsy the subcutaneous fat was very white and excessively thick reaching, below the umbilicus, to seven inches in depth. Thyroid gland was enlarged, hardened, and much calcified. Kidney showed commencing signs of cirrhosis.

The same year 1892 Dercum again published the clinical history and autopsy of a fourth case. He found changes in the thyroid gland and also in the cervical portion of the spinal cord.

In 1894 Morlot and Gallois (5) reported the first case that was observed in France. This case was of interest in being the first report of the disease occurring in man—a neuropathic subject.

The next descriptive article of the disease which appeared in 1895 and was by Dr. Joseph Collins (6). He was enabled to widen the review of the syndrome by reports on seven new cases. Six of these cases had been under the observation of Drs. F. Peterson and B. C. Loveland, and he had to thank these gentlemen for the records. The other case had been under his personal observation.

"With the exception of one case seen by Peterson, all the patients have been in women from Forty to sixty years old. Another suggestive factor in their histories is that in none of them except in one case observed by the writer can a specific or alcoholic history be ruled out." He
is the first to mention the uncircumscribed character of many of the masses. In view of the fact that the thyroid gland had been diseased in the only autopsies made, he suggested that thyroid treatment should be tried in all cases.

Ewald (7) at the end of the same year (1895) reported a case of adiposis dolorosa occurring in a man of 47 and whose condition was ameliorated by thyroid treatment. This is the first case reported from Germany, and the third man.

Dr. Spiller (8) in 1896 recorded three new cases. Two of these he had an opportunity of studying in Dercum's wards. The third he had received the notes of from Dr. Hay. One of these cases is of special interest through being the youngest on record - aged 29. The case was also seen at an early stage and excess of fat had only appeared on one lower extremity and a part of the trunk.

The next reviews of adiposis dolorosa are by Dercum himself and appear in the supplement to the "Reference handbook of the Medical Sciences", and the "Twentieth Century Practice of Medicine" (9) in 1897. It was through this article that the disease first became generally known in England. This is much the fullest description of the disease that has appeared anywhere. It is also the last which has appeared in English - at least by anyone who has had opportunities of prolonged observation of the disease, - which deals thoroughly with all
points in the condition. Dr. Hale White's article which shall be afterwards referred to, though of great importance is only meant to point out the leading symptoms, and acts as a short introductory to a lengthy report of a case of the disease which had appeared in his wards.

Under the title "Adiposis Dolorosa" Dr. Clifford Allbutt (10) in his system of Medicine begins an article by himself with "By the kindness of Dr. Bercum I was enabled to see and examine in Philadelphia the case upon which his first description of this disease was founded. I also saw a second and more recent case in his wards. The first case, in a woman of some fifty-five years of age, presented clearly enough the group of signs and symptoms described by the author; the other case was less far advanced, but plainly of the same kind. I am satisfied that the condition is sufficiently definite and peculiar to need a separate description and a name."

While this as coming from such an authority, is important, yet the remainder of the article shows that his after knowledge of the condition was drawn from the literature on the subject, and not from personal observation.

Etiology and Symptomatology as known in 1898.

For the reason given, viz., that after this
no important article or monograph dealing with the subject is to be found in English, I shall here give a short account of the etiology and symptomatology of the disorder, drawn from the sources already mentioned. By following this plan I hope to be enabled to deal in as brief a manner as possible with the later reports I have gathered on individual cases, necessitating my recording only important characteristics, and pointing out any peculiarity in each case. In this later part I shall at the same time briefly review the recent literature on the disease giving the reports and literature in chronological order, and briefly recapitulate wherein our knowledge of the etiology and symptoms have widened.

Up to the time at which these descriptions of adiposis dolorosa were given the disease with a single exception noted by Spiller had never occurred before middle life, and some cases had developed subsequent to that period. In the majority of cases it had appeared between forty and fifty, and a few between fifty and sixty.

So far it was a disease of women with the three exceptions of its occurrence in man. (Morlet and Gallois, Ewald, and Spiller).

The family histories did not seem very exhaustively taken and showed nothing very definite, but a neuropathic predisposition is more or less evident.
Syphilis, alcoholism, or rheumatism, singly or combined could be traced in a large proportion of the cases, but no marked indication as to a predisposing nervous type of constitution is given. In some cases it has been noted that the menstrual loss had tended to be more than natural and in some again it had ceased early and suddenly.

The two primary symptoms are fatty swelling and pain.

1. FATTY SWELLINGS.

The onset of the disease is indicated by the appearance of a nodule or a more or less circumscribed swelling usually at some single area of the body but occasionally in a number of situations at once.

As to the seat of onset a preference seems to be given to the upper arm, inner side of knee, the ankle, and the upper part of the back in the order named. Certain regions remain exempt both at the commencement and afterwards from invasion by these swellings, viz., the face, hands, and feet.

These swellings do not pit on pressure, never disappear, and are found to be composed of fatty tissue.

For a time the condition tends usually to remain local and the swellings increase in size. But after a period either of weeks or months other fatty swellings begin to appear. These may come on in nexus with the original swelling or it may be
in an entirely new region of the body and as spatially removed from the original seat as the arm from the knee.

These masses may reach an enormous size, but their appearance is in no way characteristic. If, as is usually the case, a general obesity sets in, then these masses may appear only as diffuse unnatural bulgins in certain regions of the general fat. But even in the most exaggerated cases, manipulation can easily define them as lobular masses of distinctive qualities from the surrounding fat. In others of seemingly a less general adipose tendency or where early seen on the arms and body before a general obesity has to some degree padded them, these bunches of fat are more or less well defined, and in highly typical cases as they continue to grow in size they may form huge pendulous masses.

The typical situations for these masses in well developed examples of the disease are - the under surfaces of the upper arms, the axillae, round the abdominal wall on a level with the epigastrium, and in the lower part of the wall above the pubis, in the upper part of the back, over the shoulders, in the lumber regions, over the hips and upper part of the buttocks, on the inner side of the knees invading the popliteal spaces, and, to a lesser degree the forearms, and legs - in the latter, as seen in photographs, especially on the
inner sides, the swollen condition of the legs down to the ankles contrasting strongly with the symmetrical feet.

That the muscles are not involved in these swellings can be easily demonstrated by grasping the mass over the triceps and causing the patient to extend and flex the arm when it will be found that the mass is unaffected by the movements of the underlying muscle.

Though these masses arise almost invariably unilaterally there is a distinct tendency for them in time to assume a symmetrical arrangement on each side of the body, but even then there is usually a disproportion in the size of the masses found when comparing the two sides.

In some cases the masses are fairly equally distributed over the regions that are liable to be affected, but usually you find a marked disproportion between the amount of fatty accumulations in different regions - as the legs, thighs, hips, and lower abdominal wall may be enormously increased, while the arms and thorax show little more than ordinary obesity. Thus, besides the regions - face, hands, and feet - mentioned as never affected, there are other regions in the individual case that may remain free of fatty deposits. These are usually the forearms, the upper and front part of the chest, the gluteal regions, which in some cases remain small, and flattened, the legs to a less extent, and always, as far as I can find, the
external genitals.

To the touch these masses may present a soft, boggy, at times pultaceous, worm-like feeling of a varicocele, or harder, slippery fatty lobules may be felt under the fingers, or again the mass may be firmer, and elastic to the feel.

If the swelling shows itself first about the ankles the parts will appear puffy, but pressure shows that it is not in the least oedematous.

II. PAIN.

The other great characteristic of the disease is that pain in the same region almost invariably precedes or accompanies the appearance of these fatty swellings. The exceptional cases in which pain was not present before or at the time the swelling was first noticed have had a perversion of some other cutaneous sense - as paraesthesias or a localized patch of cold - preceding the onset of the swelling. But in these cases also pain has, in a little time, invariably followed.

The pain is of a distinctly neuritic type and its degree is variable in different individuals, probably according to the individual power of endurance. It has the feeling of being in the subcutaneous tissues. It is usually spontaneous at least for periods, and these are apt to be long; but it may be so slight in some individuals as at times to be only induced by pressure or manipulation of the fatty masses. When the case is under
observation for a prolonged time it is seen that this painful quality in these fatty masses is most acute at, and for some time after, their appearance and then pressure may be excruciating. In time seemingly the pain becomes less pronounced, due apparently to the fact that the pathological process has passed its most active stage. This may even go on to the actual disappearance of pain on pressure in some of the masses, and on examining a patient where the disease has been long established it is usual to find masses that are exquisitely painful, and others where pressure has to be pronounced before pain is elicited. But in these latter instances you invariably get the history of pain and tenderness having previously existed in the masses.

The subsidence of the pain may be accompanied by a slight diminution but never by a disappearance of the swelling.

Paroxysms of pain are liable to return in these swellings and after these paroxysms a decided and sudden increase in their size is usually found to have taken place and they become much firmer, more resistant, and excessively painful; and when pain has subsided so far as to allow of a more thorough examination an increased number of firm lobulations are usually found in the mass.

Usually new areas are invaded during these
paroxysms and in many cases both the mode of extension of the disease and mode of increase in size of the individual masses seem to be through these paroxysmal exacerbations.

As to the character of the pain there is variation, not only in different individuals but in the same individual at different times, and in different regions, but "pains, hot, burning, scalding, or shooting, stabbing in character, were present in all these cases at various times in their history."

Sometimes certain of the nerve trunks in a region will become very sensitive to pressure, the pain however is not restricted to them, but is diffused throughout the whole surrounding fatty accumulations. Wart-like swellings or thickened tender cords have occurred along the course of a nerve in some instances.

Besides the two cardinal symptoms which, occurring in combination, stamp the disease, another symptom is almost invariably present, viz., a general asthenic condition or muscular enfeeblement.

This condition in a variable degree seems to occur in all the cases, and in some rare instances the reaction of degeneration was obtained in the thenar and hypothenar eminences.

Another condition that seems to occur with some frequency in this disease is some form of
mental enfeeblement, from impairment of memory up to actual dementia.

Dercum also lays great stress on the lessened cutaneous sensibility. This varies in distribution. It may occur as a more or less general condition or be confined to areas of greater or less dimensions. Often in these areas there are patches of complete anaesthesia. In rarer instances diminution of the algesic sense may occur in small patches. The extreme alterations in the cutaneous sensibility are especially apt to occur over parts where the subcutaneous accumulation is greatest. Other nerve symptoms that have been observed are headaches, and Herpes Zoster; also lessening of the patellar and triceps reflexes are often noticed, but this may have been due to mechanical interference. The lessening or complete absence of perspiration which was noticed, Dercum is inclined to put down to nerve influence. Contraction of the field of vision was observed as a rare occurrence.

Another symptom of variable occurrence, that was noticed was bleeding from the mucous membranes – as epistaxis, and haematemesis. A history of metrorrhagia has been noted in some of the cases. Early and sudden onset of the menopause, and, rarely, recurrence of the uterine flow years after the menopause have been noticed in others. In one case there was a purpuric attack.

The skin is white, soft, flexible, and not
thickened, and except that it is very dry feels quite normal; occasionally some parts of the skin are pigmented.

Dyspnoea and bronchitis are said to be of frequent occurrence in this disease.

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Cases reported and literature published concerning the disease since 1898.

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Dr. Eshner (11) of Philadelphia in 1899 reported two new cases of adiposis dolorosa from Dercum's clinic — one of these is of great interest as bringing in a new etiological factor, viz., transmatism sufficient to cause unconsciousness; the primary adipose swelling came on within twenty-four days of the occurrence.

In the same year two more cases were reported by Dercum and one by Dr. Mills.

In 1898 M. Peré (5) published the cases of two women, with strong neuropathic heredity, themselves the subjects of hysteria, and zones d'anesthesie. He had treated them by hydrotherapy with the best results.

The earliest mention of adiposis dolorosa which I can find in any medical work in this country appeared early in 1899 as an unsigned article (12) but by Dr. R. Hutchison — the same article appearing in the Medical Annual 1902 under his signature.
He drew attention to the fact that myxoedema still presents many points, calling for elucidation; that apart from the typical case of myxoedema there are many other conditions of which a myxoedematous tendency is a more or less prominent factor. Many varieties of myxoedema he thinks have not yet been thoroughly investigated, a study of which apart from their clinical interest might throw some light on the pathological physiology of the thyroid gland. Amongst the abortive forms of myxoedema he would class adiposis dolorosa, a myxoedematoid dystrophy. In the treatment he was sanguine as to the benefits which would be derived from thyroid extract in these cases.

Dr. Hale White (3) published with photographs a case in 1899. This is one of great interest, not only as being the first case recorded in England, but as occurring in a woman of twenty-two, in whom it had started somewhat acutely at the age of ten — by many years the youngest case on record.

He prefaces the report of the case with an excellent introduction descriptive of the disease. When speaking of the masses he points out that, in Uganda, where fat in the sex is a sign of beauty, huge masses may form in women under the arms; and he also suggests that many of the women in travelling shows are really cases of adiposis dolorosa.

In this case there is a history of congenital syphilis. The enlargement first appeared in the
legs just above the knees; later this extended to the ankles, where as seen in the photograph the masses of fat and abruptly, making her appear, as Hale White points out, as if she had on baggy trousers. There was pain in the epigastric and lower lumber regions. In twelve months she had increased in stoutness generally, and at thirteen weighed twenty stones; at fifteen she became mentally affected and has been subject to attacks of mild dementia ushered in by epilepsy ever since. These attacks are preceded by pain in the head and eyes, and followed by pain in the abdomen. She had attacks of functional blindness. From the commencement of her illness she has had aching pains all over her body, generally confined to some one area at a time; gripping almost any region of her body made her shriek. Menstruation normal. She perspires a good deal. At the present time she is excessively stout in all parts of the body except the head and neck, hands, and feet. Teeth were decayed. Patches of anaesthesia and analgesia occurred. Muscular power was so poor that she could hardly walk, and with either hand could only move the dynamometer through five degrees. The knee jerks and plantar reflexes were absent.

A case of "Diffuse Lipoma (adiposis dolorosa)" was shown by Sir Hugh Beevor (14) before the clinical society in 1900. This case, which is beautifully illustrated in the "Transactions", occurred in a
married woman, aged forty. Nothing to note in family history, but a strong suspicion of syphilis. She became stout after marriage, and seven years before noticed the present condition of the lower limbs which subsequently became the seat of shooting pains. The legs are excessively stout, the enlargement ending abruptly at the ankles. There are large masses with furrows demarking them on the inner side of knees and in popliteal spaces. The thighs are excessively stout, and masses are found over the hips. This excess of fatty tissue reaches up to the umbilicus in front. The fat is natural and there is no excess of tissue in rest of trunk. Large masses are found along the posterior aspect of the arms. The thyroid gland seemed diminished in size. The skin itself was not thickened; in some places it exhibited a granular kind of unevenness, and there was no pitting. Pain had not been a marked feature till now. She professed to feel improved under thyroid but it had no effect on her weight, and the measurements remained the same - except the calf which increased after a paroxysm of pain, and appeared reddened for a little time.

"That the type of the disease is very distinct", says Beevor, "was evidenced from the fact that many physicians who saw this patient at the clinical society believed they had seen her before at other hospitals; they remarked upon her facies
as much as upon the local symptoms to account for the mistaken identity."

In Germany Weiss (15) recorded a case of the disease occurring in a man.

In the same year Cameron (16) reported a case occurring in a woman of fifty. She had gradually been increasing in obesity for the last twenty-five years. She was enormously stout, and the mammae and labia were greatly developed. There were fatty tumours in the shins, and one hanging from the hypogastric region. The face, hands, and feet were unaffected. Pain was a conspicuous feature. The mental condition was normal. She improved under thyroid treatment. This is the only case in which I can find mention of the external genitals not escaping.

Puis Gindicandrea (5) this year classed the different forms of the disease, and in studying the pathogenesis placed the disorder amongst the trophoneurosis.

Burr the same year, reported an autopsy (the fourth) on a woman of thirty-six, affected with the disease, but dying of uraemia. He found atrophic changes in the thyroid gland, and a gliomatous degeneration of the hypophysis, the glandular substance of which was destroyed by a tumour the size of a nut.

In 1901 Osler (17) devoted a space to a short description of the disease, laying stress on
the improvement that had followed thyroid treat-
ment.

Dercum and McCarthy (18) reported a typical
case which had died of erysipelas. At the autopsy
the thyroid gland was found to be normal, but the
pituitary body was found to be diseased.

This paper had been read prior to publica-
tion, before the American Neurological Association,
and Putnam, in discussing it, remarked that patients
suffering from adiposis dolorosa showed various
signs of defective or anomalous development — the
so-called anatomical "stigmata" of degeneration — as regards their bodily organs or tissues.

Whether this is a pious opinion or has a foundation
on observations that have not been published I am
unable to say.

Burney Yeo (19) in an article on "Obesity"
which appeared in 1901 referred at some length to
the condition. He drew particular attention to
the train of nerve symptoms that precede or accom-
pany the appearance of the swellings, and which
mark this condition off from other types of obesity.
He concludes by pointing out that it has not yet
been determined, "whether the neuritis is the
cause of the fatty metamorphosis or only a concomi-
tant."

Since then reports on cases of adiposis
dolorosa have appeared from time to time in different
medical journals - both here and on the continent, especially in France.

In 1903 appear the clinique of M. Ballet (3) He had long studied the pathogenesis of the disorder. In a note to clinique he goes most fully into an autopsy he had conducted on a case, in which he had found diffuse cirrhosis of the thyroid gland.

Marcou (20) gives a lengthy account of a case, which he had under observation for many months, of an unmarried woman aged sixty-eight, head mistress of a lycée; mother had committed suicide. Previous illnesses showed a strong neurotic tendency, such as hysterical paraplegia, pseudo-angina, and apoplectiform attacks. Onset dated from a fall during a fit eleven years before, and came on as pain in the lumber region, round the pelvis, and down the hips, followed by development of fat in these regions accompanied with enfeeblement. She was at first diagnosed by Notchoutowsky as a case of atrophic myositis, but some months afterwards the true nature of the condition manifested itself. The developments from the breasts, abdomen, and arms, became enormous, legs became cylindrical, small lipomata covered the forearms, slight swelling on the dorsum of the feet, otherwise the face, hands, feet, and external genitals were normal.

Marcou found no reaction of degeneration, but only feeble contractions could be procured in the arms, and no contractions from strong faradic
or galvanic currents in the legs. He puts this resistance to current down to increase of fat, or dryness of the skin.

I may note this is in marked contrast to exophthalmic goitre where electric contraction is so easily obtained.

In 1903 before the clinical society Dr. Leonard Williams (21) showed a case of the disease occurring in a male, a barman, who suffered from symmetrical swellings on the trunk, and upper arm, some of them being typical lipomata. Development of these was accompanied with pain which afterwards subsided but could always be produced by pressure and occasionally returned in paroxysms. Haemorrhages were apt to appear over the swellings. Progressive asthenia was a feature of the case.

This is the fifth case reported as occurring in a male; not the second as stated by Williams.

In 1903 Sainton and Ferrand (22) gave by far the most important contribution to the literature of adiposis dolorosa that has appeared within the last nine years. But always has the disease had much more attention paid to it in France than in this country.

They give details of several cases that had escaped my notice, viz., several published by Achard and Laubry, one of which is illustrated; another reported by Simionesco, and another reported by
Renon and Heitz of a woman who attained the age of sixty before onset of the menopause, and in whom spontaneous amelioration of the condition occurred after that period.

Vitaut was so successful with the use of thyroid in a case he had under observation that he could see nothing in the disease but a perversion of the thyroidian function.

In 1902 a case reported by Galland and Garand. One by Roux who somehow is struck with its likeness to exophthalmic goitre. Oddo and Chassy reported the case of a woman aged thirty-four who received great benefit from thyroid treatment. In Russia Kaplan and Fedorow reported well of the treatment of a case by rontgen rays. Another case reported by Papi, another from Austria, by Rudinger, and another by Renon and Souste with the result of a biopsie.

In 1903 Sellerin reports one case, prefaced by a rather good review of the subject. The same year a case is reported by Debove.

In this year also M.M. Sicard and Ronsay (23) communicated two cases following ovariotomy. These women were both young (thirty and thirty-three) and the syndrome in both was, pain, fatty accumulations occurring in localities, asthenia, and motor difficulties. They insisted, a propos of these cases on an ovarian cause for the symptoms.
Chevers (24) in 1904 before the Huddersfield Medical Society made a most interesting report on three cases, a father, son, and daughter. The first time a direct hereditary tendency has been recorded. The son, who was a gentleman of seventy-five was shown. Besides the tendency stated there was a strong neuropathic family history. The condition began at forty with the appearance of shotty papulas preceded by an aching sensation at the points. The papulas increased in number and size, until the whole body except the face, hands, legs, and feet, was one mass of typical lipomata, some as large as a child's head. The pain had disappeared from the nodules. He was in good health, and not asthenic. The sister's condition was similar. The father had the same condition and lived to an advanced age.

Harmond (25) in the same year reported its occurrence in two sisters. There was an alcoholic history in one and a strong suspicion of syphilis in the other. The disorder had started in both when aged about thirty-five in the form of deposits of localized fatty swelling in the forearms preceded by pain, and afterwards extending to the trunk and thighs. In one of the cases there was more than usual pigment on the skin. One case is illustrated.

Gamgee (26) in 1905 reported a case in a man. The disease had commenced at forty. The fatty masses were in the back of the neck axilla and abdominal
wall, and associated with pain. There was a history of confirmed alcoholism.

Stanley (27) the same year, reported the case of a woman in whom the disease had started at thirty in the legs and arms, associated with pain. This patient was subject to periods of mental depression. Both ovaries had been removed some years previous.

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Concerning additions to our knowledge in the etiology and symptomatology of the disease since 1898.

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A. ETIOLOGY.

I have thus investigated reports of varying degrees of completeness of fifty-two cases that have come under the observation of medical men, and have been classed by them as examples of adiposis dolorosa.

From the time at which the last official reviews — if I may so call them — were made (1897-98) five new cases have been reported as occurring in men making eight cases in all. This gives about 15% as occurring in males, which still leaves it between six and seven times as common in women.

The age limit of forty to sixty has been modified by seven new cases being reported as starting between thirty and forty, one (Spiller) at twenty-six, one (Cameron) at twenty-five, and one
All these cases occurred in women. But when you take into account the early onset of the menopause or other derangement of the menstrual function you can still state broadly that it is a disease which is apt to assert itself at or soon after the climacteric period, a period of life as we know which in some way favours the onset of general obesity.

In exceptional cases it has been known to begin at the other extreme. One case is reported at seventy, another at seventy-nine (Achard and Laubry).

Amongst the predisposing causes alcoholism reasserts itself, rheumatism is in evidence, and syphilis, though not so marked a feature as in the early cases, is still a possible cause in a good proportion of cases. It is important to note that in the case coming on at eleven — congenital syphilis was undoubtedly present. Transmatism is a new possible factor in the etiology that cannot be left out of count, and is recognised by Dercum.

A good example is already noted by Eshner and Sellerin records a case of tumour first appearing in the lumber region a few days after a contusion. It cannot be denied that transmatism has been made too much of especially in France, and a period of seven years between transmatism and the disease can have no causal significance.

A predisposing cause, in a strong neuropathic
or highly nervous diathesis has been shown in several cases (typically Marcou's). Hereditary predisposition is evident for the first time (Chevers and Hammond) if hereditary trophic oedema is to remain disassociated from adiposis dolorosa; also previous ill health, repeated pregnancies, and hyperlactation, all seemingly tend to produce it.

B. SYMPTOMS.

Comparatively little has to be added, from the investigation of the increased number of cases to what was recorded nine years ago by Dercum, Collins, and Henry.

Pain and fatty accumulations are the cardinal symptoms. Once the disease is established asthenia may be added as an almost constant accompaniment or sequence. A mental complication was noticed in some few cases recorded in England. In most there is no record on the subject, so presumably none were obvious, while in others it is distinctly noted that the mental condition was unchanged.

This has been far otherwise in France, where four primary symptoms, viz., "tumeur, douleur, asthenie, et troubles psychiques" are recognised.

The pain usually appears before the swelling. It has begun with articular pains (Oddo and Chavoy). This reminds one of the onset in Dercum's first case which was attributed to rheumatism in the knee. It may start as a sudden lumbago and has been ushered
in with rigors and fever. Usually, though severe, pain does not confine the patient to bed.

Swellings or fatty accumulations have never been seen in the face, hands, and feet. Sainton and Ferrand consider that the disease can be classed into two types, according to the nature of the swelling nodular, and diffuse, and an investigation of the reports, and a glance at the illustrations show that this is correct in the main. But the greater proportion of cases seem to be combinations of these in the same individual.

The nodular variety is characterised by small lipomatous masses usually never much bigger than an orange, growing in a more or less symmetrical way from the trunk and limbs. They may be universal on the areas liable (Chevers) or trunk and arms (Leonard Williams) but taken altogether the limbs seem to be their favourite seat.

Their mode of onset is practically that described by Chevers, viz., redness, pain and swelling appear at some part and in a time when these subside it is found that a fatty nodule has made its appearance. The after increase is often by paroxysmal exacerbations which hide the nodule in a surrounding swelling and when this goes down the nodule is larger than before. The skin remains quite movable over the masses. From some of the descriptions it would appear that they may become adherent to the
muscle underneath.

The other type, the diffuse form is well illustrated by Hale White and Beevor's photographs. In the typical cases recorded it has always started in the lower extremities — either on the inner side of the knees or above the ankles. The swelling is usually preceded by pain either at the same seat, or as a lumbago radiating downwards, in some few cases the swelling has been noticed before the pain. The swellings may go on developing to an enormous extent until, as in Marcou, White, and Beevor's cases they were cylinders that hid the knees, and at the lower end hung over the feet, which always remain normal, like "pantalon de zouave", or, as Hale White first said, like baggy trousers. It may affect the arms in somewhat the same manner even extending down to the wrists. It may remain limited to a region or certain regions of the body, as one leg (Oddo and Chassey) or the trunk (Bercum two cases) but sometimes spreads on to a general obesity; but even then thicker masses are found at some points in the general lipomatosis, chiefly over the shoulders, above the iliac crests, hips, lumbar region, and abdominal wall.

Sometimes at the beginning the swelling is fairly soft, but it never pits on pressure. If there is much redness and inflammation it may be firmer, and the tendency seems to be for the swelling as it probably is undergoing regular fatty metamorphosis to become sometimes lobular to the
feel, or again firmer, and harder, and the skin to feel adherent. The joints do not seem to be affected though they may be covered in fat, and movement is usually free.

The muscular enfeeblement may vary from a slight difficulty in voluntary movement up to inability to get out of bed (Cameron), and when marked is very like the asthenic condition that accompanies Addison's disease. The psychical symptoms are not present as already said in many of the cases (Hammond, Feré, Beevor, and Cameron). In others (Hale White, Stanley, Williams) it was a distinct feature in the case, and taciturnity, irascibility, and deep melancholia have been noted by Sellerin, Roux, and Ballet. In the cases reported in France I see they include "a complaining that misfortunes overtake her", a wish for sympathy and hypochondriasis, as strong signs of the disease. This shows what a light hearted race are the French. If we included these as symptoms then adiposis dolorosa would be one of the commonest diseases. An emotional tendency to tears, and insomnia, and hallucinations have been recorded, and of importance as reminding us of myxoedema, "an impossibility of imposing silence when she has began to speak."

The tendency to hemorrhage in some form or other that was noted by Dercum and Collins, may now be looked on as having practically a constant place
in the reports. Of these already noted purpura or large subcutaneous effusions, spontaneous or due to slight trauma are common. Even excess of bleeding after a blood count is often found.

The patellar reflex seems gradually to become lost but this seems to accompany the progressive asthenia. The skin reflexes are seldom reported as lost.

The cutaneous sensory alterations that were so conspicuous in the first cases seem not to have been looked for or, if so, not found in the more recent cases. They were present in Hale White's and Feré's cases; but often again they are stated to be absent. Headache is often recorded and also cramps in some cases.

Slight deafness is frequent, but no alteration in the voice is recorded. The hair often becomes scanty, brittle, and dull. Muscular atrophy has been noted (Guidiceandra) and an atrophic condition of the joints (Heitz and Oddo). The examination of the blood so far as I can see, though often done, has never given any alteration but those of a slight secondary anaemia. The urine is practically normal.
PATHOLOGY OF ADIPOSIS DOLOROSA.

This may be divided into pathological changes observed in the somatic areas, and changes observed in the deeper structures.

Dercuri withdrew specimens from the fatty masses by means of a Duchenne trochar, during the clinical history of some of his cases. Vitaut, Louste, Sellerin, and others have done the same thing, and the results of these examinations are in accord.

Thus the specimens from these fatty masses showed that the connective tissue was decidedly embryonal in type, the cells being large and fusiform, and their nuclei being large and prominent. The fat cells were associated with the connective tissue cells and in some places the metamorphosis of the latter into the former was seen in an incomplete stage. Some non-modulated nerve fibres were also examined, in which the connective tissue was denser than normal and presented an unusual number of nuclei which here and there were aggregated into clusters. (9)

The same condition was found after the autopsies, where examined. There was an interstitial neuritis in the nerve filaments of the subcutaneous fatty tissue, especially in the fatty nodules, and also in the small nerve trunks. The
large trunks were unaltered.

So far only six post mortems have been made, four by Dercum, one by Burr, and one by Ballet. In the first two by Dercum through an accident no microscopic examination was made of the specimens. In both the thyroid gland was calcareously degenerated.

In his third case, although the thyroid gland was small certain parts were atrophied. Microscopical examination showed great alteration; certain large acini were distended with colloid material; the size of these was variable and they were surrounded by a single layer of epithelium. In other parts round cells filled up the meshes of the stroma and some small acini were devoid of colloid material. In some places the epithelium lining of the acini formed projections into their interior.

There was marked atrophic changes in the columns of Goll in the upper dorsal and cervical regions of the spinal cord, and changed in the pia-mater covering the dorsal columns.

Ballet found diffuse cirrhosis of the thyroid gland, and cirrhosis of the liver accompanied with fatty degeneration of most of its cells.

Burr found the thyroid normal, but a gliomatous degeneration of the pituitary body, in which the gland substance was totally destroyed.

In the spinal cord he found changes in some of the cells near the surface in the lateral columns.
In Dercum's last case the thyroid gland was normal, but the pituitary body was the seat of a adeno-carcinoma with a collection of colloid material in its substance. Interstitial neuritis was present in the subcutaneous fatty tissue especially in the fatty nodules. Free haemolymph glands were present in the tissues of the body generally, and the spleen was the seat of angioha. The subcutaneous fat showed a peculiar cauliflower like arrangement.

He pointed out that in several of the cases of adiposis dolorosa which had been examined, the cerebral convolutions were found atypical but this might be a coincidence without significance.

Thus the thyroid gland has been found diseased in four cases; the pituitary body in two; and always some changes of a definite character in one or more of the vascular organs, as kidney, spleen, liver, and usually more or less of a general arterio-sclerosis.

PATHOGENESIS OF ADIPOSIS DOLOROSA.

"In Dercum's opinion we have here to deal with a connective tissue distrophy, a fatty metamorphosis of various stages of completeness occurring in separate regions, or at best unevenly distributed and associated with symptoms suggestive of an
irregular and fugitive irritation of the nerve trunks, possibly a neuritis. That this however does not embrace the whole truth is evidenced by such symptoms as the diminished sweating, headache, haemorrhage etc., observed in various cases."

He thus would class it as a form of polyneuritis.

According to Saintan and Ferrand there is no doubt as to the influence the nervous system exerts in this disease, and they would reduce it to a nervous disease entirely.

They are certain that the distribution of the fatty accumulations are entirely due to nerve influence, and point out the distribution of fatty and connective tissues in pseudo-hypertrophic paralysis, glossy fingers, and scleroderma.

The changes that have been noted in posterior and postero-lateral columns of the cord would require more material in the way of post mortems, and those in different stages of the disease before any opinion could be ventured on as to whether these changes were primary in the cord or secondary to the sensory ganglia or more peripheral, due to a selective neuritis. Any lesion in the brain has not been demonstrated and can only be supposed as an explanation of the mental and muscular weakness.

That it is a lesion of the thyroid primarily is doubtful. Ballet puts this very clearly, "Till now neither the clinical analysis nor the pathological lesions, nor accidental coincidence of goitre
with adiposis dolorosa seem to be sufficiently marked to enable us to class the latter under thyroid affections. It is the same with the results of the treatment which is successful in some, but by no means constant. Again simple obesity will give way to thyroid in some cases; all of which does not prove the obesity recognises for cause a lesion of this organ.

The same argument may be applied to any attempt to bring the lesions found in two cases in the hypophysis into undue prominence as the cause.

The testes and ovaries have been suggested as the seat of the primary changes which brought on the disease, and we must remember that three cases came on after ovariectomy (Stanley, Sicard, and Ronsay). The liability to ordinary obesity after the menopause is constantly seen, and Hutchison has described a lipomatosis universalis asexualis.

Again others have considered that, not auto-intoxication, but external toxins as alcoholism, syphilis or microbic were the cause.

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DIAGNOSIS OF ADIPOSIS DOLOROSA.
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The Oedema of ordinary Brights disease presents no difficulties in the way of diagnosis on account of it pitting on pressure, while a feature of adiposis dolorosa is its not pitting.

The swelling and pain of phlebitis can be
excluded by a careful examination.

Adiposis dolorosa has in many things a family resemblance to myxoedema. But while adiposis dolorosa never affects the face, hands, and feet, you have in myxoedema the marked and unmistakeable physiognomy which is usually diagnostic in itself, and the spade-like hands. The slow monotonous speech also is never acquired in adiposis dolorosa. Beever it is true remarks on the typical physiognomy (14) of his case of adiposis dolorosa, but as in the photographs the face is covered one cannot understand what he means. In the other cases illustrated there is nothing typical, or in any sense tending to it, in the facies. In certain stages of the diffuse variety of adiposis dolorosa the feel of the skin is somewhat like that of myxoedema, but this will be found only in limited areas.

All who have written on the subject agree that there is no difficulty in diagnosing adiposis dolorosa from simple obesity (28). The presence of pain, with other sensorial and mental troubles in the former, they say is characteristic, not to speak of the irregularity in the distribution of the lipomatosis; and the tendency of fat to accumulate in the viscera as well as subcutaneously in the latter.

Acromegaly, suggested chiefly by the occasional presence of pituitary lesions in adiposis
dolorosa, is distinguished readily from it by the distinctive changes that occur in the lower part of the face, in the hands, and feet in that disease.

Elephantiasis occurs in persons who have visited the colonies and an examination of the blood for filaria will clear up any doubt.

Elephantiasis nostra occurring in the legs after repeated attacks of cellulitis or erysipelas, has somewhat the history as a guide; besides it is impossible to mistake the hard brawny feel of the whole thickened tissues for fatty deposits.

A likeness between adiposis dolorosa and exophthalmic goitre was seen, as stated by Roux. The latter may occasionally be complicated with patches of solid oedema, while the former may present signs of vaso-motor dilatation, and of course a thyroid lesion underlies both in many cases.

In the use of electricity there is great difficulty in getting muscular contraction in adiposis dolorosa (Harcou)(20), while in exophthalmic goitre, as first pointed out by Charcot, there is great diminution in the electrical resistance. (30).

Some of the oedematous swellings due to nerve origin may present a certain amount of difficulty in diagnosis - for example such rare cases as oedema following alcoholic neuritis, syringomyelia or the hypertrophic lipomatosis that may be associated with certain muscular dystrophies (31) but
age, history, concomitant symptoms, and observation will elucidate the diagnosis.

Marcou's case was for some time considered one of atrophic myositis. (20)

Some cases are reported of solid oedema occurring in the lower limbs without a cause, that are remarkably like adiposis dolorosa of the diffuse type. One case of Duckworth's (32) in a girl of twenty occurred in one leg only. Another case of exactly the same nature is reported by Vigouroux (33) in a girl of twenty-two. As neither of these have a history of pain they may be excluded.

Heige (34) reports a family, the members of which through four generations were affected with a hard white painless oedema of the lower extremities. It came on at puberty and men and women were both afflicted. There were marked signs of hysteria in the cases. He calls it "Chronic hereditary trophic oedema."

Milroy (35) has described cases of hereditary oedema, twenty-two individuals in six generations, in which there existed from birth a solid oedema of one or both legs, without any special inconvenience.

In the present collection there is the typical painful nodular variety showing hereditary tendencies (Chevers and Hammond).

Under the name of neuro-arthritic pseudo-elephantiasis Mathien in 1893, and Joffroy in 1897 (22) both recorded cases of undoubted adiposis
dolorosa. Both patients were women aged fifty-eight and sixty respectively, had passed the menopause, were obese, had oedema of the lower limbs which did not pit on pressure, and terminated abruptly at the ankles; the feet were normal and they had violent pains in the legs.

"Diffused lipoma" is given by Beevor (14) as the primary title to his case. According to Jonathan Hutchison (36) the condition was first described by Brodie.

It was fully investigated by Morrant Baker, and Bowlby (37) in 1883.

The situation of these fatty masses is in the neck. They are symmetrical and are almost exclusively found in man. May come on at different ages, but usually about forty-five. It seems to be a trouble restricted to beer drinkers, and the futility of surgical interference on account of the diffuseness of the growths is well described by Hutchinson (36) in his archives, accompanied by an illustration of the condition. When Williams (21) showed his case of adiposis dolorosa before the clinical society Bowlby pointed out how undiagnosable it was from diffused lipoma. I gather from a letter from him that he regrets the alteration of the name. (38)

Williams (21) regards the two conditions (diffuse lipoma and adiposis dolorosa) as the same
and in this Péré, Ferrand, and Cheinissec agree with him.

Occupying the same situation (the neck) are the adeno-lipomata (Launois and Bensaude) (22). They occur at all ages, mostly in men, and glandular tissue is found in them.

An interesting point about lipomatous growths in the neck is their frequent association as shown by Madelung and Klaussner (39) with malformation of the thyroid gland.

Lipomatosis perimucularis circumscripta may in their development appear somewhat like adiposis dolorosa but are not painful.

Recklinghausen's disease has the mental and physical enfeeblement more strongly marked than adiposis dolorosa, but the nodules are much smaller, firmer, and more confluent, are seldom painful, and appear on the hands and face.

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TREATMENT OF ADIPOYSIS DOLOROSA.

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No cure of the disorder has ever been reported. It is essentially progressive, but there are evidently, in many of the cases, times of amelioration. Under certain lines of treatment also amelioration has been reported in some cases, but how far this was brought about by the special line of treatment employed, how far due to psychical influence and how far a mere coincidence, it is
impossible to say.

Operation on and removal of the masses has been employed with some amelioration (Roux), but again in a case related by Féré eighty fatty masses were removed only for them to return as large and numerous as ever.

Massage and hydrotherapy are well spoken of by Sharkey and Féré. Compression has been tried by Dercum, and rontgen rays by Kaplan.

Of drugs the salicylates, strychnia, and arsenic have all been used with benefit to pain and general nutrition in some cases.

Thyroid extract has given most benefit and a trial of it ought to be given in all cases. Ewald who first employed it, greatly reduced the weight of his patient, and especially diminished the size of the fatty masses for some weeks. Others, though not getting such marked results, speak well of it (Cameron, Roux, and Vitaut, Guidiceandra, Galland, Oddo and Chassey). Beevor's patient said she felt better from it, but he could see no improvement. Others again report against it (Williams, Eshner, Kaplan, Sellerin, and Hale White). It is interesting to note that Hale White's case in which he got no benefit from Thyroid, had twice previously been under Sharkley (41) (1892 and 1897) who looked on it as a case of "functional nervous disease with obesity", and that he had obtained great reduction
of weight both times, the first by massage and the last by thyroid.
PART II.

ADIPOSIS DOLOROSA and some seemingly allied conditions, (Painful Obesity and Myxoedematoid Dystrophy.)

I shall now present full notes accompanied with photographs of four cases.

Two of these are undoubted cases of Adiposis Dolorosa. Neither of them are so pronounced or typical as many of the cases on record, especially those that have appeared in America; but they cannot be classed under any other heading, and the syndrome, after 9 years experience of one and 9 months of the other, I feel with confidence is sufficiently emphatic to allow of them being classed as cases of Adiposis Dolorosa, which from some etiological factor, either in the way of lessened morbidity of the process or heightened resistance in the subject - has and is allowing them to run a course of a less severe type.

Under the title of "Painful Obesity" I shall record a case which I at once hesitate to class under Adiposis Dolorosa on account of the mildness of the lipomatosis. It is only one of several cases I have had under observation, the syndrome of which come to assume a certain definiteness when examined over
a period of twenty years.

These are cases of thin, usually nervous, women who suffer, it may be for many years, from neuritic pains and who at some period about or soon after the climacteric become obese in, I think a definite manner, and in whom the painful neuritis does not cease and may be exaggerated.

I would suggest therefore that - either there is a "Painful Obesity" to which we have given scant attention classing it as neurasthenia or hypochondriasis but differing from the latter in that "fat" is a manifestation of some pathological of the condition! peripheral nerves; or that - whatever pathological conditions are responsible for Adiposis Dolorosa are much more common in attenuated forms than we suspect and that such cases of "Painful Obesity" are really very mild forms of the typical Adiposis Dolorosa.

The term "myxoedematoid dystrophy" was used for one of the earliest recorded cases of adiposis dolorosa (4) and was superseded at once by the latter name.

I have used it in order to introduce a detailed record of a case whose whole clinical picture showed a combination of symptoms which, after a lengthy research, I have been led to believe has never occurred in a recorded case.
These symptoms showed strong features of resemblance to both myxoedema and adiposis dolorosa, but in certain vital points these symptoms differed so widely, from any description occurring in medical literature of even atypical cases, as to prevent this case being classed under either of the diseases.

Before stating the cases I shall first give a short description of the arrangement of fat on the trunk in an ordinary case of Obesity.

DESCRIPTION OF THE TRUNK IN ORDINARY OBESITY.

In endeavouring to describe the adipose tissue of the trunk in cases of Obesity I found a great deal of difficulty because of the usual anatomical land marks being buried in fat.

I have never come across a description of the furrows in any medical work, though the artists especially Weiber and Rembrandt (in their fat women) have studied the subject most accurately.

From observations on some 15 obese females I have ventured to conclude that the following furrows and adipose rolls give a description of the average case which is accurate enough to be useful in describing a patient.

The highest furrow is short and altogether lateral. It commences faintly in front immediately
above the upper and outer quadrant of the mammae, curves backward for a little round the gland, and then runs transversely across the lateral chest wall about $2\frac{1}{2}$" below the apex of the axilla, terminating on the posterior axillary border. A somewhat triangular roll of fat may form in the axilla above this furrow having its anterior angle prolonged forwards on to the anterior axillary border.

The infra-mammary furrow arises over the lower sternal border on each side, sweeps down round the lower quadrant of the mammae, and from the lowest point runs backward across the lateral wall of the chest usually to a little past the posterior axillary line. The outer quadrant of the mammae is prolonged backward round the lateral wall of the chest between this infra-mammary furrow and the axillary furrow above.

The next furrow varies slightly in level. Laterally it is about 2" below the infra-mammary. In the line over the scrobiculus cordis I have generally found it from $1\frac{1}{2}$" to $2\frac{3}{4}$" below the end of the sternal body. It runs transverse to the long axis across the infra-costal angle, crosses over the seventh and eighth ribs and may go as far round the thorax as a perpendicular drawn from the inferior scapular angle. For descriptive purposes I shall speak of it as the costo-epigastric furrow. The segment between this furrow and the infra-mammary above is narrow, but sometimes it is very pronounced
and stands out as a roll of fat from the anterior and lateral surfaces of the trunk. This might for descriptive purposes be called the "infra-mammary segment."

The next well marked furrow runs transversely across the lower part of the abdomen and upper part of the dorsum of the iliac bones. Starting in the middle line of the hypogastric region about 3" above the pubis it runs across the iliac region of the abdomen and over the iliac bones below the anterior superior spines and the crests; it disappears at a position varying from before backwards on the iliac bones but usually in front of a line between the trochanter and crest.

Between this "ilio-hypogastric furrow" and the "costo-epigastric furrow" above the front of the abdomen is practically one segment (umbilical segment). Usually at any point in this segment you can catch up between your fingers and thumb a transverse roll with a distinct feeling of being round, and it can be followed outward and inward as a seemingly natural segment. If you catch up a mass in the same way in line with the rectus muscle it has a feeling of being flat.

One or two short small subsidiary furrows may be seen on the lateral aspect of the abdominal wall or they may come on with a lateral inclination of the body; but if the anterior part of the
abdominal wall be very heavy a sloping furrow may run from above the point of the twelfth rib to a little above and in front of the anterior ilio spine.

The lower part of the umbilical segment usually markedly overhangs the ilio hypogastric furrow in front and to a slight extent laterally.

One long furrow at the root of the thigh, over the hips, and in the buttocks is important for descriptive purposes. It appears on the anterior surface of the thigh as the "groin furrow" running from the root of the adductor surface in an obliquely upward and outward direction. It often disappears at or slightly external to a line dropped from the anterior iliac spine. At its lower part it is only about 1" below the ilia hypogastric furrow, but towards the inner part of the front of the thigh the segment between these two furrows increases in size from above downwards. These segments (groin segments) on each side are connected by the mons veneris, which acts as an isthmus between them. The groin furrow itself runs backward over the descending ramus of the pubis between the labia majora and the soft fatty tissue of the upper adductor surface of the thigh. About the middle of the perineum it is continued backwards and outwards round the thigh as the furrow that forms the lower limit of the gluteal fold, and disappears at a varying point about midway between the adductor surface and the lower part of the trochanter. Sometimes a continuation of the outer
anterior extremity of the groin furrow can be traced as a narrow groove which curves at first outwards and upwards over the hip above the trochanter, then with a downward sweep takes a course across the buttock in the direction of the coccyx, but terminates about midway between the trochanter and the coccyx and a little above the infra buttock furrow.

A description of the course of this furrow, curving round the root of the thigh and having the terminations of its extremities so near together, recalls somewhat a description of the limbic lobe of the brain.

These divisions on the trunk do not correspond with any underlying anatomical arrangement, neither do they correspond with any developmental segmental arrangement as far as I can see. The iliohypogastric furrow in front overlies the position of rare septum in the recti which represents the lower intersegmental septum of the eleventh rib (43) but when it leaves the middle line it at once becomes too low for that developmental structure. When compared with the hyperaesthetic segmentation (44) and zones of Herpes (45) the infra mammary segment corresponds to the sixth dorsal of herpes, and the costoepigastric furrow runs in the seventh dorsal segment. The ilio-hypogastric furrow runs in the eleventh dorsal segment in front, but again when you leave
the middle line its course is too low unless it can be explained by the weight of fat pulling the skin down over the boney prominences.

In the few cases of adiposis dolorosa where illustrations of the trunk are given, you can easily recognise that no new furrows and segments are made but that the new fatty accumulations take place in the segmental rolls which are common in the obese. If the accumulations are enormous this may be at first obscure, but you can trace that the limiting furrows are the natural furrows of obesity, often brought into undue prominence.

If we take Dercum's early cases (1) then case I. has the mammary segment developed into a pendulous mass at a level with the posterior axillary border and the infra mammary segment is pendulous as far round as below the interscapular regions, and the costo-epigastric furrow goes round to the spine. In case II the infra mammary segment stands out prominently as far round as the spine. In case III the infra mammary segment in front is widened out into a large pendulous mass. Thus in adiposis dolorosa variation from my description of obesity occurs in the segments affected, and not, as far as my experience goes, in new segments being formed.
CASE I.

Mrs. C. aged seventy-one. Widow for twenty-two years. In easy circumstances. Has been twice married. First husband died at twenty-eight of chronic bronchitis. Second husband died at fifty-three of chronic Bright's disease.

Complains of pains in the limbs - headaches - and of being easily tired.

FAMILY HISTORY.

Mother died at forty-two of change of life and affection of the heart. Was very stout weighed seventeen stones. Always healthy and active to within nine months of her death.

Mrs. C. though not so tall is considered by the family remarkably like her in every way.

Father was stout and short, very healthy until late in life when he had four strokes in three years, from the last of which he died.

Sisters, three, the eldest of whom was very stout (thirteen stones) troubled with sciatica and rheumatism of the heart, and dropped dead in the street, aged fifty-two.

Next had pneumonia three times, died of phthisis at twenty-nine.

Next sixty-nine, alive, healthy, and getting stout.

Brothers, one lived to the age of forty-four, was very stout and died of alcohol.
Five died in childhood, of what she does not know.

Father's mother dropped dead while at housework.

Three Cousins, all very stout, died suddenly while engaged in some occupation.

Mrs. C. is a moderate eater, but a strict diabetic diet enfeebles her so much that a certain latitude with regard to carbohydrates (chiefly in the form of potatoes) has to be allowed. She was in the habit of taking a little table beer, but twenty years ago was restricted from alcohol altogether. Within the last six years a little whiskey has been allowed when breathless.

PREVIOUS ILLNESSES.

Escaped the ordinary zymotic diseases, but from early childhood up to the age of thirty-eight was subject to violent attacks of stomach ache. Attacks were very frequent, as often as twice a week; pain came on suddenly in her stomach (she points to the umbilicus) and she had to lie down and roll on the floor. They did not usually last long, but sometimes for half a day. Nothing gave her relief. She was also subject to violent attacks of diarrhoea, though her bowels were almost always relaxed. The menstrual flow started at twelve, was regular, without pain, and ceased at thirty-eight with a flooding. She was very thin up to thirty, after which time began to get stouter.
PRESENT ILLNESS.

Commenced when she was fifty. She had nursed a relative through typhoid, when a pain commenced in lower part of her back, which compelled her to go to bed. The doctor who attended her told me that when she became convalescent, he noticed that the inner sides of the legs were swollen down as far as the ankles; the swelling did not pit on pressure and there was no albumen in the urine, but he for long considered it a kidney condition. Her bowels from this date became very constipated. She gradually got stouter until she was eleven and a half stones, under which weight she has never since been. Was subject to muscular pains in the legs, trunk, and arms. Became subject to fits of breathlessness on exertion or walking up a bank, and for three succeeding springs had attacks of bronchitis. The doctor found that Iodide of Potassium gave her some relief, and while taking it she had a feeling of well being. She came under my care in the autumn of 1897 for Dyspnoea and bronchitis. Was very pale, had strongly marked features, a haggard look, and anxious expression. Under eyelids were full and looked oedematous and arcus sini lis well marked in the eyes. Her ankles and lower part of legs were full, but did not pit on pressure. Pulse regular though rather soft. The heart sounds soft and inaudible but no murmurs in any of the regions.

While examining the chest I noticed the condition of her left upper arm, it was much enlarged,
about twice the size of the right, and was very painful to the touch. The swelling, she said, had started some six months before and was accompanied with severe rheumatic pains; it was firm and doughy and limited entirely to the upper arm. Further examination revealed markedly painful swelling in the lower part of the abdominal wall. The abdomen was free of fluid. The thighs were unsymmetrical, the left being much the larger, and very painful.

The urine was free from albumen or sugar; specific gravity 1024. Memory had failed her very much in later years.

The dyspnoea and bronchitis improved under rest and tonics, and after she was better I put her on thyroid treatment with a view to reducing her weight, and also because the swellings in the arms and thigh had somewhat the feeling of myxoedema. This treatment has never as far as I could observe had any affect on the enlargements that were there when it started, nor in preventing others coming; certainly it had none of the immediate effects it shows in myxoedema. In spite of this she still persists in taking three 5 grain tabloids in the week, she explains that she does not feel so clear in her head and is more easily fatigued if she neglects to take them. She certainly shows that she takes a common sense view of things in general and has no disposition to fads on other points so I believe that in some way Thyroid does her good, but in what manner I cannot tell.
Some months after this she went to live at a farm in Yorkshire, and for the next six years I saw her only once, but heard from her occasionally. She was still subject to dyspnoea, and also suffered at times from pains in the legs, arms, and trunk.

About this time I saw a report by Hale White of a case of adiposis dolorosa, and again a fuller account by Dercum. This recalled the peculiar condition of my patient, and I tried to get a full description of her present condition. She wrote in February 1900 saying she did not think the swelling in the left arm had gone down any, but it was not so painful. Had severe pain two winters before in the right arm and that was swollen and painful, and she thought larger than the left, also that the right thigh in front was very painful and she thought swollen. Her legs had got very thick; breathlessness very bad at times; very much troubled with headaches. The urine which she sent was free of sugar. Specific gravity 1026.

Two years afterwards I had an opportunity of examining her chest and legs, and testing the urine. Seemed much broader, and bulkier, about the hips. In spite of breathlessness I found she got out a good deal on the farm. She never perspired, and had a good deal of thirst. Passed a good deal of urine. Twice during the last three years suffered from irritability of the bladder, had to pass urine in dribblets. She had hardly ever been free from pain at some part or other of her body except in the
summer months, and was sure the hot weather agreed with her. She had had five or six attacks of her old stomach ache, a thing she had not experienced for years, the attacks were higher up towards the left of the epigastric region. Heart and pulse had not altered, no murmurs. Her arms were now symmetrical, the swellings extended from the axilla to the elbow, and were restricted to the under surface of the fore arm. Over the lower half of these masses the skin was a dull pink colour, fugitive on pressure, the remaining surface of both arms was white. That on the right was firm, while that on the left was softer in its upper part and both were painful. The legs were much enlarged and looked at first like cylinders, but on examination one found that the bulk of the enlargement was due to firm thickenings on the inner side which were very painful; the outer sides of the legs were soft and not painful.

Urine was acid, specific gravity 1023; no albumen but dark orange translucency appeared on boiling the upper stratum with Fehling. I wrote warning her of sugar and restricted carbohydrates.

In the summer of 1904 she returned to Newcastle permanently. In the following October I attended her for herpes zoster extending as an irregular band, varying from 2 to 2 1/2" in breadth from the lumber spine round the left side, its lower border above the iliac crest, and terminated in the middle line in front with its lower border about the level of the
umbilicus. It ran almost transversely to the long axis of the body; was preceded for a day by great pain in this position, then some vesicles appeared near the spine, above the iliac crest, and near the middle line in front. Next day some more large vesicles had appeared at the above points, but an almost complete band had been formed by innumerable minute vesicles coming between the larger groups, and also extending above and below them. The skin in this band was erythematous and exceedingly painful and tender to the touch. It was much the worst attack of herpes I have ever seen, not only was the pain excessive but the areas in which the larger primary vesicles occurred sloughed, and irregular, ragged, gangrenous edged holes were left, some of them nearly the size of a 6d. and from half to ¼ in depth. They were slow in healing and it was seven weeks before the last of the crests dropped off. That band is exceedingly painful subjectively, and objectively to the touch, at the present time.

Urine, 42 ounces in twenty-four hours; specific gravity 1030, no albumen, sugar 5-6 grains per ounce.

The following summer she allowed me to take some photographs, which are here produced, and to make a thorough examination.

Patient has an anxious careworn look; hair grey and dull, has fallen out much in recent months, back of scalp nearly bald. Much trouble with frontal and parietal headaches. Her memory which has troubled her for the last eight years has become
excessively bad. Skin pale, dry, and glistening. Never perspires except occasionally over the upper part of sternum. Dilated capillaries over the inner side of the thigh, especially numerous over the knees and outer sides of the legs. Large glistening striae over the trochanters. Scars of old herpes well marked. Fawn coloured pigment spots from the diameter of a pea to small dots are thickly scattered in symmetrical arrangement on both sides. The upper level of this area starts at a point over the posterior superior iliac spine and can be marked by a line drawn forward to the middle line in front and a couple of inches below the umbilicus. The lower limit of this area starts from a little above the top of the gluteal cleft, curves over the buttock to near the trochanter, then down the thigh on its outer posterior surface to the knee. The front of the thigh is covered as far as the knee but the pigmentation does not pass on to the adductor surfaces. There is a pink mottling on the palms, slight intertrigo under the mammae, and the pendulous abdominal wall in front.

LEFT ARM.

Mass on the under surface of the upper arm extending from the posterior border of the axilla and gradually increasing in bulk until above the inner side of elbow. It is soft, finely lobular, and varicose on the surface, but has a firm cord in the centre. A small continuation from this mass extends past the inner side of elbow and dies on the
anterior ulnar surface at the junction of the upper and middle third of fore arm; outer part of upper arm is red and erythematous in colour, the limb is painful, mostly so immediately above the elbow, circumference 16".

**RIGHT ARM.**

Right upper arm much the same as left, but not so pendulous, is larger by ½" than the left on account of its greater diameter. It is firm and doughy to the feel and very painful. Erythematous colour is deeper on the dorsum of the mass on this side. A swollen and painful cord runs down along the ulnar border of the fore arm to the front of ulnar side of wrist. (This is quite recent, has come on within the last six months). Slight fulness over the posterior triangle of neck on each side, not painful and quite soft. No fat in anterior triangles.

Upper part of chest in front is devoid of fatty tissue. Breasts moderate in size, and the right soft; the left larger, firm to the feel and painful. There are soft non-painful masses in either axillae. The infra-mammary segment is soft, small, and not painful; this used to be much larger, and very painful. The abdominal wall (umbilical segment) is thin both in the anterior, and lateral aspects above the umbilicus which itself shows the natural dimple. It is thick, heavy, and pendulous in the lower part, especially in front, which is painful, and hangs over the mons veneris, front of thigh, and anterior ex-
ternal surface of thigh as a fold, with the deep ilio-hypogastric furrow forming its lower limit. An accessory furrow runs from the point of the twelfth rib, downwards, and forwards to a little above the middle of pauparts ligament. This furrow forms on the lateral abdominal wall an upper and lower segment. This accessory lower segment over the iliac crest is soft, small, and not painful on the right, but large, firm, elastic, and very painful on the left.

LEFT LOWER LIMB.

The adductor surface of thigh is very painful to touch. There is a large, soft, varicose mass in upper third of thigh, bulging out in front, and its posterior limits correspond to the posterior border of the gracilis, and a hard and painful mass on the inner side of the popliteal space. The leg is swollen all the way down; the swelling is firm and intensely painful on the inner side, especially immediately above the internal malleolus. The external surface of leg is soft. Nowhere does the leg pit on pressure.

RIGHT LOWER LIMB.

Is symmetrical with, but not so painful as the left. The mass in the upper third of the thigh is not so large as that on the left, while that on the internal side of the popliteal space is much larger and softer than that on the left, and not painful. The external genitals participate in no way in the fatty deposit.
Are free of fatty deposit down to about the level of the iliac crests.

The right buttock is practically one tremendous mass reaching from the iliac crest down over the trochanter, and outer surface of thigh to about the middle third of femur. The whole of this area feels one solid firm mass – extremely painful and cannot be moved about. It is slightly divided into three by two shallow grooves, the upper of which is a backward continuation of the ilio-hypogastric furrow running towards the gluteal clef, and the lower groove is the continuation of the groin furrow backwards and runs towards the coccyx. The posterior border of this mass feels like a solid painful tumour in the soft fat of the nates.

The corresponding mass over the left buttock is solid and doughy to the feel, and painful about the iliac crest but below that it is loose, soft, non-painful, and extremely moveable. It can be rocked about a distance of five to six inches or can be caught up and lifted off the trochanter; it has large semi-solid lobules in its interior, and the groove coming over from the trochanter is very deep. The nates on both sides are soft, non-painful and not unduly swollen.

When on her back the abdomen has no protrusion but falls away laterally. The upper part of the abdominal wall is soft and pliable; flank dullness extends forward to well in front of the anterior
iliac spine on the left side but on the right you get the colon note immediately above the crest. There seems no enteroptosis.

HEART.

Apex beat cannot be felt. Dulness of the left border extends to 1½″ outside of nipple line. The sounds are very indistinct; aortic area first sound can scarcely be heard, second seems slightly accentuated; loudest at left border of sternum at level of third interspace. Mitral sounds indistinct no murmurs. Pulse 80, soft and full, but easily compressible. Artery wall not thickened.

Lungs show no signs of emphysema but she is very short of breath on exertion and sometimes has asthmatic attacks through the night causing her to sit up.

Tongue moist, slightly furred in centre with red papillae. At both margins it is denuded of epithelium and smooth, with a few papillae at the back still remaining in the glossitis batches.

Pharynx smooth and moist; two small patches of adenoid tissue can be seen on the back; lost teeth at forty; no trouble with her stomach; bowels very constipated.

Patellar reflex completely lost - used to be elicited if she held up her hands.

Common sensations - slight diminution of sensibility to bristly touch over the under surfaces of both upper arms and lost entirely in the hepatic zone of the left side. Pin prick, heat and cold
normal; muscularity poor, but not markedly abnormal; co-ordination clumsy more than defective.

Eyes - arcus senilis well marked, sight good, fundus normal.

Hearing good.

Height 5 feet; weight 13 stones 2 lbs.

**BLOOD.**

4,002,200 red, 5,400 white, 35% haemoglobin. Blood picture, no differential account taken, erythrocytes well formed, regular in size, and stain well. Distinct increase in the proportion of the small lymphocytes and an undue number of eosinophils.

Urine - usually passes from three to four pints in the twenty-four hours. Specific gravity from 1.028 to 1.040. Sugar from 400 to 1350 grains according to diet. No albumen.
CASE II.

Mrs. H., aged 46, Husband Engineer, consulted me first in September 1905 for severe pains in the left side, and persistent headaches. Was very stout, face of healthy hue, and save for a somewhat careworn suffering look appeared in good health. In spite of this she assured me that for some years life had been a perfect misery through pains in arms, thighs, and trunk, which often prevented her sleeping for three or four nights in succession; she flushed about the face when the pains came on. She sometimes became lightheaded and hysterical from the combined wretchedness and wished she was dead. In the last few years her memory had failed very much. The pains in back, side, and down the thigh had been persistent for the last fortnight; had always increased when she walked far, or was tired, but did not go away with rest, and even in bed came on in darting shoots which made her feel sick and faint.

Examination showed pain came from the lumbar region round over the iliac crest, down over the crest to below the trochanter, and from the crest forward round the abdominal wall to pubis. It was a narrow band, extremely painful on pressure and sensitive to light touch. The rest of abdominal wall though thick was flaccid and easily palpated.
Vaginal examination was also very easy as there was no adipose tissue in the external genitals. Pressure on the posterior vaginal wall caused pain which was referred to the surface of the sacrum. The cervix was deeply fissured on the left side and pressure on the "V" and in the left fornix caused pains, and she said increased the pain on the abdominal wall.

All the other organs were normal.

She did not pass an excessive quantity of urine. Had not to rise at night. Urine was acid, sp. gr. high, and contained a little albumen and trace of sugar, no deposit.

She had been carrying out a fairly strict dietary on the lines of the Salisbury treatment with hot water at night for the last year, but the reduction in weight had only been about 3 lbs. and she had obtained no relief from her pains.

A month later I attended her for slight attack of bronchitis and it was then I noticed the condition of her arms. I went very fully into her case, of which the following is an account, and later was allowed to take photographs.

FAMILY HISTORY.

Patient has given birth to 8 children, and had one miscarriage; five alive, of whom, the eldest aged 24, thin and nervous, suffers from epigastric pain due to hyperchlorhydria; second son aged 23, had
rheumatic fever as a boy, and has valvular disease; the third is healthy; the fourth suffers from gastritis and headache; and the youngest from nasal catarrh and headache. The others died in infancy from convulsions.

Mother was thin, subject to rheumatic gout, and headache for many years and died of phthisis at 47.

Father gouty, stout after 50, and died at 55 of erysipelas.

Patient was one of a family of 7, 4 brothers, 3 sisters. A brother and sister died of phthisis. The eldest sister very thin; brothers healthy, one very stout, subject to rheumatism.

**PREVIOUS ILLNESSES.**

Has twice had rheumatic fever, as a child of 7, and again at 9. Very thin and thought to have phthisis up to 15. She then had a severe illness, lasting three months, seemingly of a nervous prostration nature, was very weak, had pains in head and body, and hair came out. About 19 had an abscess in tonsils and occasionally since has been troubled with the same condition. From this time to the present day, subject to frequent attacks of migraine, mostly frontal. Married at 21, During her second pregnancy was much troubled with pain in the back; this has lasted off and on ever since. It used to
be only a stiff feeling and pain came on moving. Now it is almost constant pain at rest. Always had a constant neuralgia in her head during her pregnancies. About 18 years ago had an attack of angioneurotic oedema confined to the face. Lips and eye-lids would swell up suddenly through the night; only lasted about a week. The year following had a similar attack all over the trunk, which troubled her for a month. Two years ago she had an attack of herpes zoster on the left side of the chest and down inner side of left upper arm. There was a good deal of pain with it; and now faint scars can be seen in the inter scapular region about the level of the third or fourth dorsal, out across the scapula, some in the axilla, and in front near the sternum over the third left intercostal cartilage and space. Eighteen months ago the arms became painful and swollen. Menstruation started at sixteen and still continues; for the last three years it has occurred twice a month and the loss is heavy.

Always was a moderate eater. After she was forty began to feel herself getting very stout. Regulated her diet, taking very little carbo-hydrates, and has never taken alcohol; has always been active, and to within the last eighteen months has done her own housework, washing, and baking. Has got much feebler lately.

EXAMINATION.

From the under surface of lower dorsal aspect of
left upper arm a mass is hanging, this begins above in the axilla and posterior border, and in the upper part is comparatively narrow, soft, finely lobulated and like a varicocele to the feel, but as you feel down the arm the mass becomes broader and firmer and elastic in the lower third. It is excessively tender. Above elbow it broadens out until you can hardly grasp it between your finger and thumb. The firm consistency rapidly merges round the arm anteriorly and posteriorly to a softer feel. This mass is moveable backwards and forwards but very little upwards and downwards. Putting the triceps on the stretch does not affect its moveability. It does not feel in any sense encapsuled, but these borders merge off into the surrounding fatty tissue. The skin is soft all over the mass and seems somewhat adherent over the lower part, but attempts to raise it between finger and thumb causes such pain that one cannot be certain on this point. The colour over the lower two thirds of this mass is a brilliant pink, with a transparent appearance about it. This contrasts markedly with the rest of the whole arm to the wrist which is white. This colour her husband has observed for the last twelve months. There is very little blanching in the colour from the amount of pressure she was able to stand. If pressure is even gradually increased the pain becomes excruciating; she says it is like darts coming into the bone and up into the armpit.

The mass hanging from the upper arm on the
right side is almost symmetrical with that on the
left if anything not quite so large and distinctly
not so firm but as painful. The left side commenced
to trouble her about eighteen months ago. It com-
enced as a dull aching with shoots of pain like a
neuralgic on the inner side of the upper arm, severe
eough to prevent her sleeping. Under treatment pains
got gradually less in about a month, and after this
she noticed the sleeve of her house dress was getting
too tight. About three months afterwards had simi-
lar attack in same place on right arm, afterwards that
also gradually got larger.

The forearms are free except for small, soft,
flat mass at anterior surface of the right wrist.
This is painful and she has felt it so for the last
six months. There is pain in the corresponding point
in the left wrist but no swelling. There is a
moderate sized, soft, finely lobular varicose, non-
painful mass in each axilla.

There are large flat masses over the back on
each side extending from the spines of the scapula
down to three inches below the level of interior
scapula angle. These masses extend outward in a
line with the posterior border of axilla, and give
the appearance of enormous lower thoracic breadth,
which is a feature that strikes you most when you see
her dressed. The mass on the left shoulder is fairly
firm and like a stiff poultice to the feel, and she
complains a good deal of darting pains when you are
manipulating it. Mass over the right shoulder is larger
considerably softer than that on the left, and
looser to the feel, and a slight jelly-like tremor
is conveyed to it when shaken. It hangs down
further when she straightens herself than that on
the left.

Immediately over the spinous processes the
subcutaneous tissue is not thick, and with little
pressure you can feel these spines from the cervical
down to the last dorsal; here the subcutaneous
tissue becomes very thick.

Over the acromial and deltoid part of the
shoulders there is a full covering of ordinary
lipomatosus. This also extends over the upper part
of the chest.

The posterior triangles of the neck are soft
and contain very little adipose tissue. The lower part
of anterior triangles has a soft fullness over the
Thyroid Gland, and in upper part, in the spaces be-
hind the angles of jaw and under chin, there is a
soft roll giving a double chin; face full, with a
good amount of colour. The mammae are very full,
pendulous, and lobular to the feel. The right painful
in outer quadrant. The costo-epigastric furrow is
well marked, and extends right round to the dorsal
region. The narrow segmental folds between this
furrow and the inframammary-furrow above is very
full, firm, and doughy to the feel, and is very pain-
ful on pressure at the right side but not so on the
left. The abdominal wall is fairly thin in front.
above the umbilicus (which has a shallow depression), but increases in amount laterally. On the right side and in front it is soft, lobulated, and not painful, but on the left side, above the level of the umbilicus it is firm and elastic, and very painful. The fatty tissue increases very much in amount below the level of the umbilicus. On the lateral aspect it gets much firmer and is doughy to the feel. Grasping it anywhere from above downwards a roll of fat comes up into the hand like a natural segment. In front for about half way between the umbilicus and pubis the abdominal wall is still comparatively thin and soft, but the lower half gets very thick, firm and doughy, and painful. The lower level of abdominal wall is very bulging and much increased in thickness, and hangs over as a heavy bag on to the mons veneris and the front of the thighs. This fold immediately above the iliac crest is much larger and firmer on the left side than on the right. The left is also excessively painful on pressure and there is a constant pain running along it to the pubis, and, from this fold, down over the crest of the ilium behind the anterior spine to about the front of the trochanter.

All the prominence of the abdomen disappears when the patient is lying on her back; abdomen then spreads out laterally. No signs of Glenard's disease. Clear tympanitic note in front; flank dulness comes far forward on both sides.
Over the lumbar spines there is a cakelike mass which gradually increases in bulk as you trace it down till about the level of the crest of the ilium it feels of immense thickness. It merges laterally into the masses over the abdominal wall. It is soft and moveable on the right side, but on the left is bulkier, more firm, and tense, and very painful. This mass is continued down over the sacrum (a rather unusual thing in my experience) like a firm elastic cake. It is very moveable in an upward direction and painful in pressure at left side.

The lower lumbar and sacral plaques merge into large masses over the gluteal regions. The gluteal masses extend forward, being separated from the abdominal segment over the posterior superior spine of ilium by a furrow which you can feel, and which becomes visible about the middle of the ilium as described. The mass only extends to about the back of the trochanter which you can easily feel. On the right side the mass is soft, especially over the nates where it hangs as a large loose fold. This mass is freely moveable in all directions, and feels full of firmer, irregular, lobulations, varying in size from a flattened tangerine orange to a marble. One of medium size near the surface has a distinct circumscribed lipomatous feel. The mass on the left side is firm, and doughy in its upper part and no lobulation can be felt. In its lower part there is a coarse lobulation. It is not nearly so moveable
as the mass on the right. The combined masses
(the two gluteal and sacral isthmuses connecting them)
can be moved upwards en bloc and have something of an
appearance as if they had fallen down into their present position. In the external genitals and round the
anus there are no fatty accumulations and in fact less fat than you meet with in any ordinary stout
woman.

The groin furrow extends outwards only to
about the middle of the thigh, the folds on either
side between this groin furrow and the ilio-hypogastric
furrow above are large, firm, and painful, especially
that on the left side. On the anterior and inner aspect of each thigh is a large bulky, soft, pendulous
mass which hangs down in front of the thigh over a
transverse furrow situated about 4" below the labiae.
Intertrigo covers the skin, lining the furrow on
each side. The masses thus are wholly in front, and
do not pass on to the adductor surface. They are ex-
tremely soft and have the exact wormlike feel of a
varicocele. They have grown within the last twelve
months and were not preceded by pain.

Patient says that two lumps of exactly the same
soft feel but very much larger grew from the region
of each thigh between the trochanters and pauparts
ligament, and hung down like bags on the thigh. They
also were non-painful but caused her great trouble on
account of their size and position. They remained
for about a couple of years, and then rather rapidly
disappeared. At this part of the thigh there are
numerous broad, glistening striae and the subcutaneous tissue is devoid of fat. In lower half of the left thigh the anterior and inner surface is swollen, firm, and painful. The lower limbs are otherwise free from pain and swelling.

Skin dry, smooth, never perspires except in head axillae and groins. Some small dilated veins over thighs; intertrigo under the mammae in the ilio-hypogastric furrow in front, and in the groin. Numerous small fawn coloured pigmentation round the lower part of neck, and on to the manubrium sterni but nowhere else. Skin anaesthetic to bristly touch over the soft masses in front of the thigh, and sensibility to pin prick greatly diminished here. Sensibility to touch and pain normal over the rest of the body, and to heat and cold all over the body. Muscularity moderate, co-ordination unimpaired. Tendon reflex easily elicited. Sight good, fundus normal. Heart good. Tongue and pharynx normal. Teeth mostly gone. Bowels normal. Chest normal. No sign of fatty change in heart.

Urine - 2 pints in twenty-four hours, acid, specific gravity 1035. 5.5 grains per ounce sugar. 11.5 grains per ounce urea. 2 grains per ounce albumen. No deposit. Blood count 504,000 red, 6,600 white and 90% haemoglobin.

Height 5 feet; weight 13 stones 13 lbs. Weight fifteen months ago 13 stones.
CASE III.

Mrs. W. Aged 53. Wife of forman mechanic, complains of attacks of severe pains in the arms, trunk and legs.

FAMILY HISTORY.

Patient was married at 24 and has given birth to 5 children; no miscarriages; the first was full time but still born through the difficult labour. A boy died at 11 from tuberculosis peritonitis; the three others, 2 sons and a daughter, grown up and have always been healthy.

Husband always in good health. Mother was of a strong constitution, very stout, died of apoplexy at 62. Father always asthmatic, and died at 67 from chronic bronchitis. Patient is one of 8, of whom besides herself three sisters and one brother are alive.

The older sister has been crippled for the last 12 years with pains in her legs, she has always been thin; her other sister is stout and healthy, brother healthy but not stout. Of those dead, a brother died at thirty-nine in an asylum, one sister died at eighteen of phthisis, another of rheumatic fever and heart disease at twenty-one, and another of congestion of the lungs at twenty-five.

PREVIOUS ILLNESSES.

Had scarlet fever and measles as a child;
rheumatic fever at twenty-one; was always thin and wiry, and able to do a lot of house work.

The menstrual flow began at sixteen and was always regular save for pregnancy and lactation up till she was forty-nine when it became irregular, and after four severe floodings ceased at fifty. During her mensis usually had severe frontal headache.

Patient has usually a poor appetite but if in the country it much improves. Since taking ill diet has been regulated, but potatoes, bread, tea and sugar used to be favourites. Never used beer or spirits.

PRESENT ILLNESS.

The conditions of which she now complains started in March 1892 with severe pain in the left upper arm. Previous to this had been attending on the youngest boy who was suffering from tuberculosis peritonitis. Laparotomy had been tried, and as she was devoted to him, she was thoroughly run down with nursing. Five week's after the child's death I saw her for a pain in the arm. She was very anaemic owing to onset of metrorrhagia which had occurred in the interim. The pain was of a neuralgic type running down the inner side of the upper arm, and later down into the ulnar side of forearm and fingers. A week later it commenced in the corresponding situations on the right side. Condition was complicated by a return of metrorrhagia which was very severe and for which a vaginal examination revealed no cause. The pains
continued better and worse for about three months, nothing giving her much relief. The question of lead neuritis was raised by Dr. Oliver who saw her in consultation, but there was no blue line and no other symptom, and nothing in her surroundings to verify the suspicion. She became mentally much depressed and kept brooding over the loss of her child. Ultimately she improved enough to enable her to go up amongst the Cumberland hills to stay with friends for the summer.

She improved very rapidly there, and I did not see her again until the following autumn; she was then stouter than she had ever been, but still complained of a feeling of tingling in the arms. She was suffering then from angio-neurotic oedema of lips and eyelids. This proved very troublesome for about six weeks, the oedema suddenly coming on accompanied with burning pain, and each batch lasting about twenty-four hours.

The following April she was suddenly seized with severe darting pains in the right side which seemed to start above the iliac crest but "deep in" as she described it, and to shoot down the front of the thigh. Along with the pain there was considerable irritability of the bladder. The urine came to a little under two pints, was acid, specific gravity 1028, no blood, albumen or sugar; occasional deposit of urates. In a little time a similar painful condition came in the other side, and then later
the old pains came back in the arms. The upper arms I noticed were enlarged on their inner side, elastic, very tender, and pink on the surface. I took this at the time for inflammatory exudation, but the bulk has never gone away, only become lobulated and now is very painful only at times.

In spite of the absence of articular involvement I suspected rheumatoid arthritis, and sent her the following June to the convalescent home in Harrogate for the baths. She was there a month and returned much improved. For the next ten months remained comparatively well, only arms and fronts of thighs remained tender, and had occasionally rheumatic twinges in shoulders and down back.

In January 1904 there was a return of the irritability of the bladder which was better in a fortnight. I noticed then that she was very much stouter. In the following March had an attack of bronchitis which confined her to her room. One evening during her convalescence she was seized with severe pain in the abdomen; pain was in the left side coming round from above the iliac crest and running forward to a little below the umbilicus. The skin was tender to touch and the left rectus was tense. She was perspiring profusely and there was a dusky flush over the face and brow; pulse 84 full and steady; temperature normal; tongue clean and moist; bowels had opened that morning and there was no tendency to sickness. I gave her
calomel and saw her again in two hours. She was much better. Pain was still in the same parts but she could stand examination and it seemed superficial. The skin was excessively tender when you raised it between finger and thumb. She also complained of pain near the crest of the ilium on to the thigh. Next evening had an attack very similar in character but on the right side, a little higher up on a level with the umbilicus. Had similar attacks daily, sometimes at one side, and sometimes at the other, for a week. They showed a periodicity coming between 7-0 and 8-0 p.m. and caused her to flush over the face and perspire freely. Never any temperature but there was a slight heightening in the pulse tension during the attacks.

Urine was normal. Daily evacuations of the bowels of a loose character. On the eighth day commenced atrophine (a 90th grain daily at midday) and the attacks ceased. During this attendance I noticed that the amount of fat in the abdominal wall was increased especially over the lower part. The abdomen was easily palpated and neither Mr. Morison who saw her in consultation nor myself could find any signs of organic diseases. The front of the thighs were much enlarged out of proportion to the rest of limb, and the upper arms had increased much in girth. In the middle of May while preparing to return to Harrogate for the baths she was attacked by violent pains in the front of the thighs, first in
the right, and a week after in the left. These pains were in the lower half of thigh and more towards the adductor surface, extending down past the knee and gradually the whole of the inner and front surfaces of the leg were involved and darts went down to the dorsum of the foot. The whole was a dull ache with occasional darts like toothache. The skin over this area was excessively tender and movements voluntary or passive caused pain. A swelling appeared on the inner side of each knee, and extended somewhat into the popliteal space and down the inner side of the leg. There was a pinky erythema over the swelling in the legs. She had a good appetite for the food she was allowed to take. She was at first given Iodide of Potassium in ten grain doses, but as this failed to subdue the pain she was put on Asparin (10 grains) four times a day, which gave her speedy relief. The skin was at first hyperesthetic over the painful areas but became anaesthetic to light touch; there was no apparent loss of power in the muscles. There was no Babinski and the knee jerks when she was able to be tested seemed slightly exaggerated. She was able by the end of the second week in June to go to Cumberland where she stayed two months and improved greatly.

I did not see her again until the end of last October when she developed a slight attack of herpes with vesicles scattered in small irregular batches over the posterior half of the right iliac
The image contains a page of text with some content, but it is not legible due to the quality of the image. There is also a photograph on the page. The text appears to be discussing a topic, but the content is not clear enough to transcribe accurately.
crest, down behind the trochanter, round on to the front of the thigh about the junction of the upper and middle third. I was struck with the development towards obesity which had taken place since I had seen her five months before. She assured me she had been particular about potatoes, fat, and sugar, but that her appetite had improved so much she had come to eat more heartily than formerly. She often had had dull aching pains in the arm, some part of the trunk, and thighs, and some places were constantly sore on pressure. She was looking well, less careworn and haggard than formerly, her face had filled, and breasts much fuller, adipose tissue over the hips and buttocks enormously increased. The fatty masses on the inner side of the knees extending into the popliteal spaces had increased. The mucous membranes were a richer colour than they had been for long. She could go about fairly well but exertion made her muscles ache.

January 12th 1906. The following is a description. Right upper arm has a firm feeling over the deltoid, and down the outer border. On the under border a mass extends from the axilla and its posterior border down to the elbow; this is soft, lobular, and not painful near the axilla; firmer but painful towards the elbow. It extends as a distinct cord or small roll over the elbow joint and down along ulnar border of the forearm to below and in front of the styloid process of the ulnar. Left
arm symmetrical but the cord along ulnar is not so full. Large soft masses in each axilla, which, when the arm is brought to the side, project forward on to the chest wall. **Infra-mammary furrow** when traced dorsal-wards passes the posterior axillary border. The breasts are firm pendulous and painful. The **costo-epigastric furrow** passes round to below the angle of scapula. The segment between these furrows is firm and painful on the left side. After the furrows disappear this segment can be traced by the fingers as a roll that extends back to near the spine. The **ilio-hypogastric furrow** extends laterally to midway between the anterior and posterior spine of the ilium. The abdominal wall can be grasped into segmental rolls with their long axis transverse to that of the trunk. The wall is comparatively thin above the umbilicus and laterally, but enormously thickened in front immediately above the iliac hypogastric furrow.

When placed on her back the abdominal wall collapses in front and expands out laterally. If the abdomen is shaken with the patient in this position it has a jelly like feel. There is a tympanitic note in front in the epigastric, umbilicus, and hypogastric regions. The stomach area can be percussed out and shows no alteration in position or enlargement. On the left flank dulness comes well forward to about 2" internal to the anterior iliac spine. It continues at this forward level all the way up the abdomen to the ribs (about 2" internal to the nipple line)
On the right side the colon note extends from the anterior spine to the anterior axillary line. The liver does not extend below the costal margin. The lower border of abdominal wall is very thick all the way round, especially in centre, also extremely painful.

The groin furrow (patient in the erect position) extends up to immediately above the trochanter and is continued backward as a broad groove which curves round above the trochanter (very deep on the right side but shallow on the left). The roll-like mass between the ilio-hypogastric and groin furrows is firm and painful on each side. On each side over the hips a large irregular oval mass covers the trochanters and extends half way down the thighs, clothing the outer and reaching a little on to the front of the thighs. These are firm and elastic to the feel, moveable and circumscribed like huge flat lipomata. That on the left side is much the larger.

In the buttocks the upper masses, above the grooves running from the trochanters towards the coccyx, are of great thickness, soft, and coarsely lobular. The masses below the grooves are firm and elastic above, but soft along the nates.

Themons veneris is slightly enlarged but the labiae are natural.

The naturally soft adipose tissue on the front and adductor surface at the top of the thighs has not increased.

There are large firm elastic masses on the
adductor surfaces in the lower third of the thigh, and very large ones on the inner side of knees continuous with those above and sending prolongations over the inner part of the popliteal spaces, and others over the heads of the tibiae to inner side of legs immediately internal to the shin bones and extending downwards as far as the middle of the legs. These masses are firm, doughy, and slightly painful on the left, extremely so on the right side. Of the masses in the popliteal spaces that on the right side is much the larger, but the mass on the inner side of left leg is greater than that over the right.

On the right side arising from the outer part of the groin furrow and extending down the front of thigh and inward about the middle third to join the mass on the adductor surface, is a large firm cord-like mass extremely painful to touch.

Over the back of the thighs between the gluteal folds and popliteal spaces the adipose tissue is much softer, the layer is not thick, and the hamstring muscles can be differentiated when put on the stretch. Hardly any subcutaneous fat is found over the outer surfaces and lower inner surfaces of legs and dorsum of feet.

The skin has become very dry of late but feels soft. Seldom now perspires and then only over face, front of chest and in the axillae. There is intertrigo under the mammae and in the ilio-hypogastric and groin furrows; marks of the herpes can be seen
on the right thigh. Numerous dilated vein radicals and arteriols are scattered over the thighs, buttocks, and lower abdominal wall.

Heart sounds are distinct and normal; area of heart not enlarged; pulse 94, full, and regular, slight thickening of arterial wall; slight arcus senilis is present. Conjunctival and lip mucous membranes good colour. Tongue clean and healthy. Teeth dropped out without caries two years ago; bowels constipated. Eyesight still good, nothing in the fundus.

Cutaneous sensibility is lost to bristly touch over the upper and inner parts of leg and inner sides of knee on both sides. The outline of anaesthesia is very sharp. The same condition is found on inner side of left upper arm but not distinct on the right; normal over rest of body. Sensibility to pin prick, heat and cold, acute all over body. Patellar reflex unimpaired. Muscular sense good; muscularity has become feebler within last year.

Urine - 38 ounces in twenty-four hours. Specific gravity 1030, acid, deposit of arates. No albumen or sugar.
CASE IV.

I was called on January 18th 1904 to attend C.A., aged 51, maiden lady, a teacher, who was complaining of swelling of legs, abdomen, face and neck, accompanied with great enfeebleness.

Though I had never attended her medically we had met often two years before and I was at once struck with the alteration in her appearance.

She had been a slim woman with a slightly noticeable deformity over the left shoulder. Her face was long, cheeks had colour and were slightly full. She possessed a family characteristic in having large, and slightly prominent eyes which gave an alert intelligent expression to the face. Her disposition was towards constant activity and her spare time was spent in good works among the poor.

Now she had a dull heavy expression, her face was broadened out by pads over the malar bones. There was ptosis of the upper eye lids which were also full and swollen. Her cheeks, eyelids, and forehead had a purple hue, and her hair was dull and stubbly through many of the hairs being broken. Except for the colour of the brow and eyelids the facies was typical of an advanced case of myxoeedoema.

FAMILY HISTORY.

I had attended many of her immediate relatives
and knew her family history medically. Father gouty, stout, died of paralysis at 77. Mother died at 61 of cystitis after cerebral embolism; had been rheumatic. One brother slightly alcoholic, gouty, and stout; another stout, suffers from cirrhotic kidney though he has always been temperate; another thin, is highly neurotic with attacks of tachycardia; youngest stout, is never out of health.

Eldest sister used, up to 45, to suffer from migraine; the headaches have now discontinued, but she now suffers from hyperchlorhydria with accompanying gastric pains and is thin; second sister stout, suffers from tachycardia and pseudo-angina. Youngest sister is thin and never out of health.

Patient had measles and scarlet fever as a child; at 11 started to grow rapidly and developed dorsal scoliosis; at 15 was laid up for some months with large furuncular abscesses, which came on, one after another, over loins and shoulders; since then she has been subject to abscesses of a like nature coming in groups on trunk, neck, scalp, arms, and legs, and her back is a mass of scars from them. Suffered from periodic attacks of migraine till about six years ago; it commenced with her as a child; she seldom vomited from the attacks. Since the migraine has left, has suffered occasionally from attacks of true darting neuralgia pains in the temples but sometimes parital and occipital. For the last 18 years has been subject to rheumatic pains in the arms, back,
trunk and legs; the pains did not lay her up but sometimes the twinges were very severe; but she has felt them very little since commencement of present illness. Within the last 10 years has had three peculiar attacks of the nature of an epileptiform neuritis; the first was in her back and down the left sciatic; the pain was terrible, came in darts, and prostrated her completely; it only lasted some 18 hours, and next day she was quite well. The two more recent attacks were of much the same nature but in the arms and hands down to the fingers; they lasted about the same time.

Menstrual flow began at 16, was regular and unaccompanied by pain, and she passed through the menopause at 47. Up to 48 she taught in her sisters private school and for the last two years had an easy situation as governess with family in the country. Though enjoying good relish for her food had always been a moderate eater; always most abstemious with regard to alcohol.

PRESENT ILLNESS.

Had come on some twelve months before I had seen her. Found herself becoming drowsy and lethargic, dropped off to sleep suddenly at her work; very little exertion made her breathless and legs became feeble and began to swell. Had to give up teaching at last through sheer loss of memory. When her sisters saw her the face had assumed its present
expression; she was much stouter, especially about the hips; the legs were swollen; and large swellings had come in the root of the neck. Patient says she had noticed fulness in the neck herself, quite six months before she felt any change in her general health. The Doctor who had been attending her, sent me a short account of her case. He had never found a trace of albumen in the urine. She had been taking thyroid for three months without any benefit. He had thought at first of the possibility of sarcoma of the mediastinum secondarily affecting the neck, but time, bringing no increase of symptoms, had put that possibility out of count.

Notes taken during the first week describe her condition.

FACE - great vaso-motor dilatation of small veins and arteriols over chin, lips, nose, cheeks, eyelids, forehead, and sides of face, and ears. Veinules predominate over cheeks, nose, and upper eyelids, giving these parts a bluey tinge; other parts looked flushed and red. Nose is not broadened, cheeks are superior puffy and soft over maxillae, firm and smooth over buccal region and lower jaw. Palpebral fissure much narrowed from ptosis adiposa; eyeballs seem unduly prominent even for her; movements normal in all directions; conjunctiva normally injected; upper eyelids very full, rather firm to feel and cannot be elevated off the cornea on account of the
condition of the lids. Skin over forehead thickened, firm and arched furrows over the eyebrows from attempts to raise eyelids. Large pads over the malar bones and zygomae which broaden out the face considerably; the skin over these is soft on the surface but deeper structures feel doughy. Ears thickened; hair dull black, dry, very scanty, and many of those in front broken. Mucus membranes of lips externally where dry and exposed have a bluey tinge,--internally injected, red and natural.

NECK.—anterior triangle full and firm, to a little above sternum; some extra fulness over thyroid but gland itself cannot be differentiated. Large prominent tumour-like masses occupy the posterior triangles of neck on both sides. These rise up from the side of neck having a slight depression between; their smooth round surfaces are directed up and outwards, appear somewhat oval, antero-posterior diameter about 3"; while lateral diameter from neck depression outwards, towards acromion is somewhat less (2\(\frac{3}{4}\)"). They are very soft with a somewhat fluctuating feel, skin over them non-adherent and covered with dilated capillaries; they look circumscribed but when you examine them they merge off into a denser surrounding tissue that fills up the rest of the triangle; the right is a little the larger.

Arms soft and thin in proportion to body. Hands and fingers broadened out, firm, and the hands somewhat spade-like. Left shoulder blade projects a
little at lower angle from dorsal scoliosis.
Interspaces slightly wider on this side of chest.
Subcutaneous tissue over front and back of thorax
soft and small in amount. Mammas soft and pendulous.

Below waist there is great increase in bulk;
abdomen prominent when she sits up, but lying on her
back it falls away in front and broadens out greatly
laterally; abdominal wall soft in front above umbili-
cus, while laterally and in front below umbilicus the
wall very firm. Hips and buttocks much enlarged and
firm. Large firm swelling over the trochanters.
Inner sides of lower half of thighs swollen and firm.
These swellings did not pit.

Surface of thigh and hips thickly covered with
dilated capillaries. Legs are like solid cylinders
as far as the ankles, do not pit on pressure. Soft
puffy swellings covered with glistening skin appeared
on dorsum of both feet; these pit on pressure. Pit-
ting occurred nowhere else over the body.

Very rarely perspires; skin dry all over the
body; soft and smooth over face and neck, glistening
and slightly harsh over arms and chest; smooth and
pigmented with brown spots over the abdomen and thighs.

Tongue red, margins smooth, glazed, and denuded
of epithelium and papillae; irregular band of natural
epithelium down centre. Teeth mostly gone.

Interior of mouth is not swollen, but she com-
plains of pain, and a feeling of swelling on both
sides, in the alveolar margin of lower jaw in front
of the masseter. Good appetite, feeling of dryness in the throat, digestion good, bowels had become very constipated.

She had felt herself getting steadily feebler for the last nine months. Very little exertion such as going slowly up to her bedroom made her breathless, but she got on fairly well on the level at a slow rate. Complained that something at times seems to be pressing on her throat at the root of the neck and makes her feel as though she would choke. The feeling would last for a day or two at a time and was independent of exertion.

Feeble apex beat felt in 5th interspace little external to nipple line. Left dulness extends to 1 1/2" outside the nipple line. First sound in aortic area feeble, second sound distinct, heard loudest over sternum at level of third interspace. Pulmonary first also feeble though louder than that over the aortic, 2nd sharp and reduplicated. Mitral area, first sound distinct, second feeble, rhythm regular; no murmurs in any of the areas; pulse 86, regular, soft, and easily compressible; radial wall slightly thickened; arcus senilis well marked.

Temperature by mouth, for over a week, varied from 97.4 to 98.

There is a perfectly dull note over the manubrium sterni and extending about 1/2" on either side. On right of this dull area Eustace Smith sign is well marked when head is bent backward and increases to a loud
humming bruit.

Her sight is good, but she complains of dark shadows coming in front of the book when reading, and sometimes dark grotesque shadowy forms suddenly appear when she is sitting doing nothing and give her a fright. They are often like large dogs but always have something unnatural in their appearance.

Hearing less acute than it used to be, especially in left ear and sometimes tinnitus aurium on this side. Tendon reflex difficult to elicit. Slight Babinski on left toe, neutral on right. She is slow and rocking in her walk and keeps feet well apart as if to steady herself; sleeps well, sometimes is very drowsy through the day; occasionally is troubled with frontal headaches.

Her appearance is placid, and she does not appear to be anxious about her condition. Memory has failed very much and often has trouble in naming friends and articles that are quite familiar to her. Soon tires of reading, because, she says, holding the book tires her arms and the shadows come on (the upper eyelids come down) and she loses the place. She likes talking to her friends but is sensitive of her appearance with people she does not know very well. Some days will sit doing knitting or playing Patience by the hour, while other days she cannot concentrate her mind on anything. Her utterance has changed from rapid to deliberate; her voice has not altered, it is feeble, rather squeeky in tone.
which never varies except to go to a higher pitch if she tries to hurry her utterance. Often has great difficulty in pronouncing some words and will persist in mumbling them over until she gets them to her satisfaction. Sometimes in answer to questions about herself which require long description, she will start in a rapid jerky tone, the sense all right at first, then she gets unintelligible and comes to repeat the words over and over, she seems acutely conscious then of her difficulty and annoyed with it, and at last appeals to her sister with "You'll tell him"; if she talks deliberately she seems to follow her thoughts all right.

Patient has not to get up at night to pass urine. Urine, 42 ounces in 24 hours, acid, sp.gr. 1022, no deposit, urea 9.5 grains to the ounce (403 grs.), no albumen, or sugar. Urine was examined weekly for two months and then irregular but on an average every month; sp.gr. varied from 1015 to 1025. No trace of albumen or sugar were ever found until the week before her death when albumen appeared.

In going into this case I was convinced my first impression was right – that it was one of myxodoema. Against this was the flushing over the brow soft feel over the upper part of cheeks, and ears; absence of thickening in nose and lips, absence of thickening in skin on chest and arms; the want of a nasal tone of voice, and the fact that she had been treated with
thyroid without result. The large supra-clavicular pads I had never seen anything like except in case of old standing myxoedema or cretins about the puberty in the days before Thyroid treatment was known.

I sent her to bed so as to be able to push thyroid without fear of her weak heart and kept her on thyroid for 8 weeks with the result that the swelling went from the dorsum of the feet, but that was the only difference observable at the end of the even time, and it did not increase her heart rate.

On the 11th March Dr. George Murray saw her in consultation and expressed his opinion that the case was one of adiposis dolorosa.

It is true she suffered slight pain on pressing a roll of skin and subcutaneous fat between finger and thumb in the lumbar region of her back, forwards round the flank, and on the thighs, but the pressure had to be fairly distinct and there was nothing that one could call tenderness. The masses over the trochanters were large and disproportionate to the rest of the thighs and that on the right distinctly the larger. The masses on the adductor surface form tumours behind the knees that encroached on the poplateal spaces. The swelling in the legs was firmer on the inner side especially above the internal malleolus. There was a great disproportion in the figure between the large amount of fat in the legs, buttocks, and lower half of trunk, and the almost absence of fat in the upper thorax and on the arms; there was
the history of former rheumatic pains, and the peculiar epileptiform neuritic attacks; but certainly neuritic pains, and tenderness in arms, trunk and legs was no feature of her present illness. I never, unfortunately, made systematic examination of the cutaneous sensibility, but trial with head, and point of pin over surfaces of the legs, trunk, and arms, at rather wide intervals apart showed no change.

In my own opinion the condition of the face and hands would preclude it from being classed as a true case of adiposis dolorosa, as in these respects the case markedly differs from the original description of the condition by Dercum, who first drew attention to it.

The after history of her illness threw no light on the condition. Her appearance varied very little and the myxoedematoid character was always present.

Treatment at first consisted of heart and general tonics and regulation of the bowels. As the weather got warmer she improved in strength and became more interested in her surroundings. She went to the coast in the middle of May and remained until August. I saw her on her return and found great improvement; she moved about more easily and her conversation was almost animated, but when she tried to talk quickly the same old difficulty with her words was apparent. Against this the supra-clavicular pads were more prominent. While away she had, when the weather was warm, been out a good deal and had taken
walks of a mile at her own rate, with rest, without fatigue.

On the 16th October saw her for a choking sensation in the throat. I found back of the tongue, pillars of the fauces, and back of pharynx covered with a thin layer of white membrane. On trying to remove some of it with a teaspoon a tough dry cordy surface came away easily, but a thin white pellicle still covered the mucous membrane. There was no swelling of the underlying structures and no undue reddening of the adjoining mucous membrane, no temperature and no alteration of pulse. Only inconvenience was feeling of dryness in the back of mouth which caused swallowing to be difficult and a sense of impending choking. Specimens were taken and glycerine and borax to paint over the membrane prescribed. Next day the whole mucous membrane could be swept quite clear with a swab. Microscopic examination after treatment with a drop of liquor potassae showed the mycelium and spores of thrush, and the report of the cultivation from the college laboratory was negative to diphtheritic and Hofmann's bacillis. This was the most extensive case of thrush I ever saw in an adult and though there was no dental caries and every care was taken of the mouth, the condition returned frequently and gave her a good deal of discomfort.

I noticed that now the tongue was quite denuded of its epithelium and papillae down the centre as
well as the margins, glazed, red and smooth. The mucous membrane of the posterior wall of pharynx was thin, dry, and glazed — an extreme condition of atrophic pharyngitis — without a vestige of tonsil or glandular tissue. A Complete absence of gland tissue may have accounted for the constant recurrence of thrush.

A blood count at this time suggested by the condition of the eyes slightly resembling a case of chloroma, gave 4,800,000 red, 6,200 white, 85% haemoglobin. No blood film was taken. I was induced by the cardiac condition and the vaso-motor dilatation of the surface arterioles to try adrenalin.

Starting on the 25th August with m III. (Park Davis) four times a day, it was gradually increased until by 10th September she was taking mVII. This dose was continued until 2nd October when the adrenalin was stopped. It had absolutely no effect on her heart, surface arterioles, stomach, bowels, supra-clavicular pads, swelling in the face and body or on her asthenia or her mental condition. She had no subjective sense of well-being, and when it was suddenly ceased felt no difference.

There is nothing of interest in her condition in the autumn of 1904 and winter of 1905, beyond the fact that she became more drowsy and lethargic, and less inclined to move about. She developed frontal headaches which came on every third or fourth day.
An ophthalmoscopic examination showed that there was no alteration from normal in the fundus and the urine remained normal.

In December she had an attack of irritability of the bladder for which nothing in the urine could account.

Her muscles became more feeble especially the extensors of the thighs, she became unable to rise up off her chair unless she had her hands on the table or mantelpiece.

During the whole of January was taking varium tabloids (Burrough & Welcome) - an ovarian extract - up to grs. XLV in the day but without benefit.

Her strength improved somewhat in April but she became more subject to choking attacks from what she called "the lump in the root of neck". Flat, superficial, subdermal, dissecting whitlows full of sere-purulent fluid affected the points and nails of three fingers.

May 13th. Cellulitis appeared on upper and inner part of left thigh, had arisen through slight intertrigo of left labia; temperature was slightly up. Had a severe rigor that night, and next day temperature was 103, pulse 120; upper part of thigh much swollen, erethema extended into lower third. On third day from rigor the cellulitis had extended down over the dorsum of foot to toes. Surfaces over the patella and both sides of knee boggy to the feel; two incisions were made under a local anaesthetic and
sero purulent fluid poured out. Fourth day small dark spot on dorsum of foot, freely incised but in spite of that the whole skin and subcutaneous tissues over dorsum sloughed, leaving subsequently the tendons and short extensors bare. Account on the sixth day showed a leucocytosis of 22,000, chiefly polymorphs. The cellulitis never spread on to the abdominal wall or buttock. Temperature never rose above 103, and on the tenth day from the rigor was normal. Considering the large amount of skin which sloughed on the foot the wound did remarkably well and that without the necessity of skin grafts, she had lost a considerable amount of fat shown by the folds of loose skin over the thighs and abdomen, but by the first week in July that had disappeared and she was feeling better in herself than she had been for nine months; was able to do more knitting and was very cheerful. The supra-clavicular pads increased greatly in size and became soft.

I found that her sisters who were her constant attendants had, from observations extending over 15 months, come to attach some health barometric importance to these pads, viz., that when she was cheerful and feeling well they were large and soft, but when she was depressed, and weak, and lethargic they were small and firmer. They asserted the pads sometimes varied considerably from week to week. As I had not examined them with any regularity I cannot say what truth there is in the statement.
The foot had healed by the end of July, and the flat sinus over the knee was sound by the end of the first week in August.

On the 28th August while suffering from thrush over the pharynx she took a rigor which proved the onset of pneumonia. Albumen for the first time appeared in the Urine. The adipose tissue seemed to fall away during her illness and she died at the crisis on the 6th September.
Taken 24 hours after death, makes the body free from absence of rigor mortis. The appearance of head and neck changed completely after death.
POST MORTEM

Autopsy twenty hours after death. Face pale; the exophthalmic protrusion of eyes and puffiness of upper lids has disappeared; swelling at the zygoma also gone; the supra-clavicular pads reduced to seemingly a quarter of their usual prominence. Post mortem rigidity markedly absent in limbs, body, and face; jaws dropped when the binding napkin was loosed; all the limbs peculiarly flaccid and soft to the feel; on pressing fingers over supra-clavicular pads the resultant pits only retained their character for about half an inch.

This also applied to the limbs down to the hands and feet, the backs of which were full and glistening and on being pricked serum exuded; this occurred nowhere else. Post mortem lividity at the usual dependent parts was very slight, and could only be noticed by contrasting it with the yellow colour of the skin at other parts.

There was no fatty tissue between skin and insertions of this sterno mastoids. In front of the thyroid gland and to a slightly less degree of thyroid cartilage there was an unusual amount of fatty tissue. This was loosely packed in its stroma, was of a greenish yellow colour, and a glistening serous surface, oily appearance and a greasy feel — much more soft and greasy than a surgical section in a highly adipose person feels. In section over the thyroid gland
and cartilage the adipose layer had on first look a slight appearance of lamination, but on close inspection one could make out that the connective tissue elements were increased into a coarse loose stroma and that in the areolae the fat lay, not in globulation, but as a yellow green oil, completely filling the meshes and each mesh having a concave glistening surface on the section. With a lens you could see that in these large spaces was a network system of fine strands that seemed to hold the oil in. There seemed to be the same arrangement wherever this oily green fat occurred. Scattered irregularly through this fatty layer were a few formed globules of an orange colour without the green shade. These varied in size from a rice grain to a marble. The stroma seemed to encapture them and they could be picked out quite easily. They were soft and oily. No serum exuded on section; a like thick yellow green deposit of fat filled the upper part of anterior triangles.

The whole of the posterior triangles were filled with a similar loose, friable, yellow green, oily areolar deposit, but under the supra-clavicular pads large globules, some as large as walnuts, of a soft yellow fat were found.

There was no sign of definite capsule round them such as you find in a fatty tumour. They were lying in a stroma which seemed a widened out of the stroma of the surrounding adipose tissue, and were so soft
that they broke down on the gentlest handling. Absence of green shade in their colour made this fat conspicuous and I picked out the globules over the left pad, and altogether they made a mass that would almost fill a tea cup. The deposit of the yellow fat took a downward direction between the first rib and the scapula.

There was a denser adipose layer of great thickness between this and the pleura.

The minute arteries (these the size of darning needle and less) running in the deeper parts of the adipose tissue of the neck, were markedly atheromatous in some parts of their lengths; you could get them easily by feeling with finger and thumb among the fat. They were slightly beaded to the feel and gritty to the knife. This condition seldom extended more than 1½" to 2" along their course; they were very numerous about the pads; some beaded twigs also were seen running up to the capsule of the thyroid gland, and one up to the left superior para-thyroid. Thyroid gland was uniform on both sides; each lobe measured 1½" long and ¼" broad; gland was muscle red in colour, moderately soft in consistence, section fibrous, with a small cyst occupying upper part of lobe on each side.

The subcutaneous fat over sternum and abdomen was of oily yellow appearance and except for its softer and more oily nature approached more nearly
to that you get in ordinary surgical section.
Layer over the sternum was only about half an inch in thickness; this increased slightly towards the mammae; the pectoral muscles poorly developed. Layer of fat over abdomen increased to about 1½ between sternum and umbilicus, and again between umbilicus and pubis.

Nowhere in this subcutaneous fat were any atheromatously beaded vessels found.

There was a loose areolar attachment between posterior wall of sternum and fat in front of trachea. Right pleura was free. On the left there was half a pint of clear serum and no adhesions. The left lower lobe solid but no signs of pleurisy. On removing viscera en bloc a slight deviation of fourth, fifth, and sixth dorsal vertebral bodies towards right became visible; no signs of old caries in bodies or discs of the vertebrae.

There were four or five small irregular, calcareous masses situated in the space behind the left bronchus where it entered the lung; and were attached by fibrous adhesions to the lung. No other signs of old or new tubercular mischief found anywhere.

Glands behind the right bronchus were normal and deeply pigmented.

Occupying the whole of the post mediastinum but chiefly surrounding the lymphatic glands was a large amount of olive green oily fat of a loose
character amongst which the glands lay embedded. This extended upwards amongst the large vascular trunks merging in the heart.

Immediately in front of the trachea and partly embracing it and extending from the bifurcation to the sternal notch was a mass of yellow fat, 2 1/2" long 15 1/2" wide, 16" thick antero-posteriorly in its upper half; it felt like a solid lipoma but was not encapsuled. Its margins though strictly circumscribed were continuous with the soft fat round the large vessels. Its exact position with regard to the trachea was in front in the lower part, and in front and moulded round the right side above. The left innominate vein traversed it laterally in the lower half, nearer to the anterior than the posterior surface and must have made it bulge antero-posteriorly in life. On transverse section the mass was composed on the surface, of solid yellow fat arranged in coarse layers from before backwards; towards the centre the layers became finer and the section surface was vascular and glandular in appearance. Between this mass and the trachea and embedded somewhat in its posterior surface was an up running chain of small highly pigmented lymphatic glands.

Anatomical text books give the thymus as passing down in front of the large vessels. From the position of this mass with regard to the left innominate vein I concluded it could not be a persistent thymus and did not make microscopic sections when fresh for
vestiges of thymus tissue. Since then I have made careful dissection of thymus in five children under two and a half years, and in one case which had two long lobes to the thymus the posterior, which I took to be the left, extended down behind the left innominate vein, while the anterior lobe (right) extended down in front of it. The lobes thus being like a saddle over the vein and approximated below it. As to the rarity of this anatomical variation I cannot speak. By looking for it I have found it in one in five, the number I have as yet been able to examine.

For a short space on each side of the coronary arteries there was a thin layer of yellow fat from which surface numerous pedunculated, yellow, oily looking globules of fat were hanging into the pericardium; the size of the globules being about that of a small grape. Walls of the cavities had undergone fatty degeneration, were friable and thin. Walls of coronaries seemed thickened. A small atheromatous patch was seen on the auricular surface of one of the mitral valves. Pulmonary valves extremely thin and translucent, and between their two endothelial surfaces were little bubbles of gas.

Omentum was remarkably small, had shrunk to the dimensions of a transverse band about 2½" wide, and at its thickest about ½"; it was dirty white in colour, dense, and not greasy to the feel. Posterior surface was smooth; its anterior surface
was relatively smooth but was divided up by narrow deep furrows which ran irregularly transversely and up and down and gave the surface a somewhat tessellated appearance.

Liver was normal in size, showed signs of fatty degeneration. Appendices epiploicae were dirty white, but small and shrunken.

A most striking feature in the abdomen was the enormous amount of perinephritic and retro peritoneal fat. This was of the same greenish yellow colour as that described and had several small yellow globules scattered through it. The stroma was extremely wide and loose. This fat was softer than that in the neck and quite oily to the feel; it filled each flank from the ilium up to the diaphragm and rose above the level of the anterior iliac spine. It extended inwards over the vertebral bodies, behind the stomach round the mesenteric arteries, and into the mesentery of the small intestine for a short distance.

The suprarenal capsules were in this fat, but close to the peritoneal surface, a small part of the right being covered by peritoneal alone; they were widely separated from the kidneys which were situated deep in the fat in their proper anatomical positions with regard to the posterior abdominal wall and had very little perinephritic fat behind them. Scattered in the fat in front of the kidneys and behind the
suprarenals were numerous small red glandular masses mostly about the size of rice grains but some almost as large as a pea. Numerous arterials in this fat were atheromatous in length about 1½" and of the same beaded character as those in the neck; a larger one could be felt coming up from the kidney region and entering the capsule of the left suprarenal.

The suprarenals themselves were normal in shape, much enlarged, thickened, more firm than natural, and the colour of the surface was dark reddish brown something like the chocolate colour of the natural medullary part but with a red tinge. The right capsule had a width of 72 m.m., length of 64 m.m., and thickness of 10 m.m. Left capsule had width of 70 m.m., length of 38 m.m., and thickness of 9 m.m. This shows considerable enlargement of both suprarenals as according to Orth (46) the dimensions of the normal adult suprarenals are, a width of 40/55 m.m., length 20/35 m.m., and thickness of 2/6 m.m.

Kidneys normal in size, paler than natural from fatty changes, section also paler than natural, slight wasting of cortex, capsule peeled off easily leaving a smooth surface. All the other abdominal viscera appeared normal.

There was a very little yellow fat in the pelvic meso colon and some small flat flakes of subperitoneal fat of the same colour over the fundus and upper posterior surface of the uterus. The rest of the pelvis above and below brim was conspicuously devoid
of fat.

The ovaries were pearly white and hard, surfaces wrinkled and in section cirrhoted; the left which was the larger was the size of a small walnut; the other organs of the pelvis appeared normal.

I was unfortunately requested not to open the brain and spinal column, and the specimen containing trunk and terminal filaments of ilio-inguinal was by mistake put into the abdomen.

MICROSCOPIC EXAMINATION.

Mr. C. L. Eastes of the Pathological Laboratory 62 Queen Anne Street, London, reported microscopically on the following specimens, which had been kept four months in spirits.

THYROID GLAND — "In places there is fibrosis, and general thickening of the vessels is present."

PARATHYROID — (the one to which the atheromatous twig was traced) "The bulk of the section consists of lymphoid tissue. Thyroid tissue is also present, but in much smaller amount. The structures are surrounded by embryonic-looking very vascular adipose tissue. There is no fatty degeneration of the thyroid tissue present."

VAGUS NERVE — "Section shows thickening of the epineurium, and also of the perineurium. The vessel walls of the nervi communicaentes are thickened."

CERVICAL and ADRENAL Sympathetic Ganglions — no changes noted.

SCALENI MUSCLES — "Some fibres have undergone
fatty change."

PLANE MUSCLE OF THE OESOPHAGUS - "The muscle has undergone no fatty change. The muscularis mucosa is very degenerate but some of it probably post mortem."

KIDNEY - "The glomeruli show thick walled capsules and round celled infiltration of the tufts. The uriniferous tubules are disorganised by fibrosis, and the vessels share the same change."

TAIL OF PANCREAS - "The gland tissue is very fibrotic, and the increase in thickness of the vessel walls is especially marked."

SUPRARENAL GLANDS - "On transverse sections the denser cortical zone contrasted strongly with the looser medullary substance. Microscopically the capsules are thickened. Fatty degeneration is seen in the zona fasiculata and also fibrosis; both changes appear in patches, and are not universal."
CONCLUSION.

CASE I.

The family history shows a predisposition to obesity. Heart affections and arterio-sclerosis accounts for most of the deaths.

She herself shows a neuro-pathic tendency visible in the visceral cramps and diarrhoea; menstruation ceased suddenly and early.

Positively no history of syphilis or alcohol.

The fatty accumulations started in the legs as a "diffuse type" of adiposis dolorosa; but about the hips, buttocks, lower abdominal wall, and upper arms it approaches the "nodular variety". The case is interesting in that I saw the asymmetrical commencement in the arms. The pain and asthenia have been marked features from the first. The memory has been progressively bad. A peculiarity of this case is the onset of glycosuria within the last two years. There seems a general arterio-sclerosis. A prick for a blood count causes excessive bleeding. She has had herpes zoster.

CASE II.

Nothing is marked in her family history.
She herself and her children show a mixture of rheumatic and neuropathic tendencies. The type is mixed but limited practically to upper arms, trunk, hips, buttocks, and thighs. However its onset is comparatively recent. Pain is very pronounced. Asthenia is becoming marked. The psychical element is very apparent. Menstruation is excessive and also, what I did not note in the report, a tendency lately developed to large subcutaneous effusions coming on spontaneously or with very little trauma. There is slight glycosuria. There is no syphilis or alcohol in the question. She has had angio-neurotic oedema and herpes.

CASE III.

Family shows no very definite tendencies, rheumatism, heart disease, apoplexy, asthma, and insanity are represented.

Her own history contains rheumatic fever and migraine and shows a strong neuropathic tendency.

Menopause came on with floodings. I do not call her more than a case of painful obesity, but the obesity came on in an irregular manner in patches and was accompanied or preceded by undoubted neuritis. Also other symptoms of a peculiar nature have appeared, such as severe visceral cramps, angio-neurotic oedema and herpes zoster. Asthenia is moderate, and there
was a time of mental depression. There are evidences of a general arterio-sclerosis. Syphilis and alcohol are out of the question.

CASE IV.

There are marked family tendencies of a gouty neuropathic nature.

She herself showed strong neuropathic tendencies in the way of migraine, neuritic pains, and those peculiar epileptiform neuritic attacks later in life. A distinctly well balanced mind but years of suffering from furuncular abscesses may have modified this tendency somewhat.

The symptoms of the condition I have discussed while describing the course of the disease. The facies, the hands, the mental condition, and the large supra-clavicular pads all showed a strong resemblance to myxoedema which was not borne out by the colour of the brow and eyelids, the soft feel of the cheeks, the absence of deposit in nose, lips, and pharynx (and as a result of the latter, the natural character of the voice) the irregularity of the seeming deposits under the skin, and, greatest of all, the absolute inability of thyroid to cope with the disease.

On the other hand it resembled adiposis dolorosa in the irregular fatty deposits, the marked asthenia
the peculiar mental condition and, though pain was
inconspicuous at the time, the history of severe
peripheral neuritis.

Against this, large supra clavicular pads are
not recorded in adiposis dolorosa, and noninvolvement
of the face, hands, and feet is looked on as
one of the cardinal points in the diagnosis. Syphilis
and alcohol were out of the question.

A point of interest in this case was the large
fatty mass in front of the trachea, so large that it
was quite evident by percussion during life, and at
times caused her subjective sensations of choking,
and also caused the appearance of Eustace Smith's
sign. The clinical discovery of this made one naturally think of a persistent thymus, and the condition adiposa
of the eyes, which as said not only had ptosis of the
upper lids but showed distinctly slight exophthalmos
(they were also naturally prominent) suggested a
possible connection with Graves' disease, Roux, if
we remember, was struck with the likeness of some
cases of adiposis dolorosa he saw to this disease.
In my case there was no goitre, no tachycardia, and
muscular tremors that were sometimes present were
course and put down by me to asthenia. The mass in
front of the trachea, for anatomical reasons I have
stated, I considered could not be a thymus, a conclusion I much regret now. Any likeness it presented
to exophthalmic goitre was therefore remote.

There was no likeness to acromegaly in the facies
and the boney structures which I carefully examined before and after death. The scoliosis dated from childhood. The hands might have represented this disease at its commencement, and there was the dulness over the sternum which is common in it; but there was no ocular symptoms which occur in half the cases of acromegaly. I had not the opportunity of examining the hypophysis, but since Burr and Dercum, in his last case, have found this gland diseased in adiposis dolorosa, the examination would not have settled the diagnosis.

The points of greatest interest in the autopsy were:–

1. The great diminution in bulk of the swelling in the upper eyelids, in the malar and supra-clavicular pads and in the fatty tissue generally, pointing, I take it, to great vascularity in the masses.
2. The perfect absence of rigor mortis, which may be common in asthenia but was new to me.
3. The four distinct kinds of fat that were found, viz., the solid dirty white of omentum and epiploicae, the fat of the neck and some parts of the splanchnic region of a greenish yellow colour which soon disappeared on keeping, and practically a thick oil in consistence, the large yellow globules of fat that were found lying amongst the last mentioned and hanging from the visceral pericardium, and last the subcutaneous fat of the trunk and limbs which must have had a low boiling point, but otherwise seemed natural.
4. The numerous atheromatous vessels amongst the green fat and the general arterio-sclerosis as shown by the specimens.

5. The fibrosis and fatty changes that were seen or found microscopically in all the organs—nephritis, pancreatitis etc.,

6. And lastly the general hyperplasia of the suprarenals with the patches of fatty degeneration and fibrosis of its zona fasiculata.

Two marked features in the clinical aspect of the case were—(1) asthenia and (2) vascular dilatation on the surface, and, judging by the changes after death, probably of the deeper vessels as well. How far could the diseased condition of the suprarenals account for these features?

It looks almost proved by Elliot's experiments (47) that, whatever tone of the plane muscle is, it is a product of the suprarenals. This might be suggested as the cause of the vascular dilatation. The fact that I pushed adrenalin in this case with no results is analogous to the laboratory finding that animals who have had their suprarenal glands extirpated derive little or no benefit from the administration of adrenalin. (48)

Asthenia is a marked symptom in Addison's disease, and, as pointed out by Sainton and Ferrand (22) the asthenia of adiposis dolorosa is identical with that of lesions of the suprarenal capsules. The asthenia in this case and in cases of typical
adiposis dolorosa may be secondary to changes in the vascular pressure altering the nutrition of the muscles, as no more direct channel has been proved.

My experience in the use of thyroid in these cases has not been happy.

Case I. persists in taking it declaring that she feels a benefit but I can see none; Beevor (14) had a similar experience with his patient. Cases II and III have derived no benefit; and my experience with case IV has been fully related.

Two of the cases I have related suffered from attacks of angio-neurotic oedema. I have not seen the occurrence of this reported in any other cases; though the nodulated swellings that came in the face, neck, and pharynx of Bercum's first case may have been of that nature.

In none of the cases I have related is there a history of syphilis or alcohol.

In diagnosis I have not found the simplicity that is expressed by most writers on adiposis dolorosa.

In case IV I have endeavoured to trace my difficulties in separating it from myxoedema. Both diseases were discovered in women; Gull's first paper on myxoedema being entitled "On a cretinoid state supervening in adult life in woman;" and have remained up to the present essentially diseases of women; the percentage of males being 10% in myxoedema (49) and 15% in adiposis dolorosa as I have
reckoned it out.

I have stated Hutchinson's (11) opinion on adiposis dolorosa and myxoedema. Ord (50) in a paper entitled "Myxoedema and allied disorders" points out that as our knowledge of myxoedema grows, we find that round the typical picture are more or less obscure forms, in part from incomplete development of the whole series of symptoms, and in part from curious modifications of myxoedema constituting alliances with diseases to which the name cannot properly be applied.

It seemed to be so distinctly taken for granted at first that adiposis dolorosa was a disease of the thyroid and only a variant of myxoedema that the evidently unsatisfactory results obtained from thyroid were overlooked. Now, when our knowledge of the pathogenesis has been extended, a tendency to a fibrosis in many of the organs has been fairly well established as occurring in this disease. If this fibrosis markedly attacks the thyroid gland we can easily understand that thyroid treatment will produce some benefit but only in the way of relieving a symptom and not as necessarily materially affecting the nature or course of the disease.

Changes of a fibrotic and arterio-sclerotic nature seem common also in the kidney, and I am sure there are difficulties in diagnosing in the early stages between the "diffuse type of adiposis dolorosa" and commencing chronic cirrhosis of the kidney; and
Lauder Brunton (50a) has pointed to a tendency toward an accumulation of fat that may occur in chronic nephritis.

Dercum, Collins, Allbutt, and Ferrand, all agree that adiposis dolorosa is easily diagnosed from ordinary obesity by the presence of pain and the irregularity of the distribution of the swellings.

If the fatty accumulations are of the obvious type — "pantalon de zouave" or excessive masses in the arms — this is true; but even in typical cases when the accumulations are confined to the abdominal wall, the hips, and the thighs, a woman may long be under treatment for rheumatism of some variety before the true nature is discovered.

Then there is a class of cases of which Case III is an example, where one would hesitate from the mildness of the lipomatosis to name them "adiposis dolorosa" and yet they are in every sense cases of painful obesity.

Besides case III I have five others of a somewhat similar nature. They are all women of a neuro-pathic temperament who have been subject to neuritic pains shifting over the trunk, arms, and legs, and have become obese shortly before or after the menopause; but the pains have remained as troublesome and persistent as formerly. Besides the subjective pains there are always some areas where pressure on the fat causes pain. It seems possible to me that
these cases may be mild types of adiposis dolorosa.

A point that has always struck me in carefully examining these cases of painful obesity is the tendency for the accumulation of fat to occur in the areas of distribution of these cutaneous nerves which have their spinal origin between the brachial and crural gaps.

In early development the brachial gap is formed by the arm buds carrying the completed trunks of the seventh and eighth cervical nerves wholly with them for cutaneous distribution exclusively in that limb, and thus breaking above or forming a gap in the numerical sequence of the segmental cutaneous distribution of the spinal nerves to the trunk.

The crural gap is formed in development by the lower limb buds doing the same with the fourth and fifth lumbar nerves, viz., carrying their cutaneous distribution wholly from the trunk and thus breaking below the numerical sequence of cutaneous segmental distribution.

The spinal area between these two gaps also practically coincides with the visceral and vasomotor outpour which, as was first pointed out by Gaskill, takes place from the spinal cord through the white rami communicantes in pre-vertebral medullated fibres. The special fibres subserving vaso-motor functions synaps in vertebral ganglia, and from thence the somatic outflow is carried in the non-medullated fibres of the grey rami to the, then, complete spinal
segmental nerves, for peripheral distribution along with spinal nerves.

From a consideration of the facts, firstly, that erythema and minute vascular dilatations were an almost constant occurrence over the adipose accumulations in the cases I have had under personal observation, and secondly, that changes which are directly or indirectly associated with vaso-motor disturbances often accompanied or preceded these accumulations, I was led to investigate the distribution of the fatty accumulations in the cases I had under observation; my endeavour was to find out if there was any connection between the distribution of painful fatty masses and the segmental cutaneous areas of visceral pain and hyperaesthesia which have been demonstrated to exist by Ross (51) McKenzie (52) and Head (53); the areas of "goose-skin" as demonstrated by McKenzie (54) and the zones of herpes as shown by Head (45).

But it soon became clear to me that the painful fatty accumulations did not coincide with the areas marked out by Head, unless you allowed for a considerable alteration as due to the weight of the masses.

But I found that the neuritis in these cases had a distinct preference for nerves whose origin, as already said, lay between the brachial and crural gaps, and therefore had their spinal supply from the cord-region which coincided with that answerable for
the vaso-motor outflow through the sympathetic.

As neuritis is almost invariably the precursor in these cases of the appearance of fat I shall therefore endeavour to show that the tendency is for the fatty accumulations to take place in the peripheral distribution of spinal nerves between the first thoracics and fourth lumber inclusive.

It is a condition that is often very easily demonstrated clinically but difficult to accomplish in a paper even with photographs.

With regard to the cephalic hiatus, axial area, or brachial gap there is no difficulty in demonstrating that the fatty accumulations in the arms and on the chest take place below it in cases I, II, and III.

Over the shoulder the gap in the cutaneous numerical sequence occurs in a line (dorsal axial line) extending from the middle line of the back opposite the vertebra prominens to the insertion of the deltoïd.

Over the chest and anterior surface of the arm the line (ventral axial line) extends anteriorly from the middle line of the trunk at the manubriosternal joint across the chest, down the front of the arm and forearm to the wrist (55)

Above these lines cutaneous supply is exclusively from nerve roots above the gap, e.g. cervical; while below, the supply is exclusively thoracic on the upper arm and thoracic and eighth cervical on the forearm.
On the dorsal aspect the numerical sequence of the cutaneous nerves is interrupted by the absence of the seventh and eighth cervical and continuity is between the posterior primary divisions of the sixth cervical and first thoracic. Over the outer part of the scapular spine and shoulder joint the interruption is greater and continuity is between the acromial branches derived from the third and fourth cervical on the one hand, and on the other the first thoracic (posterior primary division) and second thoracic (lateral trunk). In the upper part of the arm the cutaneous continuity is between the circumflex (fifth and sixth cervical) and the lateral trunk of second thoracic. Distally from these the eighth cervical appears in the middle of the dorsum of the upper arm in the fibres of the internal cutaneous branch of the musculo spiral, to be distributed over a cutaneous strip running down the arm and passing external to the olecranon.

On the anterior aspect the ventral axial line on the chest wall is to be found in the cutaneous area of contiguity between the sternal, clavicular, and acromial branches of the third and fourth cervical above and the terminal branches of the anterior and lateral trunks of the second thoracic below. In the upper arm the contiguity is between the fifth and sixth cervical, first through the circumflex, and more distally, through the superior external cutaneous branch of the musculo spiral on the upper border of the lateral trunk of the
Case II
V.A.L. Ventral axial line with all subcutaneous fat accumulation below it.
first and second thoracic on the lower border. The anterior and posterior surfaces of the latter (lower border) get their cutaneous supply exclusively from the lateral trunks of the third, second and first thoracic in order given from above downwards. The third thoracic extends down the arm for a little way from axilla, the second thoracic supplies through the intercosta humeral and the first thoracic through the nerve of Wrisberg arising from the inner cord of the brachial plexus but ultimately from the first thoracic. The internal cutaneous supplies the lower border from below the elbow to the wrist. This nerve is derived, through the inner cord of the plexus, from the eighth cervical and first thoracic, but through the study of herpes zoster and hyperaesthesia Head (45) and Mackenzie (56) have proved that the fibres of the first thoracic supply the lowest or most internal part of the surface exclusively.

It can be easily demonstrated clinically that in the upper arm the neuritis and swelling in these cases take place in the lower or inner border and therefore in the thoracic nerves. In the tracing of the photographs from cases II and III it can be seen that all the enlargement in the upper arm takes place below the axial lines; where, as in case III, the neuritis and swelling has gone below the elbow and invaded the forearm, they have been confined exclusively to the area of herpetic distribution of the first
thoracic as given by Head.

The lower limb has undergone great rotation from its developmental position in order to assume the well known anatomical posture, and the anterior and posterior surfaces when the child has learned to walk are almost identical with the dorsal and ventral surfaces of the limb buds.

On the dorsum the hiatus in the numerical sequence of the spinal nerves in their cutaneous distribution which shows the gap in the crural plexus may be indicated by a line (dorsal axial line) from the middle of the back, over the posterior superior iliac spine, across the buttock and thigh to the head of the fibula.

A ventral axial of the same significance can be traced from the root of the penis or clitoris along the inner side of the thigh and knee and down the back of the leg to the heel (55)

The thigh is thus divided into two very unequal surfaces, a very extensive anterior, and external area whose cutaneous nerve supply is from nerve roots above the crural gap and therefore wholly lumbal, and a narrow posterior surface embracing the lower part of the sacrum, the inner part of the buttock and nates, posterior adductor surface, the surface over the hamstrings and the central part of the popliteal space. The nerve supply for these areas is from below the gap and is therefore wholly sacral.

Along the dorsal axial line cutaneous contiguity
is between the posterior primary divisions of the first and second lumber and the lateral trunks of the same lumber roots through the external cutaneous above, and the primary divisions of the first second and third sacral and second and first second and third sacral through the unclassed small sciatic and perforating cutaneous below.

The ventral axial line starts by dividing the higher parts of the perineum from the limb and cutaneous contiguity is established between the nerve trunks so wide apart in their spinal origin as the anterior trunk of first lumber through the ilioinguinal supply to the mons veneris above, and the anterior trunks of the second and third sacral through the pudic below. (57)

Lower down in the ventral axial line contiguity is between the perineal branches, branches over the hamstrings, and sural branches of the small sciatic (first, second, and third sacral) and the external saphenous (first and second sacral) below the line, and above the line or in front, first lumber, through ilio-inguinal, the second and third lumber through the obturator and internal cutaneous branches of the anterior crural and the long saphenous branch of the last named nerve which contains fibres only of the third and fourth lumber.

A striking feature in the cases given is the absence of fat in the perineum - supplied by the pudendal plexus.
Case II
V.A.L. Ventral axial line with all the fatty accumulation below it.
first and second thoracic on the lower border. The anterior and posterior surfaces of the latter (lower border) get their cutaneous supply exclusively from the lateral trunks of the third, second and first thoracic in order given from above downwards. The third thoracic extends down the arm for a little way from axilla, the second thoracic supplies through the intercostal humeral and the first thoracic through the nerve of Wrisberg arising from the inner cord of the brachial plexus but ultimately from the first thoracic. The internal cutaneous supplies the lower border from below the elbow to the wrist. This nerve is derived through the inner cord of the plexus, from the eighth cervical and first thoracic, but through the study of herpes zoster and hyperaesthesia Head (45) and Mackenzie (56) have proved that the fibres of the first thoracic supply the lowest or most internal part of the surface exclusively.

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A striking feature in the cases given is the absence of fat in the perineum - supplied by the pudendal plexus.
Clinically it can be demonstrated in cases II and III that the masses behind the knee, invading the popliteal spaces, are supplied by lumbar, not sacral nerves, by the fact that their neuritic pains cannot be elicited on the adjoining popliteal surfaces, but can be easily traced up the line of the internal cutaneous on to the antero-internal surface of the thigh. In the cases II and III, the hard swellings below the knee are in the area of the long saphenous distribution.

The photographs illustrating Beevor's (14) and Hale White's (13) cases show this same condition remarkably well. In the former, tremendous tumours occupy the inner surface of the thighs above the knees and extend right into the popliteal spaces, but there is a deep furrow round their outer border which marks them off from the rest of the popliteal space, and probably these masses are supplied entirely from the internal cutaneous.

In both cases the marked enlargements that occur at the ankles is confined to the inner border and internal malleolus (supplied by the long saphenous); here the masses overhang the foot, while on the outer border there is the normal continuous sweep in outline of leg, ankle, and foot.

Over the buttocks there is a distinct difficulty because the masses invade downwards and inwards past where you would expect to find the dorsal axial line.

But here again, as in cases I, II, and III you can trace the neuritic pains downwards and inwards.
across the axial area from regions well external to and above it.

It looks apparent to me that excessive growth in the larger area under the influence of cutaneous lumbar nerve supply combined with dynamics have played an important part in determining the places of the present anatomical positions of some of these masses in the buttocks, and that the dorsal axial line as marking the break in the numerical sequence in the distribution of cutaneous nerves is greatly displaced downwards and inwards towards the coccyx, and that the formation of fatty masses here is influenced by nerves of lumbar origin.

That such a fall has taken place in the lumbar region can be shown in case I.

The attack of herpes from which she suffered was in one continuous segment - vesicles appeared simultaneously over the terminals of the posterior primary division, the lateral, and the anterior trunk, and then followed smaller vesicles which joined these isolated areas and formed a regular complete band or zone of herpes round the left side. The lower border of this zone was on a level with the umbilicus in front.

The umbilicus is a fixed point, and as Head (58) in speaking of herpes points out, is one of the few points on the body from which you can describe its distribution; and skin points as he says are the only
true guides to skin areas.

A band of herpes with this position in front lies in the ninth dorsal segmental area, which was first described by Head as the supra-umbilical. (59)

This area in passing backwards has, in the lateral region, its lower border over the top of the tenth rib, and in the middle line of the back over the twelfth dorsal spine. The illustration of herpes in this area is from a child aged three years. He has not altered the level of the 9th dorsal segment in his more recent works. (45) The lower border of the zone in case I. ran back immediately over the iliac crest and to the middle line about the level of the third lumbar spine - the skin having apparently been pulled down fully two and a half inches by the weight of the subcutaneous fatty accumulations.

It is pleasing to find that these clinical observations on painful obesity, which were original on my part, have been anticipated with regard to ordinary obesity, the theory of direct nerve distribution of which has for long been dear to Debove (22); and Leonard Williams (60) before the Balneological Society said truly that "like many conditions which used formerly to be considered separate clinical entities, obesity is now regarded as merely a symptom of several, if not of many, underlying pathological states."
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