Essay for the
Paterson Prize
in
Clinical Surgery

Written by

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June 1916
Case No.

Paget's disease of the nipple and carcinoma of the breast with special reference to the clinical features and pathology of the condition.

Accompanying illustrations are:

1. Photograph of the breast to show the condition of the nipple and areola.

2. Photograph of cut surface of the breast to show the extent of the tumour growth.

3. Microphotograph from a section of the areola - low power view.

4. As above - high power view.

5. Microphotograph from a section of the tumour in the substance of the breast.
Fig. 1

Photograph of breast.
Showing the condition of the nipple and areola.

Case of Paget's disease of the breast.

Mrs. Margaret Bogle.

J. C. Burns.
Mrs. Margaret Bogie, age 42 years
Admitted to Ward 9, on 13th Oct 1916.
Complaint—"A sore on the breast."

History:
She stated that the condition began in 1912 and was of gradual onset.
The first thing she noticed was a scab on the point of the nipple of the left breast. This scab took some months to develop and separate. The nipple was somewhat red and different in colour from the other. She said it was not sore and there was no feeling of heat or throbbing in the affected part. The scabbing appeared and disappeared at short intervals and throughout the whole time the area of areola affected became larger and larger. The patient never experienced any systemic disturbance and she said she had not lost weight.
Then three weeks before admission — Sept. 23rd, 1915, the patient noticed a lump in the breast which was somewhat painful on pressure. On her doctor's advice she came to the Royal Infirmary for further examination and treatment.

Examination on Admission.

Inspection. — (See Fig. 1. for appearance of nipple.)

The areola of the left breast was enlarged, and round the periphery was a narrow zone of dry, yellow, scaly material. In the centre of the areola there was a more florid granulatcd area and the nipple was almost indistinguishable. On close examination the surface epithelium of the areola appeared to be scarred and little scaly patches could be made out. The periphery of the affected area was distinct and fairly
uniform, the whole patch being somewhat raised above the general skin surface.

On grasping the nipple and area a distinct feeling of thickening could be made out. There was no noticeable discharge and the patient did not complain of itching.

Palpation

On palpation the breast a hard mass was found in the lateral half which was movable over the pectoral muscles below but adherent to the skin. It was of sturdy hardness and a little tender on pressure.

The glands in the axilla were not distinctly palpable and no enlarged supraclavicular glands could be made out.

Her family history showed nothing of interest. Her menstural periods were still regular; she had had
no abscesses in the breast.

Treatment: operative.

It was decided in view of the evident malignant condition of the breast to operate and remove the breast and affected lymph glands.

Operation performed by Mr. Mebo, Oct 15th.

The evening before operation the skin in the area of operation was purified by washing with spirit and water, then methylated spirit applied followed by Benodine of Nitric Solution in 500 and the skin painted with Trichloro of Iodine. A sterile cloth was wrapped about the breast and shoulder.

In the morning a hypodermic injection of Naphia 1/6 gr. and Abrophen 1/20 gr. was given.

The anaesthetic used was Chloroform followed by Ether.

The left arm was fully abducted by an assistant and an incision
was made beginning at the clavicle and passing over the pectoral muscles to the palmar fold of the axilla. By dissection, chiefly gauge dissection, the areola was cleared. The glands along the scapular vessels were also removed. An elliptical incision was made surrounding the breast. The breast with the tumour was removed along with the superficial part of pectoralis major. The breast and axillary fascia and glands were removed together. A drainage tube was passed through the axillary fold and the edges of the wound approximated and sutured by horsehair. The skin round the margins of the wound was scarified and dressings applied. The breast was bandaged with the arm in the adducted position with plenty of cotton wool in the areola. The arm in bed was supported with a keloid.
Progress Notes.

Patient soon recovered from the effects of the operation and anaesthetic and had a slight amount of vomiting. She complained of a certain degree of pain which was relieved by a hypodermic injection of 0.25% procaine. This was given on two occasions.

Oct 14th: Wound was dressed.

Nov 8th: Patient went home.

During this time there was no rise in temperature and recovery was uninterrupted.

The breast involved at the operation was preserved and sections were made of the gland and of the nipple.

Commentary.

The diagnosis was that of Paget's disease of the nipple with carcinoma of the breast.
and this was verified by the microscopic examination of the tissues.

The history and clinical appearances are typical of such a condition. It is found in women between the ages of 40 to 60. The clinical features correspond closely to those described by Sir James Paget in 1874, in which he says that "the patch had the appearance of a fluid red raw surface, very finely granular as if nearly the whole thickness of the epidermis were removed like the surface of a very acute diffuse lichen or like that of an acute Balanitis."

Paget also pointed out that this condition of the mammary areola was followed by the appearance of cancer in the affected breast.

Paget's disease of the breast is however comparatively rare for
Carcinoma of the breast is very preceded by this condition of the nipple in about 10% of cases.

In the early stages the appearance of the nipple gives rise to the probability of it being an acute eczema. The points of difference however are:

1. Absence of vesicles
2. Absence of excessive itching
3. Unaffected by ordinary remedies.

Two forms of Paget disease of the nipple may be met with clinically:

a. A wet form
b. A dry form

In the former there is a discharge issued but not purulent the drying of which gives rise to scabs.

In the dry form there is no such discharge. When the areola is pinched between finger and thumb gives a crackling sensation.
Fig. II.

Photograph of cut surface of the Breast.

Showing the appearance and situation of the tumour within the substance of the mammary gland.

Case of Paget's Disease of the Breast.
As in this particular case the nipple may be indistinguishable owing to ulceration, the time that elapses between the appearance of the condition of the nipple and areola and the appearance of cancer in the breast varies being anything from 2-10 years. The tumour in the breast is clinically a fungous cancer.

Pathology.
This aspect of the case is also of great interest. Following on the work of Paget a good deal of work was done on the medical histology of the condition and much controversy seems to have arisen among the earlier investigators as regards the true pathology. Some came to the conclusion that the disease was a "malignant dermalitis" produced by the presence...
Fig 111.  X50 diam.

Microphotograph of section from the AREOLA.
Showing the condition of the skin surface and the malignant process in the deeper layers of the skin.

CASE OF **PAGET'S DISEASE OF THE BREAST**.

Mrs. MARG. BOGLE.

J. C. BURNS
of Protozoa in the epidermis these protozoa being in the nature of Basophils or Coccidias. Later workers however showed that it was not the case and that the psorospermus were but the result of degenerative changes in its Chromatin of the malignant epithelial cells.

Examination of the section from areola (see Fig 3). There is seen first of all at the skin surface epithelial debris, bacteria and masses of inflammatory cells. Passing into the deeper layers of the skin we see the projecting papillae covered by the reticulosis. The germinal layer of cells is distinct and we can trace their transition into prickle cells. Then we have a somewhat abrupt change to clumps of large clear cancer cells (Paget Cells). This is best seen in the inter-papillary area of the reticulosis.
High Power View of Section of Areola
Showing the appearance of the malignant cells (Paget cells) in the inter-lobular area

Paget's Disease of the Breast.

Mrs. Margt Bogle

J. C. Burns
These cancer cells by their proliferation have caused pressure on the surrounding prickle cells causing them to appear crushed and in some cases atrophied. In some areas the cancer cells have passed down among the prickle cells to the germinal layer. Under the high power these cancer cells are easily picked out. They are large and for the most part oval cells. Very noticeable is the prominent nucleus and chromatin threads. The body of the cell appears clear due to the very faintly staining protoplasm. The cell membrane however is more distinct. Mitotic division is seen occurring in various cancer cells. These proliferating cells which are atypical epithelial cells of a malignant character are inserted among the normal prickle cells.
Fig. V

Microphotograph of section of the tumour in the mammary gland, to show the appearance of the malignant process in the breast—duct cancer.

Paget's Disease of the Breast

Mrs. M. L. Bogle

J. C. Burns
is some spread to peripheral tissue.
We have here evidently a Duct Carcinoma.

**Summary of the Case.**

We have therefore a Carcinoma of the skin of the nipple and areola, this giving rise to a chronic inflammatory process stimulating a chronic eczema with inflammatory infiltration of the sub-epithelial layers.
As time goes on the carcinomatous process reaches the lactiferous duct and the proliferating cells pass downwards along the duct into the gland tissue of the Breast. Giving rise ultimately to a malignant growth of the nature of a Duct Carcinoma.

This information derived from a careful study both clinically and pathological and histologic, led us to the Case to be one of Paget's disease.
of the nipple with Carcinoma of the Breast.

Why cancer should develop in the breast in cases of Paget's disease of the nipple is not easy to explain until we consider the changes upon such an organ as the mammary gland in its various periods of life - puberty, gestation, lactation - and senile changes. This is particularly true of puerperal women.

These changes although physiological processes are not far removed from the pathological. In accordance with its functions there are rapid proliferative changes in the breast tissue especially to epithelial elements and any who claim a source of irritation might well upset the balance between the physiological and pathological.

In Paget's disease of the nipple there is a source of chronic irritation which might well
account for the onset of a pathological process.

**Treatment.**

In early cases, before a definite tumour has developed in the breast portions of the nipple should be pressed and examined microscopically as much time may be lost if remedies for the skin condition are used.

In cases in which the disease is early recognised, operation need not be as extensive as in the later cases when cancer of the breast has developed, which require complete removal of the breast and lymph glands.

Some authorities state that cure may be achieved in early cases by the use of 5 days.
a case of
Paget's Disease of the Breast.
Case No. 2

Dermoid Cyst of the Orbit.

Illustrations:
1. X-ray photograph
   Antero-posterior view of skull.
2. Deltoid
   Lateral view.
Margaret Scottard. Schoolgirl.  
Age 12 yrs. 

Complaint: "Seeing Dull"  

History.

About 8 or 9 years ago patient struck her head against a lamp post and from that date a lump appeared over the upper and anterior part of the right temporal fossa. This seemed to disappear at times and then to reappear. It was occasionally painful locally and there was some pain just above the level of the zygoma of the right ear and over the right cheek. There was never any pain over the supra-orbital nerve or over the infra-orbital foramens and never any neuralgia or toothache. There was never any vomiting or headache. The swelling did not appear to have been increasing in size as far as the superficial part was
Concerned but claim to two weeks prior to admission there was a gradual development of deplopa there was no motor or sensory disturb-
ances in relation to any of the cranial nerves unless it could as far as could be ascertained.
The patient did not notice any loss of vigour and she did not think she had lost weight.
Her appetite and power of sleep were not disturbed. There is no history of similar swellings in other parts of her body.
Pulse 88. Respiration 14. Temp 98.2
Heart & lungs normal.
Pulmonary Illnesses.
Scarlet Fever. Measles.
Family History.
Father. Alive & well. Mother. Also alive in good health.
Three brothers and one sister. All in good health.
NARQ: SIBBALD.
DERMOID CYST OF
ORBIT.

1. Ant. Post VIEW
Showing the dense edge of the tumour
in right temporal region.
Examination of the patient.

There was a marked fulness over the upper part of the right temple and there was nothing similar on the left side. There was hyperaemia of the right eye together with a degree of internal and downward rotation of the eyeball. The pupils were equal, of normal size and reacted to light and accommodation. The lateral movements and those in an up and down direction were somewhat limited but the disability seems to be due to a mechanical rather than a nervous cause. The Graefe sign positive. The eye was protruded forwards and outwards. The fundus showed nothing except a slight degree of fulness of the veins suggesting difficulty of return of blood. The cornea was nearly full in that eye. The swelling in the region of the orbit...
MARY SIBBALD
DERMoid cyst of the
ORBIT.

II. LATERAL VIEW.
was not definitely tender, and did not show signs of inflammation. The upper part of the tumour was of very hardness and was continuous with the anterior surface of the frontal bone. Below the bony surface ended abruptly in a sharp edge well above the zygoma. Below the edge again the lower part of the tumour appeared to be soft and elastic. The whole tumour was above and distinct from the zygoma.

X-ray appearances.

A tumour was seen involving an area of the orbit, cranial fossa and temporal fossa on the right side of the skull. The edge of the tumour was seen to be dense and the centre quite clear. These points can be made out by reference to the prints taken from the radiograms.
Statement

1. Medical

Potassium Iodide in three grain doses administered three times a day was tried but no definite signs of improvement manifested themselves.

2. Surgical

Operation 14th Miles

Anaesthetic used was Chloroform followed by Ether.

An incision was made about 2" long over the temporal and frontal areas - a flap of integument was turned down. The tumour was easily made out as it tore over it was as thin as parchment. It was opened and found to contain yellow fluid with thicker yellow like material in it. The tumour was found to be pushing forward the eye which remained in its normal position. When once the fluid was evacuated and
The tension relieved. Posteriorly was done water. The cyst was emptied and the thin bone over it removed. The periconium and temporal muscle were well drawn over it and a small rubber drain drain left in the superficial tissue. The wound was closed. Dressings were applied and the girl taken back to bed.

**Progress Notes.**


26.12.15. Patient went home.

**Commentary.**

In this case we have to deal with an orbital tumour of the nature of a Dermoid Cyst. In regard to its clinical features the girl gives a history of trauma — a blow on the head 6 years ago.
It was following on this accident that the swelling was first noticed. How much the injury had to do with the appearance of the tumour is difficult to say. A certain amount of swelling may have occurred a day or two later as a result of contusion. Again, more particular attention may have been brought to bear upon this requir, by the fact that the patient had recovered received an injury, and a local condition which may have escaped earlier notice now became manifest on closer examination. It will be noticed there were no cerebral comp-

- locations as proved by the absence of vomiting, clearness, headache, giddiness, etc. The rate of growth of the tumour was very gradual and was unattended by ill effects on the patient. There was no loss of weight, appetite was good and sleep had not been interfered with.
There was no history of involvement of any cranial nerves. About 2 weeks before admission a gradual increase in the affected side and the patient complained of diplopia. The examination of the eye showed that the proptosis was due to increased intra-orbital pressure. In this case the possibilities that had to be considered from the point of view of diagnosis were:

1. Enormous pericraniis
2. Traumatic cephalo-hydrocele
3. Intraocular of the orbit
4. Dermoid Cyst

As regards the probability of Enormous there was no improvement in a course of Potassium Iodide.

In the case of Traumatic cephalo-hydrocele the accident that the gau sustained may have conceivably caused a fracture of the bone and
Injury to the dura mater with the resultant escape of some cerebro- spinal fluid into the scalp and its swelling kept up by effusion of fluid as occurs in cases of traumatic cerebral oedema. Although such a condition is possible it is not probable in this case. The accident does not appear to have been sufficiently severe to produce the necessary lesion and there was no pulsation in the tumour as would have been met with in a Spinal meningioma.

Sarcoma.

This appeared more probable. Three signs of sarcoma are available in this area - Peristeesus, diploe and Dura mater. If a peritoneal sarcoma, a tumour of considerable size would have appeared fairly quickly and would have been of a soft and pulsable nature also there would have been evidence of general effects in the
System - loss of weight and involvement of the ophic nerve and eyeball. If it was a Sarcoma arising from the diploe it would be of the nature of a Myeloid Sarcoma. In this case growth need not be rapid. Such a type of tumour is covered by a thin shell of bone giving an egg shell-like crackle on pressure and the skull would become involved in the process of growth. Sarcoma arising from the dura mater + peculiar type of bone is was easily discounted for well worked neural symptoms appear even before externally a tumour was as seen.

The diagnosis therefore appears to be a Dermoid Cyst.

It was a tumour of slow growth & absence of constitutional disturbance of Prenini - a common site for dermoid in the inner angle of the orbit which corresponds to an embryonic cleft.
c. Rounded swelling, definitely limited + the skin freely movable over it. No history says that the swelling was first noticed 6 years ago. This type of tumour is congenital but the tumour mass is not necessarily seen from birth. In this case the girl was 8 years of age and her tissues were reaching a period of increasing potential activity and its resequestrated portion of epiblast capable of becoming rapidly proliferative. Position of the tumour. This explains the origin of the dermoid in this region. Here at the outer angle of the orbit this occurs fusion of the embryonic orbital-nasal cleft when the embryonic segments fuse the epithelium should normally disappear but in a certain number of cases this disappearance of surface epithelium is incomplete and a portion is resequestrated, the growth of the piece of epiblastic tissue giving rise ultimately to
The formation of a dermoid cyst. Such a cyst has a wall of skin and contents of thick leathery material containing desquamated cells. In this situation such tumours do not as a rule contain complex structures. Superficially a dermoid tumour appears as a rounded definitely limited tumour, adherent to deep structures but with the skin unretracted over it.

In this case the x-ray photographs show the outer edge of the tumour as a ring of bone with a clear centre. The radiograms also show with accuracy the position and extent of the growth. In its growth the tumour by filling up the orbital cavity caused a gradual protrusion of the eyeball and when the pressure was removed the eyeball regained its normal position.

Treatment.

In such cases of dermoid cysts removal is the best treatment.
In this instance the patient was put on a course of Potassium iodide but no improvement was observed. Operation was then performed and the cyst obliterated. The sac must be carefully dissected out of the cyst. If not possible it should be cauterized and care being taken that no portion is left behind. Otherwise recurrence will follow.
A Case of Dermoid Cyst of the Orbit

J. Burns
Case No. 111

A sacro-coccygeal tumour arising from the coccygeal gland.

Illustrations are
1. Photograph of the tumour as excised at operation.

2. Diagram of the structure of the coccygeal gland.

3. Microphotograph of section of its tumour growth.
Name of Patient - Henry Hogg.
Age - 22 years.
Admitted to Ward 10 - 24 Nov 1915.
Complaint - was "Pain in the left leg."

History:
Patient said that about eleven weeks previous to admission (Aug 1915) he first noticed a severe pain in the small of the back which prevented his moving about and especially interfering with the movements of bending and straightening the back.
A week or so later the pain began to pass down into the town (thigh). It was a shooting pain and was very severe but it was intermittent in character. At first it appeared in the top of the thigh especially in the gluteal region. There was never any pain in the inguinal region.
The pain later shot right down its back of the thigh to the knee and...
late still to the heel and along the sole of the foot. He never had pain in the front of the thigh or leg.

The patient said that his left foot was somewhat weak but had never noticed any weakness of the thigh or leg. Sometimes he complained of a sensation of "pins and needles" in the foot.

There was no alimentary symptoms -- no pain or difficulty in defecation.

He said, however, he had lost about two stone in weight.

**Family History. Father: alive & well.**

Mother alive & well. Six brothers & three sisters all well. He was father to a healthy man who had no venereal disease. He took alcohol to a moderate extent.
His pulse was 80 per min on admission, and temperature 98.2°.
There was a 2/6 systolic murmur present in the heart, but the lungs appeared healthy.
Appetite was good.
Bowel movements were regular.
Sleep was bad at times.

Examination of the Patient
Left thigh & leg were somewhat wasted. There was no impairment of sensation to touch, pain, heat, or cold. Left knee jerk was slightly more active than the right.
Superficial reflexes were active. The plantar reflexes were flexor.
No clonus present.
There was weakness of the extensors of the foot and flexors of the knee of the left lower extremity.
Flexors of the hip were weak on both sides.
There was no swelling notable in the region of the Sacrum.
Fig. 1.

Photograph of Tumour and its attachment posteriorly to the Coccyx.

Henry Hogg.

J.C. Burns.
Rectal Examination
This disclosed a tumour on the posterior wall fixed to the sacrum hard, smooth, immovable. The finger could not be passed beyond it and the lower border was about 1 1/2-2" above the anus. There were no palpable glands.

X-ray Examination
The shadow of the sacrum was almost obliterated but there was not any shadow apparently superimposed. The report stated that it was doubtful that the effect was produced by sarcoma. It was common where there was an epithelial tumour (malignant) in the vicinity of the bone.

The patient was under observation for a few days and operation was decided on and fixed for the 30th Nov. The patient was agreeable to the course.
Diagram to illustrate the relative position of the tumour.
1. Tumour.  2. Rectum.  3. Prostate.
Operation 30/11/15 by Mr. Miles

The anaesthetic used was Chloroform followed by ether.

A incision was made in the mesial plane over the Sacrum from the 3rd Sacral Segment down to within 1/2" of the anal orifice. The coccyx and lower portion of the Sacrum were laid bare by dissection. The muscles and ligaments attached to the lower portion of the 4-5 1/2 Sacral Segment & Coccyx were divided on either side and the extent of the tumour ascertained. It was felt to extend up as far as the 1st Sacral Segment. The tumour was dissected out of its bed, but as it was attached to the two lower Sacral segments and coccyx these segments were removed along with the tumour. The bleeding points were ligatured, but there was considerable oozing especially from the divided bone.
FIG. II. X 65 diam.

Microphotograph of section of the tumour showing the arrangement of the various elements of the growth.

HENRY. Hogg.

J. C. Burns
Hot saline was applied and then deep sutures were put in. The central part of the wound was packed with Iodoform gauze and left as a drain. The wound was stitched on either side of the drainage opening. The rectum was not involved and was not infected with. A swabbed suppository 1/4 gr. was inserted into it. 

Progress Notes

For two days following the operation, the patient was unable to pass urine and the passage of a rubber catheter caused the patient great pain. He was put on a swabbed dose of belladonna to prevent the occurrence of any cystitis. At the end of this time, the patient was able to pass water himself and feel more comfortable.

4/12/18: The packing was removed from the wound and replaced by red lotion Fusol. Red lotion dressing were applied alternately. No discharge from
On the 9/12/15 the stitches were removed. There were no complications either locally or generally and the temperature remained steady.

16/12/15. Patient got up.

29/12/15. A rise of temp set in. There was nothing septic about the wound. There was a slight rash noticeable on the buttocks.

4/1/16. Temperature was now settled again.

10/1/16. Patient again got up.

22/1/16. Progress good. Wound was dry. Went lower. Still some slight weakness of the muscles of the toes and pain in other sides of the foot.

The patient at this time said he felt in the best of health. He was of good colour, had gained weight, and he was confident of prolonged good health. He went that was heard of him was when he returned to Ward 10 on March 14th 1916 on account of the recurrence of pains in the left leg.
Re-admitted to Ward 10 - March 1st 1916

Complaint - Recurrence of pains in the left leg.

Further History

Patient said that for the first fortnight after leaving hospital he enjoyed good health. Though at times there was some stiffness in walking with the left foot. There was no definite pain at this time. About the beginning of the 2nd week in February 1916 he began to have attacks of pain in the back of the left thigh. These pains came on at irregular intervals and interfered with his sleep. Some nights he was free from pain. He said that pressure over the back of the thigh relieved the pain. This condition of affairs persisted up to the time of re-admission. The left foot then started to trouble him. About the middle of February he began to have pains
of a "pus-treadle" character along the outer border of the foot. The foot began to swell on its dorsal aspect and his toes became stiff and difficult to move. The swelling persisted for a couple of days and was not of an inflammatory nature. He was also troubled with pain in its medical aspect of the thigh and affecting the left testicle and cord. The right leg was unaffected. He had no trouble with defecation but he was occasionally troubled with constipation.

**Examination.**

Left leg and thigh not so well developed as its right and the muscles were flabby. There was marked foot drop present and pain was complained of over the outer side of the thigh from the knee to the hip was marked at one time than another.
Rectal Examination

This revealed a mass in the posterior wall of the rectum near its lower end on the right side. There was a much larger mass higher up on the left side, attached posteriorly to the sacrum and immovable. The finger could not be passed beyond it.

The rectum was loaded with faeces.

Treatment

The growth was too extensive to make operative treatment advisable and palliative treatment was resorted to.

At times the patient was in great pain - chiefly referred to the leg, foot; rolling about in bed and sweating profusely. During these exacerbations of pain the administration of enemata gave good results. The clearing out of the bowel was invariably followed by marked relief of the symptoms for a time.
When the pain was severe heroin in doses of 1/2 grain was given hypodermically as required. Belladonna + Glycine fomentations were applied to the leg & foot and were found to be very soothing to the patient. A splint was made for the foot and as symptoms had abated he was sent home on the 11th March 1916 and his doctor advised of the condition of affairs.

Commentary
As regards the following points:
1. Pathology;
2. Clinical features v diagnosis;
3. Treatment.

Pathology
The tumour removed at operation was preserved and a microscopic examination of the tissues was made.
Naked Eye. Appearances — See Fig. 1.

The tumour mass was about the size of a foetal head but somewhat flattened above. It was intimately attached to the lower part of the Sacrum & Coccyx. The tumour was smooth on all sides except superficially where the tissues had been cut through, and was very vascular at the time of the operation.

There were no adhesions. Certainly, it was fairly firm to the touch but not hard.

Microscopic Appearances — See Fig. 2.

It was seen to be a growth of a malignant nature and the cells were arranged in masses and in some areas in irregular columns. In other areas of the section the cells had become detached and were isolated. Under the high power the cells were seen to be large polyhedral cells with well staining nuclei & definite vacuolus granules, protoplasm.
This was a marked presence of chromatin material in the cells; mitosis was present. The stroma was scanty but was of well-formed fibrous tissue. The blood-vessels were numerous but not well supported and the walls were thin, some consisting of badly supported endothelium. In certain areas haeemorrhagic segment was seen among the stroma + cells.

It would appear therefore that from the position of the tumour and the variety of cells that it was derived from the coccygeal gland and of the nature of an Adeno Carcinoma, the term Adeno Carcinoma being used in the sense that it is a tumour containing epithelium grouped both in gland form and in solid masses.

Little is known about the functions in pathology of this coccygeal gland.
Section of Coccygeal Gland (Schofer).

2. Epithelium.
3. Connective tissue.

J. C. Burns.
But its histology has been investigated by some workers. It was first described by Luschka in 1860. It is a small body about the size of a pea situated just above the attachments of the sphincter ani to the coccyx. It is supplied with blood from the middle sacral artery and is said to have a sympathetic nerve supply.

Histologically it consists of numerous loops of blood vessels and nerves with rich connexions and are surrounded with several layers of fascia. Polyhedral cells containing a hyperchromatic nucleus. These cellular areas are intersected by bands of dense connective tissue.

It is of more than ordinary interest to find a tumour of such rapid growth and power of spread arising from this coccygeal.
Tumours have been met with in this region but 2 of the nature of teratomas. Hutchinson and others describe cases of tumours arising in the bony parts but congenital in origin, occurring in young children and giving rise to a very prominent external swelling.

In this particular case there is no evidence of a hereditary factor to explain its recurrence and it appears to have been of rapid growth.

**Clinical Features**

The main symptom that this patient complained of on admission was pain in the left thigh and leg. This pain was intermittent in character, severe and often worse at night. The course of the pain was first in the gluteal region then down its back of the thighs and later down to
The foot. These features pointed to a neuralgic condition of the Scahar nerve. As regards the diagnosis was it a primary condition or was it secondary to some affection of the pelvis or cord? As is well known pain referred to the Scahar nerve is a symptom of pressure upon the nerve from tumours, aneurysms, etc., when within the pelvis.

The possibilities that could be met with in this case were:

1. Primary:
   Inflammatory condition of the nerve as seen in gout, chill, etc.

2. Secondary:
   a. Pelvic tumours causing pressure on the extra pelvic portion of the nerve;
   b. Pelvic tumours causing pressure upon the nerve within the pelvic pelvis e.g. sarcoma of the pelvic bone, rectal cancer,
   c. Diseases of the hip joint: arthritis deformans, tuberculous disease.
d. Sakes

Of the secondary conditions the possibilities that most readily suggested themselves were intra-pelvic tumours. A digital rectal examination was made and a tumour mass was found fixed to the sacrum, smooth, hard, immovable.

The next question was what was the tumour - was it rectal cancer or was it peri-rectal sarcoma. It was not sarcoma of the rectum for there was no invasion of the mucous membrane of the rectum by tumour growth in ulceration. There was no undue pain complained of or rectal examination. There was no history of pain or defaecation, a blood in the stools, a passage of blood stained anus, as would be usual in typical cases of rectal cancer.

The diagnosis appeared to be peri-rectal sarcoma of the sacrum.
1. There was no presence of a tumour connected with the sacrum.
2. Rapidity of growth of the tumour.
3. Age of the patient.
4. Loss in weight - 2 lb in about 3 months.

To make the diagnosis more certain an X-ray examination was made and this pointed to a Carcinomatous rather than a Sarcomatous growth.

At the operation the tumour was found attached to the lower sacral segment and coccyx, but not involving the posterior rectal wall. In removing the tumour it seems probable that pieces of this tissue still remained. From its upper cut surface of the tumour mass, as a result of operation the patient got relief from his backache like pains, but there was still a certain amount of weakness in the leg.

The Cessation of pain was due to the removal of the mass pressing upon the root of the sacral nerves.
The operation was performed on the 30th Nov 1915 and the patient left hospital on Jan 22 1916. On March 1st he was back to the ward on account of the great pain in the left leg and the left foot that had developed. Examination now showed the presence of two large tumour masses in the pelvis. Recurrence had therefore occurred to this extent in 3 months. The increased severity of the pain was due to the greater pressure within the pelvis when the sacral nerve roots. Paroxysms of pain came on at times and it was then found that the rectum was loaded with faeces. This increased the intra pelvic pressure and also no doubt produced pelvic congestion by impeding the return of blood from the rectum. The pain complained of in the medial aspect of the thigh appears to have been due to pressure on the obturator nerve roots.
The foot drop and muscular weakness that this patient exhibited was due to the long continued pressure upon the sacral nerve root the degenerative effect upon the nerves is shown by the degeneration in the external popliteal nerve where there was weakness of the tibialis muscles of the leg and affecting the flexors and tibialis anterior muscles resulting in the production of "foot drop" and the characteristic shuffling gait that the patient exhibited when walking.

In these phenomena we see the effect of prolonged compression upon a nerve. In the initial stages the sequelae are those of irritability - cramps and neuralgic pains. In those cases where the compression has been prolonged the symptoms pass into those of paralysis sometimes associated with diphasic phenomena. As a result of operation the pressure of the tumour was relieved.
for a time and the effects of recovery in the nerves was shown
by the disappearance of the paraspinal neuralgic pains and a better degree of muscle tone
and power. Complete recovery in the nerves and muscles
however did not occur as there was weakness of the foot-sparing

Treatment

1. Operative. In cases of tumours in the sacral region the transil
 operative affords ready means of access to the growth. There is a
 risk of re-epithelialising from the resultant cavity but strict
 aseptic asepsis will obviate this.

2. Palliative. This is directed to
 the relief of the secondary symptoms
 such as pain in nerves. Injections
 of Morphine hydrochloride may be
given that from time to time
Belladonna are very efficacious
if neuritis is present in the
cause of a nerve.
A case of malignant tumour arising from the coccygeal gland.
Case No. IV

Brodie's Abscess in the Femur

Illustration:
1. X-ray photograph showing the appearance and position of the abscess in the bone.

J. Burns
August MacPherson: age 33 years.
Sgt-Maj, 11th Scottish Horse.
Date of admission Nov. 16th 1916.

Complaint - Pain in the left leg.

History.
Date of onset - 23 Oct. 1916.

Patient was out in the trenches in Gallipoli and one day while under shell fire he got a blow on the left thigh from a stone or fragment of shell. This caused him pain and stiffness in walking for some time. A day or two later he began to feel "seedy and out of sorts" but he did not report sick at this time.

The medical officer, however, noticed that he was not well and took him off duty and kept in his dug-out. He felt fevered (his temp. he says was 104.6°) and had severe pain in the left thigh. The pain was growing in character and
bony into the bone. The thigh was beginning to swell and was very tender. He was conveyed by ambulance to the base and then transferred to a hospital ship. He was confined to bed and was suffering greatly from the pain in the thigh which appeared to be spreading in extent. The thigh was painted frequently with Jodine. While on the homeward voyage he contracted pleurisy.

Since admission the extreme pain has passed off but there was still some pain worse at one time than another. And there was tenderness over the swollen area. Patient said that he used to sweat a good deal at night but that has now stopped.
Examination

Left thigh was swollen. There was a fusiform swelling anteriorly on the line of the upper and middle thirds of the femur and extended laterally. There was redness and redness of the skin on the lateral aspect of the thigh extending around the region of the greater trochanter. The muscles below this swollen area were wasted.

Palpation showed a degree of extreme tenderness at a point in the line of the femur at the junction of the upper and middle thirds and pain on pressure 2" below the great trochanter.

Pulse 108, Resp 20, Temp 102.8°

He had always been a healthy man and had no previous illnesses. There was nothing of interest in the Family History.
Operation. 29th Feb. 1916. 14th Volos.

An incision was made over the shaft of the femur on the outer side just below the trochanter parallel to the shaft. The bone was exposed and the shell over the abscess gouged away. Pus lay in the tissue around the bone. The cavity was found to contain pus and this was evacuated. The inner wall of the cavity was then scraped freely and a cloaca found to pass forward to the anterior surface of the bone. The cavity was packed with Eusol swabs.

Anesthetic used was Chloroform followed by Ether.

1. The pus from the tissues round the Brodie abscess and the pus from the Cloaca cavity were examined by the Bacteriologist in the former case from 14 samples of fluid and culture the organism.
present was the Bacillus Coli. In the pus from the abscess cavity by a similar examination the organism appeared to be Bacillus Paratyphosus.

**Progress Notes.**

Admitted to the Infirmary on Nov. 16th, 1916. From this time until the end of February patient was undergoing medical treatment.

**Nov 16th - Dec 6th**

*Temperature very variable but above normal ranging from 99°-103°.*

Pulse varied with its temperature 90-118.

Respiration were on the average 24-32.

At this time he was getting:

Soda Salicyl x90.

Soda Bicarb. x 90. Three times a day. This was stopped on 26th Nov.

He was put on 13 doses of Cod Liver Oil and 5 grains doses of Bromide C.I.d.

**Dec 4th - Dec 24th**

Temperature still above normal. 99°-102°.

Pulse still oscillating with the range 80-106.

Respiration were steady 22-24.
Treatment now was Broads 10 g os c. i. d.
and Crecoate Capsules 3 1/2 c. i. d.

Dec 28th - Jan 19th

Temperature now was settled with
an occasional rise to 101°.

On the 13th Jan a swinging temperature
began to develop going up in the
afternoon & coming down 2-3° in the morning.
Pulse still varied with the temp.
Respirations were steady. This went on to 1st Feb.

Feb 8th - 28th

Temperature still swinging 94°-100°.
Pulse 70-130. per minute.

Patient was X-rayed on the 21st Feb.
Operation on the 29th Feb. A hypodermic
of heroin was given to relieve pain.
The following day temperature rose to
103° but came down again the next
day. to 96.5°. Temperature remained
practically normal till 20th March.

March 21 - April 10.

Temperature still settled except a
rise on two occasions to 100°.
Pulse 70-100. Got up April 12th
April 11th - May 1st - Temp. again elevated.
Swinburne in character. An abscess in the region of the great bochanka was opened. Pulse was variable corresponding to the rise and fall of the temp. Resp unaffected + 20 per minute.

May 1890 - to present:
Lump is normal.
Pulse 88 Resp 20.

Treatment (post-operative):
The true cavity was packed with swabs soaked in Eusol. When the dressings were changed Eusol was syringed into the abscess cavity and then packed with Eusol swabs covered with waterproof, wool etc.

An abscess was found pointing near to the great bochanka. This was opened and there was a communication between this abscess cavity and the true cavity. Eusol was syringed through it too.
Commentary

1. Diagnosis

The chief difficulty in this case was that of a correct diagnosis. Initially the patient was suffering from pain in the left thigh, swelling in the region of the joint, with impairment of, and pain in, movement of the limb. There was also a high temperature. At this stage before symptoms became definitely localized the diagnosis made appears to have been that of Acute Rheumatism. This was the view taken at the Base Hospital in Gallipoli.) On admission to the Infirmary he was considered a medical case and was put on anti-rheumatic treatment. There was no relief in the symptoms and the temperature remained elevated at 100°-103° F. This form of treatment was suspended. Sweating at night and the development of a swarthy temperature gave rise to the
Possibility of the condition being of a tuberculous nature. He was put on Cod Liver Oil + Cresote. There was not much effect at first but in a week or two the temperature became more settled though the evening rise and morning fall was still evident. During this time the local symptoms in the left thigh were present. There was swelling of the upper part of the thigh, some redness of the skin, and pain which to the patient felt to be localised in the bone itself. This pain was often severe at night and interfered with his sleep. The condition appeared to be more a surgical than a medical one. The patient was X-rayed, & Mr. Hels was asked to see the case. The result was that operation was performed and the conclusion found to be an abscess in the upper part of the femur.
This last point, however, was not easy to clean up. Before operating, for example, among other conditions (tuberculosis, etc.) that had to be considered, was the question of malignant disease. In such cases of subacute and chronic inflammatory disease of bone with localized swelling the differential diagnosis of sarcoma is not easy. In the case of a chronic inflammatory condition the most frequent lesion is a Brodie's abscess resulting from a previous acute pyogenic osteomyelitis. In the case that was no such history to help us, the point was acquired into particularly. There were no scan or marks present on the limb that could point to healed abscesses.

Was it sarcoma?

1. Age - Sarcoma of bone is met with in people up to half year of age. As the patient is only 33 yrs of age this point was of no value in as
Radiograph showing a well marked circumscribed area in the upper part of shaft of femur with thickening and sclerosis round about.

Angus McPherson.

Brodie's Abscess.

J. C. Binns
1. **Pain.** In cases of *Central Sarcoma* this appears early in the disease. It is a constant, aching pain, worse at nights but not increased on movement. In this case pain was severe, intermittent at times, worse on movement, and on pressure, and definitely localized at one point.

2. **Swelling.** In *peripheral tumours* swelling is an early symptom, but a late symptom in *Central Sarcoma*. The swelling is fusiform - "leg of mutton" shape, localized and with a definite contour. The consistency varies in different parts and usually there is a crackling sensation on deep pressure. In *Central Sarcoma* a pulsatile tumour may be felt. In this case swelling appeared early, and with the signs of an inflammatory reaction - Pain, Heat, Swelling, Redness, Constitutional Disturbance.
H. X-Ray Appearances. This is the best + one of the most reliable
points in making a diagnosis.
In Sarcoma an ossifying tumour
is easily recognised by the
appearance of the new formed shell
of bone. In Central Sarcoma
which is cellular the bone shadow
in the tumour area is obliterated +
The adjacent bone of the shaft is
of normal appearance.
In this case the X-ray picture
showed a well marked circum-
scribed area in the upper part
of the shaft of the femur with
well marked thickening and
sclerosis of the surrounding bone.
From a consideration of these various
points it will be seen that most
information is obtained from the
X-ray appearances + this is true
Generally of bone lesions for not
only is the nature of the lesion made
manifest but its localisation is rendered
How did this Abscess in the Femur arise?

Examination of the pus obtained at operation, by the Bacteriologist showed the presence of Bacillus Coli and Bacillus Paratyphosus.

The patient was in Gallipoli some months previous to his illness.

Where so much Typhoid, paratyphoid, and Dysentery abounded, it is only reasonable to suppose that this man's intestinal tract contained a considerable number of organisms of the Coli - Typhoid group, but not producing symptoms. As Kocher and Sabli have pointed out the blood stream can become infected with mere organisms from the intestinal tract and set up a pathological process when the tissues are favourable. If diminished resistant power is present in this case where we have damage producing this state of affairs.
He was sustained a blow on the thigh severe enough to cause some pain and discomfort on walking. A traumatic periostitis may have been set up in this part of the femur leading to a lowering of the vitality of the bone in that area. The organisms circulating in the blood stream would readily reach this favourable part by reason of the rich vascular supply found in the end of the long bones. The bone marrow in this area was not in a condition to resist the organisms they gained the upper hand. This lowered vitality of the marrow however was only localized and the healthier marrow was able to prevent the spread of suppuration. The general signs of the inflammatory reaction were present. As time went on the localized area of suppuration set up an irritative condition of the surrounding marrow causing stimulation of the osteoblasts with
The resultant production of new bone giving rise to Schmorl's nodes of the shaft round the abscess cavity. The periosteum by laying down new bone on the surface in this area gave rise to thickening of the shaft.

- Hyperostosis.

**Treatment of the Bone Cavity**

Cut down on the bone, reflect the periosteum open the bone by a chisel or trephine. If the abscess is reached pus escapes. If not found trephine to bone in various directions. The lining granulations are scraped.

**Post-operative treatment of the Cavity**

The process of repair in such bone cavities is a long process, many methods of filling the cavity have been adopted. In this case Eusol was used.

1. Eusol quickly overcomes repair.
2. The position of the cavity was such that Eusol could be injected to come in contact with organisms.
3. Granulation tissue is promoted.
4. There is no irritation produced or side effects from absorption.
A case of Brodie's Abscess in the Femur

J. Burns
Case No. VI.

Nephritis treated by

double decortication of the

Kidneys.

J. Burns.
Jeannie Johnston, age 6 years.
Admitted to Ward 9 on 9th Feb. 1916.
Complaint - Swelling of the body and eyes.

History:
In October 1915 she was admitted to Ward 33, on account of vomiting and swelling of the body and face. The facts obtained there, were as follows.
On the Tuesday three weeks before admission to Ward 33 the child took ill while she was at school. When she got home she took a fit of shivering and vomited and her nose bled a little. A week later she vomited again. She complained of having a sore belly in the right side when she coughed and also her back was sore. On the first Saturday her eyes swelled somewhat and she was passing very little urine. On the Sunday her body was swollen, this
continued till the following Thursday when she had her second attack of vomiting and felt worse again. After the Tuesday the Doctor gave her some medicine which increased the quantity of urine - it had a very solid deposit on standing and was of a reddish colour. She had no rash, nor had any of the children in the house though there were cases of Scarlet Fever in the next house.

Examination on Admission to Ward 33.

Child was somewhat swollen about his body and lower limbs but looked fairly well. The following morning she developed a rash, of slight temperature. The rash was on the anterior aspect of the Right Thigh & was of a homogeneous type red colour & not raised. Very tender to the touch. Next morning the rash had faded but appeared in the posterior aspect but this also disappeared. Thus
was no sore throat and no signs of disquamation. Swelling gradually disappeared only a little remaining in the legs.

there were 2 for albumen to 16 oz. and 10 oz urine were passed at first.

she was kept on milk diet with an occasional milk
hot baths were also given.

she was under heparin treatment until february 9th 1916. during this interval the dropsy continued to develop but to increase in the

bedroom was not constant, at times the child being less puffy than at others. the secretion of urine fluctuated, on the average the daily urine passed was 20-25 oz in the 24 hours. the highest on two occasions was 40 oz but on various occasions the amount passed was as low as 10 oz.

the urine contained a considerable amount of albumen; at times
The albumen would rise to 12-16 gms to the ounce of urine, and again would remain at 1-3 gms per oz for some days. The secretion of urine also fluctuated.

The patient was transferred to Ward 9 on February 7th, 1916.

At that time the patient was very disfigured. The face was pale, very puffy and the eyes encrusted by the very oedematous lids. The lungs were very oedematous also and the peritoneal cavity contained fluid. The vulva was also distended with oedema.

Respiration was unsatisfactory, the apex beat was displaced to the left side.

The albumen in the urine was 6 gms to the oz. Microscopically there were hyaline and granular casts.

Operation was decided on. Both kidneys were to be decapsulated at the time of operation.
Operation. 11th February 1916. 11.00 A.M.

Anæsthetic: Ether throughout.
The right kidney was exposed first, by an incision about 1 inch below the last rib
and parallel to it, extending from the midst border of the
Teres major muscle. This was
carried down to the level of
the muscles of the abdominal
wall and the fascia behind the
External oblique was opened into.
The posterior fibres of this
muscle were cut and the
perirenal fascia divided and
the kidney drawn into the wound.
It was large and congested
with one or two pale areas.
The capsule was incised in its
long axis and stripped off
almost to its hilum and then
clipped away. The kidney was
replaced and the wound closed
The left kidney was similarly
dealt with and the child
returned to bed.
During the operation the kidneys were wrapped in cotton wool and a large pad of wool placed on the chest. The whole operation lasted about 16½ minutes and the child rapidly recovered from the anaesthesia and was able to understand what was said to speak in reply in about 20 minutes. There was practically no vomiting.

Progress Notes
13. 2. 16. Wounds healthy.
21. 2. 16. Stitches out.
25. 3. 16. Got up.

Commentary
The points that require especial notice in connection with this case are:
1. Effects of the operation on the urine and oedema.
2. The operation - indications for and against.
3. The anaesthetic.
The Urine

In October 1916 when the child fell ill its symptoms were shivering, vomiting, pain in the back, swelling of the body and eyes and marked decrease in the amount of urine voided. The urine passed was dark colored, and had a thick solid deposit.
The girl had contracted an attack of acute nephritis such as would follow chill or scarlatina.
In such a condition the character of the urine was:

**Quantity** - Diminished, at times to a great degree. If the acute stage ends to pass off, the quantity increases.

**Colour** - dark, clear up as the acute stage passes off.

**Sediment** - copious brownish in colour due to urine, blood and colurn water.

**Tubec** - diminished in amount.

**Albumen** - is large in amount.

**Casts** - hyaline and granular casts in considerable number also red blood cells.
A daily examination of the urine was made and a record of the amount passed was kept. These figures have been incorporated in the appended tracing of the curves. The curve represents the amount of urine passed in ozs per day. The second curve represents the quantity of albumen present, measured in grains per oz. These records cover the urine from admission to the infirmary until a few days before discharge.

These curves illustrate the fluctuation in the amount of urine and of the amount of albumen from day to day. The effects of the operation are also to be noted on the two curves.

During the three and a half months the patient was under medical treatment daily persisted, the amount of urine varied from 10-40 ozs per day, the albumen from 0.39 to 16 grs. It seems therefore that the acute condition had passed.
into a subacute or chronic condition.

A Chronic diffuse nephritis is often the sequel to an acute nephritis especially in cases from scarlet fever.

In such a condition of the kidneys, the character of the urine are:

Quantity: diminished in amount but not so great as in acute forms.

The daily amount fluctuates more widely.

Albumen: This is always present and may be in large amounts which are subject to great variations.

Leads: are numerous. In earlier stages hyaline and granular predominates.

Red Blood cells are present in acute exacerbations.

It will be noticed from the curves of urine and albumen that on the day following operation there was almost complete suppression of urine only 2½ oz being recorded and in healing became almost solid.
from the great amount of albumen present. In the following day the amount passed was 8½ qo and thereafter the amount of urine showed a tendency to increase. About three weeks after operation the amount of urine rose quickly to 30–35 qo and remained at this for about a week and then fell to 20 qo and thereafter thereafter averaged 25 qo.

As regards the albumen for the first week after operation the quantity varied much but after that it began a fairly steady and constant decrease and for 10 months before discharge varied from 0.313 qo – 0.017 qo per q.

As regards the oedema there was no perceptible effect until about a fortnight after operation when the urine became copious the dropsy began to disappear more quickly and finally
disappeared. When able to get up, the child was very lively and in good health, nothing took place to interfere with her convalescence. When she was discharged there was still a slight amount of albumen present in the urine.

**Operation**

The operative treatment of nephritis as of fairly recent date. The first mention of surgical interference in kidney disease was in 1894 when Harrison proposed puncturing the kidney for cases of haematuria with albumen and renal pain. He found that by this method of taking by incising the capsule that these symptoms cleared up probably from the relief of congestion in the affected kidneys.

In 1899 Ferguson claimed that two of his cases of chronic
Interstitial nephritis had been cured of symptoms by incision of the capsule and renal puncture. It was Edebohls in the same year that advocated the operation of decapsulation of the kidneys in Bright's disease. In 1900, he recorded a series of cases successfully treated by this means.

How is relief brought about?

The kidney is enclosed in a capsule of very slight degree of elasticity. Tension is quickly produced by engorgement from the increase of blood in inflammation, by oedema, and by proliferation of the kidney elements. In such a case then incision or stripping off the capsule will relieve this tension and give the kidney a better chance to recover. Edebohls' hypothesis was that in decapsulation relief was due to the formation of a new circulus through its new formed adhesions.
These adhesions contained more active than venous; that the free blood supply absorbs exudate and products of inflammation, frees the tubes and glomeruli from pressure and constriction, causes the re-establishment of a normal circulation and regeneration of epithelium.

It is not easy to see, however, how this increased blood supply comes about. When the raw surface of the kidney is replaced in its bed adhesions are sure to form and in the natural process of repair scar tissue will result which is usually devoid of blood vessels.

The exact status of this operation has not yet been definitely fixed, but there are cases in which operation is contra-indicated and cases in which it is called for. Operation, however, should not be resorted unless medical treatment
has been fluid and proved unavailing, and where the symptoms are seen to be getting worse, aggravated and even dangerous.

Indications for Operation

1. Persistent oedema.
2. Anaemia.
3. Excessive albuminuria.
4. Suppression or persistent or notable diminution of the amount of urine bored.

The type of cases are Acute Nephritis or Chronic Nephritis with Acute exacerbations. The best results appear to occur in the Chronic parenchymatosus nephritis in which there is marked anaemia.

In this particular case operation was justified on the following points:
2. Marked oedema.
3. High amount of albuminuria.
4. Diminution in the urine bored.
5. Age of the patient.
Operation is Indicated in:
1. Cardio-vascular disease
2. Patient over 50 yrs of age

As was done in this case both kidneys may be done simultaneously or they may be done on two separate occasions.

The results of the operation are:
1. Disappearance of dropsy
2. Increased tension of urine
3. Great diminution in albumin.

After operation there is transient anuria, then in about 10-14 days polyuria etc. In about a month there are decided signs of improvement and improvement is gradual. These points are illustrated in this particular case. Whether permanent cure is established is doubtful but there is great amelioration of the symptoms. When this child left the ward it was evident that she had been given a new lease of life.
The Anaesthetics

The anaesthetic used in this operation was ether. The child went under quietly and deep anaesthesia was obtained in about 4 minutes. The ether was administered by means of an ordinary mask covered with gauge and a fold of gauge placed over the patient's mouth and nose. During the operation the body had to be turned on one side but no respiratory difficulty was met with despite the great amount of oedema. All parts of the patient outside the area of operation were wrapped in cotton-wool to counteract the cooling effects of the body of ether and to lessen the shock. When once deep anaesthesia was obtained very little ether was given and the operation was performed rapidly. The child on being taken back to bed soon recovered from the
Effects of the anaesthetic. There was practically no vomiting. There was no disturbance of the Cardiovascular or Respiratory systems.

This is considerable difference of opinion as regards the choice between Chloroform and Ether in such cases. Both forms of anaesthesia are said to produce renal irritation with albuminuria but Chloroform is less liable to produce albuminuria in supposed healthy kidneys. Ether is said to increase a pre-existing albuminuria as well as haematuria and a tendency to suppression of urine. These effects of the ether, however, can to a great extent be eliminated by careful administration. When such precautions are taken renal complications are exceptional.

Again in regard to the question of shock. Patients undergoing operations on the kidneys, and
sion especially when both kidneys are being dealt with are particularly liable to shock. Again, from the nature of the operation and position of the patient suffers with free breathing. Anaesthesia must be deep in order that the surgeon may have proper access to the kidneys. Taking these points into consideration other is to be prepared to chloroform provided that due care is taken in its administration and no access of the anaesthetic is given.
A case of nephritis treated by decapsulation of the kidneys.
Essay for the

Pattison Prize

in

Clinical Surgery

June 1916