Thesis for the Degree of Doctor of Medicine

by

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Mrs. C. W.
Retropharyngeal Abscess

I have chosen the above subject owing to the circumstance of my having had four cases in my own private practice.

As a student I was under the impression that the majority of these cases were due to spinal cavities, of which I saw an example in the Infirmary.

Of the four cases under my care, only one was due to cavities of the spine, therefore I thought some more common cause was to be sought for and began to study the literature of the subject. This I was the better able to do through the kindness of medical friends in Russia, where the disease is common among the poorer classes.

I shall first make a few remarks on the anatomy of the parts concerned.

The diagrams. No 1 is a copy from Gray's Anatomy and shows the relation of the parts in an antero-posterior vertical mesial section. No 2 and 3 are traced from actual specimens and show the relation
of the parts in transverse section at different levels.

After this I shall take up the disease as regards the Etiology + Pathology, Symptomatology, Diagnosis, Course, Prognosis + Treatment; & add a few notes of cases.

Anatomy

The Retropharyngeal Space "so called" is situated behind the mouth and larynx extending upwards as far as the base of the skull & downwards as far as the 4th or 5th cervical vertebra. Its contents consist of areolar connective tissue in the adult with the addition of lymphatic vessels + glands in the child. There is little areolar tissue found below the level of the 4th cervical vertebra. The space is somewhat triangular in shape with the base uppermost. It is bounded in front by the posterior wall of the pharynx, which is composed of mucous, muscular + fibrous coats, the latter
Incision anterior to Sternocleidomastoid

Incision posterior to Sternocleidomastoid
being especially strong near its attachment to the base of the skull. The muscular fibres are not found at the base of the skull and do not appear until the level of the body of the 2nd vertebra is reached. The posterior wall of the space is formed by the strong prevertebral muscular aponeurosis. But in considering this space in connection with retropharyngeal abscess formation, the bodies and intervertebral discs of the first five cervical vertebrae and prevertebral muscles must be taken as forming the posterior wall. A little to either side of this space are found the great blood vessels of the neck lying under cover of the sterno-clidomastoid.

In children, under five years of age, there is found a complicated network of lymphatic vessels, from which minute ducts lead into and form two important lymphatic glands situated on either side of the middle line at the level of the second cervical vertebra between the superior constrictor of the pharynx and the prevertebral muscular aponeurosis.
These lymphatic vessels & glands are never found after the age of five years.

Definition

An accumulation of pus in the retropharyngeal space.

Etiology

The above definition includes a series of disorders, which have little connection in their origin. They, however, must of necessity agree closely in the symptoms they produce.

Until a few years ago all accumulations of pus in this space were attributed to spinal caries, it is now known that only about 2½ per cent are due to this cause, the great majority being due to a lymphadenitis.

The disease is most commonly met with in children under the age of five years. In adult life it is seldom seen & each case is unique as: - Abscess following on the penetration of a chicken
bone through the posterior pharyngeal wall.

Syphilis or secondary to long continued suppuration in adjacent parts. &

The disease is not so commonly seen in Great Britain as on the Continent. It is common in Moscow & Vienna among the poorer classes when the sanitary arrangements are defective or neglected. It is not frequently met with in Paris & the same may be said of New York. In London also it is comparatively rare for out of a total of fifteen thousand new cases which passed through the London North Eastern Hospital for Children there were only three cases of retropharyngeal abscess. In Scotland it is apparently not often seen as only a few cases have been placed on record.

It is most often met with during the winter & spring months owing no doubt to the prevalence of nasal catarrh & sore throats at this time of year.

The class of patients most prone to the disease are ill-fed & badly clad.
stromous children in insanitary districts

Classification

All purulent accumulations in the retropharyngeal space may be classified as under:

First.

Single congestive purulent gathering, which may arise in connection with various inflammatory processes in the vicinity, such as: — Cervical phlegmon, inflammation of cervical lymphatic glands, periostitis of adjacent bones, parotitis.

Second.

Tubercular congestive purulent accumulations developing in connection with cervical spondylitis.

Third.

Retropharyngeal Abscess proper due to inflammatory processes in the space itself. This group may be subdivided again into:

A. Traumatic Phlegmon of the retropharyngeal cellular tissue.
B. Metastatic inflammation due to the passage of micro-organisms through the circulation as in the case of fevers.

C. Suppurative retropharyngeal lymphadenitis due to organisms passing along the lymphatic vessels and being arrested in the glands. This class includes about 75 per cent of the whole of the cases placed on record.

First

Those cases coming under the head of single congestive purulent-gathering may be met with at any period of life, but are most frequently seen in children. Considering the frequency of inflammatory processes in the vicinity of the larynx, one might expect to find this a common cause of retropharyngeal abscesses, but this is not the case. When however there is an acute inflammatory process in the adjacent part, the pus may find its way into the cellular tissue of the retropharyngeal space & produce there an abscess.
inflammation with pus formation. This form of abscess does not differ in the abscess formation in any other cellular tissue of the body. It must, however, be borne in mind that this form of abscess is exceedingly rapid and destructive as contrasted with the abscess formation of gland tissue.

Second

Tubercular congestive purulent gatherings developing in connection with a cervical spondylitis. This form of abscess was until recent years considered to be that most commonly found in the retropharyngeal space. The caries usually attacks the bodies of the first second cervical vertebrae and the pus formed may penetrate down behind the prevertebral aponeurosis or burrow through it into the retropharyngeal vascular tissue. It is generally found in delicate patients and may occur at any age but is most frequent in children. It constitutes only 2½ per cent of five hundred and fifty recorded cases. It is an extremely
dangerous and frequently fatal condition.

Third

Retropharyngeal abscess proper due to inflammatory processes in the space itself. This form may be conveniently divided into three subdivisions.

A. Traumatic phlegmon of the cellular tissue, direct invasion of pathogenic microbes.

B. Metastatic inflammation of the tissues produced by microbes penetrating through the circulation as in the case of smallpox and other fevers.

C. Suppurative retropharyngeal lymphadenitis which is induced by microbes passing along the lymphatic vessels and becoming arrested in the glands. This latter group is frequently called the idiopathic form and constitutes about 75 per cent of the whole of the reported cases of retropharyngeal abscess.

Division A

Traumatism. This form may occur at any period of life, but...
again injuries about the head & neck, & the passage of foreign bodies into the mouth & pharynx are more common among children than adults. A case of this nature, which I had under my care, was caused by a young boy falling with his forwards & mouth open on to a blunt stick which penetrated the posterior wall of the pharynx. The abscess, which formed, was a large one & the patient being of a somewhat delicate constitution his recovery was slow. Another case of this nature is reported to have been due to a blow on the bowl of a church warden pipe driving the stem through the posterior pharyngeal wall. This form also includes injuries through swallowing bones & other foreign bodies.

Division 13

Not infrequently a retropharyngeal abscess develops in connection with one of the fevers through the microbes passing along the circulation, when present it forms a very serious complication.
Division C

Suppurative retropharyngeal lymphadenitis caused by microbes passing along the lymphatic vessels and being arrested in the glands. This form as before mentioned constitutes about 75 per cent of all cases. It must be looked upon as a disease of childhood. The retropharyngeal lymphatic glands are found about the level of the second cervical vertebra, behind the superior constrictor of the pharynx and in front of the prevertebral aponeurosis; these glands do not exist as a rule after the fourth or never after the fifth year (Sokoloff, Simon & others).

Many years ago the famous surgeon Rokitansky drew attention to the peculiarly slow suppurative process in these cases, and described it as characteristic of suppuration in lymphatic structures as contrasted with the rapid process in cellular tissue. This statement led more recent observers to closely examine the retropharyngeal glands in connection with abscesses in that region. At the age of two these glands, in the majority of cases, can
be demonstrated without difficulty. I have seen them myself on one or two occasions. They appear to remain active till about the third year after which they rapidly disappear.

That the abscess is due to inflammation in these glands is proved by the following viz: -

1. The slow character of the process as compared with the rapid development in areolar tissue.

2. Suppurative processes in the areolar tissue of infants are not frequently met with.

3. Glands in a state of metamorphosis have been found (Simon, Journal Paedi)

The gland on the opposite side is frequently affected & has been found in an early stage of suppuration.

4. Enlargement of the cervical glands on the same side.

5. The frequency with which the abscess follows upon a nasal catarrh owing to the communication between the lymphatics of the nose & those
of the retropharyngeal space.

6. The age of the patient - the glands disappear before the age of five years and this form of the disease is never seen after that age.

7. The disease occurs usually first when the glands are at their greatest activity or perhaps at the beginning of their physiological decay and are most apt to take on a morbid process with least provocation.

8. The gradual bulging of the posterior pharyngeal wall as seen by Mr. Bilton Pollard during attacks of nasal catarrh.

Symptomatology

In the adult the disease as a rule runs a very rapid course since it involves cellular tissue and thus the symptoms are well pronounced and rapidly progressive. The respiration is increased but not so much embarrassed as might be supposed. The voice is nasal and its production causes severe pain of a dull gnawing character.
Deglutition is always interfered with, the pain caused by the act of swallowing varies with the extent of the disease, but it is in all cases more or less severe. The temperature is elevated from the first onset of the disease thus differing from the case of infants when it does not as a rule rise for some days. The face presents the characteristic anxious expression of disease of the throat.

Owing to the nature of the tissue (cellular) in which the abscess is situated, it is apt to involve a large portion if not the whole of the retropharyngeal space and according to its extent the severity of the symptoms will vary.

The abscess when large tends to burst with forced inspiration or expiration. Should this happen, when the patient is asleep, a fatal result may follow.

In the acute retropharyngeal abscess of children we find a fairly uniform train of symptoms, which preserve a more or less definite course irrespective of its etiological
history. This however is not the case in adults for here we find the symptoms as diverse as the causes of the disease. In children as already stated the symptoms are fairly uniform, but there are also special important manifestations of the disease in some of its forms, which must receive separate notice. The first symptom which attracts attention is the refusal of the child to take food with consequent restlessness and loss of flesh. As a rule the disease is preceded by a nasal catarrh which however may be so slight as not to draw any special attention. Suppuration in a lymphatic gland is a slow process and thus many days may pass before the symptoms become sufficiently urgent to demand special attention. In a few days there is an alteration in the tone of the voice whilst every attempt to phonate is followed by a peculiar painful cough similar to that felt in acute laryngitis. This symptom varies much with the severity and extent of the abscess.
Difficulty in swallowing is an early symptom, the superior constrictor of the pharynx playing such an important part in the act of swallowing that any interference with its normal action must soon make itself manifest, in addition the contraction must cause increased tension in the abscess cavity. Besides the passage of a bolus pressing against the tumour is exceedingly painful. As a result the child refuses the breast or food, indeed if the abscess is large it is extremely difficult to get any liquid past.

If the abscess is most prominent in the upper part of the space swallowing will be difficult and painful, whilst if low-down respiration suffers most.

Respiration is generally rapid. It is much worse during sleep, when a peculiar mourning sound is never absent, and also when the patient is in the horizontal position.

The temperature is greatly influenced by the constitution of the child. At first it does not vary to any great extent,
it often rises a little but not as a rule till the disease has advanced considerably.

This point strongly to the lymphatic origin of the abscess, for the early suppurative process in lymphatic glands is not indicated by any alteration in the temperature. As the disease advances a marked rise will occur + 103° or 104° F. may be reached. The pulse rate is increased from the first onset.

The above symptoms continue to increase & become greatly aggravated as the disease advances. Cyanosis soon becomes marked & both inspiration & expiration are laboured. At this stage there is great danger of a violent effort either at inspiration or expiration bursting the abscess & a quantity of pus being drawn into the air passages producing a fatal result.

Symptoms in special cases -

When the abscess is small there may be very little disturbance of either swallowing or breathing & the disease run a latent course; hence the necessity of a careful
inspection of the throat in young children. In a case reported by Dr. Lewis Smith the patient died at the age of nine weeks on post-mortem examination a thick-walled retropharyngeal abscess was found. In the most common forms of retropharyngeal abscess the pus is found in the retropharyngeal space anterior to the prevertebral aponeurosis but this is not the position of the pus in congestive tubercular pyrulent gatherings developed in connection with cervical caries. This form may occur at any age but it is generally seen in strumous children. The pus is formed from the bodies of the 1st and 2nd cervical vertebrae behind the prevertebral aponeurosis and tends to pass downwards giving rise to various symptoms according to its extent. It does not produce such a circumscribed swelling in the retro-pharynx. Respiration may be little affected, deglutition is always difficult. The temperature in these cases is important there may be a rise of one or two degrees at night with a corresponding fall in the morning. Pain & fixation
are the two most important symptoms in this condition. There is characteristic rigidity of the head, which is generally inclined forward & slightly to one side (to the opposite side to the disease when unilateral). Any attempt at movement produces a dull gnawing & occasionally sharp shooting pain. A case is reported (New York Medical Record 1883) where a unilateral cyanosis of the face was produced by a deep burrowing of the pus which seemed to obstruct the cervical veins in some way.

Diagnosis

The difficulties of making a correct diagnosis are not great, but nevertheless serious mistakes have been made. A case has been reported (Jameel 6475—1893) in which the abscess was mistaken for tonsillitis & a dose of salicylate of soda was ordered, when the patient, in attempting to swallow the first dose, burst the abscess & seriously endangered his life, laryngotomy having
to be performed. Another instance of mistaken diagnosis was published (Lancet 1848 Vol. 1 page 233) in which the tumour proved to be an aneurism and fatal haemorrhage followed the incision.

It is much more difficult to make a correct diagnosis of the disease in children than in adults, but in both strict caution & careful examination are required. Under the most favourable circumstances it is not an easy matter to make a careful examination of the pharynx in children. There is usually a quantity of mucus about the mouth & great irritability of the parts.

The interference with normal de-glutition & respiration with pain in the faunial region is sufficient to indicate the position of the morbid lesion. In addition when the abscess is due to cervical spinal carries the fixation of the head & pain on movement combined with the history of the case & characteristic temperature points strongly to the source of the trouble. It must be remembered as before mentioned, that in the large
majority of cases in childhood the abscess is not the result of a phlegmonous inflammation but is of a lymphatic origin + of a more chronic character; consequently the tumour is not surrounded by any active localized inflammation. Upon examination an asymmetrical condition of the parts with a bulging of the tumour on one side. Once having discovered the tumour it should be carefully palpated with the finger when a peculiar elastic sensation will be felt, in addition to this a probe should be gently pressed against the enlargement + then removed sharply in order that a bleaching + slow return of the superficial circulation to the bleached point may be observed. This is characteristic of the presence of pus. It is advisable in any doubtful condition associated with the throat, which presents difficulties of palpation and inspection, that an anaesthetic should be given. This must be given with very great caution + not deeply owing to the
danger of suffocation in the case of the abscess bursting. The examination should be made with the patient's head hanging down over the end of the table to avoid the danger of pus passing into the air passages, should the abscess burst.

If an abscess presents itself in any part of the neck, the pharynx should be carefully examined, for cases have been reported in which the pus found its way down towards the clavicle.

The symptoms generally may resemble oedema glottidis, tonsilitis, catarrhal laryngitis & membranous croup, but careful inspection & palpation will generally make the diagnosis clear.

An extremely rare condition which might be mistaken for retropharyngeal abscess was reported by Dr Sokoloff of Moscow (Vreuch 1891, No3 p.88 - Journal of Laryngol & Rhinol: May 1891). It is a form of tuberculosis of the retropharyngeal glands. It differs however from retropharyngeal abscess in the
following points:

1. Simultaneous presence of tuberculous lesions of deep lymphatic glands on the corresponding side of the neck.
2. The affection persisting for months.
3. The swellings are harder and cannot be reduced either by puncture or by incisions.

Course & Prognosis

The course & prognosis in all cases of retropharyngeal abscess depends largely upon three factors viz: 1. The cause of the abscess 2. The constitution of the patient & 3. The early recognition of the disease.

It is necessary therefore in considering this part of the subject to take up each division of the classification separately.

First

Single congestive purulent gatherings in the space which may arise in connection with various acute inflammatory processes in the vicinity such as: - Cervical phlegmon, parotitis &c.
As a rule this form of the disease runs its course in from five to ten days & if not previously opened will finally burst & discharge its contents. If the bursting should unfortunately take place it may produce evil results. For bursting into the pharynx & a large quantity of pus being drawn into the larynx asphyxiation may follow as in the case reported in the "Lancet" (Oct 15th 1893). If only a small quantity of pus is drawn into the larynx a septic pneumonia will be set up in course of time, which will be all the more likely to happen owing to the previous respiratory troubles & the weakened condition of the patient.

These forms of retropharyngeal abscess do not however as a rule give rise to much danger. If opened early they rapidly subside & give no further trouble. The most serious aspect being the danger of its being overlooked & the onset of complications as: - Edema glottidis.
Second

In the case of the tubercular congestive purulent accumulations due to caries of the cervical vertebrae, the course is protracted and the prognosis unfavourable.

A correct diagnosis and prompt treatment are absolutely essential to a favourable course and prognosis, if such can be given at all in this serious condition. The disease develops insidiously and the pus may burrow down the course of the vertebral column behind the nape even reaching as far down as the first or second dorsal vertebra (Lancet Vol II 1887). The caries may exist for months undetected as was shown in Dr. Ripley's case (Nose & Throat, Bosworth). The child was three years of age and had been ill nearly three months before it came under observation. A dry cough developed with dyspnoea and a stiffness of the neck, the head being thrown backward. The voice was hoarse owing to pressure on the recurrent laryngeal nerve and the veins of the neck distended.
Tracheotomy was performed but death followed fifty-two hours afterwards. The necropsy revealed caries of four cervical vertebrae & an abscess passing down behind the oesophagus. It is difficult to determine how long the abscess may have been present in this case.

In another case reported by D'Herrier (Rev. des Mal. de l'Enfance) the caries was known to have been present for eighteen months whereas the retropharyngeal abscess had only existed a few weeks.

D. Richards also describes the necropsy on a case in which the caries had existed for about three months without showing itself in the pharynx.

It is not an uncommon circumstance for the pus in this form of abscess to extend outwards & present itself under the sternomastoid muscle as in the case treated by myself (see notes of cases at the end).

If the abscess is allowed to burst into the pharynx, it empties itself imperfectly and decomposition of the discharge ensues thus perpetuating the disease.
A fatal termination is frequently the final result in retropharyngeal abscess arising from spinal caries.

1. Because the disease as a rule remains long unrecognised owing to its insidious onset, very large abscesses form owing to the burrowing tendency of the pus.
2. The disease occurs in delicate patients of a very strumous constitution.
3. Lardaceous disease setting in owing to long continued suppuration.
4. Bursting of the abscess in some distant part setting up fatal sepsis.
5. Laceration of the Atlas forward, compression of the cord = asphyxia.

Third.

Retropharyngeal abscess proper due to inflammatory processes in the space itself.

A. Traumatic phlegmon of the retropharyngeal cellular tissue. The course & prognosis in this form of abscess is usually favourable it depends greatly however upon the nature & extent of the injury.
At first the whole of the posterior wall of the pharynx is much inflamed & swollen but as soon as the abscess is formed the surrounding inflammation seems to subside. An early incision gives immediate relief or if the wound has penetrated the posterior wall of the pharynx the pus may escape for a few days through the opening. I can find no fatal cases recorded & if the injury is not severe a favourable termination may be looked for in a few days.

B. Metastatic inflammation & abscess formation in the retropharyngeal space, due to the invasion of microbes through the circulation, is a serious complication of infectious diseases, smallpox, scarlet fever &c. Of itself the abscess would not be so serious, but occurring as it does as a complication of a grave complaint it is to be looked upon as dangerous & the prognosis is unfavourable. It is rapid in formation & generally large causing a bulging forward of the whole of the post-pharyngeal wall & thus producing much difficulty in both respiration & deglutition.
When occurring as a complication of scarlet fever & appearing early in the course of that disease the prognosis is very grave. If recognised early & freely opened the danger to the life of the patient is lessened. The metastatic form of retropharyngeal abscess may therefore be looked upon as running an acute course with, as a rule, an unfavourable termination.

C. Suppurative retropharyngeal lymphadenitis, which is induced by microbes travelling along the lymphatic vessels & becoming arrested in the glands, runs a somewhat chronic course, its duration usually extending from two to four weeks. It might be supposed occurring as it does exclusively in children & as an indication of a strumous constitution, that the prognosis would be somewhat grave, but from a careful perusal of records it is proved that, but few cases have terminated fatally. As a rule a fatal termination is due to the onset of complications, which can be avoided by early recognition & prompt treatment. In a
case reported by Schmitz (St. Louis Med. and Surg. Journal 1881) the patient succumbed to an attack of oedema glottidis. Dr. Carmichael of Edinburgh reported a case (Edinburgh Med. Journal 1881) in which a neglected abscess burrowing in the direction of the large blood vessels of the neck eroded their walls & set up a fatal haemorrhage on the sixth day. A few fatal cases have been recorded as being due to Broncho-pneumonia which might be expected owing to the class of patients in which this form of abscess is usually found.

As a general rule the abscess is unilateral but it may occur in the glands on both sides & in that event the whole of the posterior pharyngeal wall bulges forward encroaching on the larynx & rapidly producing serious symptoms. If the retropharyngeal abscess is not detected early in its course the cervical glands on the same side become enlarged & tend to suppurate. In not a few instances the attention of the surgeon
has been drawn to the retropharyngeal abscess owing to the enlargement of the cervical glands.

From the above remarks it will be seen that the abscess formed through suppuration in the retropharyngeal glands is somewhat slow in its course, and if diagnosed early the prognosis is favourable.

Treatment

In all forms of retropharyngeal abscess the pus should be evacuated as soon as discovered, and in one form at least actual abscess formation should be anticipated by scarification viz: in that form due to cervical phlegmon. As a rule the abscess is not diagnosed until it is fairly well advanced and in a condition of danger to the patient. Henoch mentions a case in which a colleague desired to keep the child until the following day for demonstration, but paid for the delay by the death of the child from suffocation.
owing to the abscess bursting during the night.

There are two methods of opening into the abscess cavity.

The internal operation by which the abscess is opened by incision through the posterior pharyngeal wall from the mouth, the pus escapes with a rush either by the mouth or through the mouth and nose; the latter being the usual result in infants.

The external operation by which the pus is evacuated at the side of the neck just behind the upper part of the sternocleido-mastoid muscle.

Either of the above operations is applicable in all forms of the abscess, but there are certain forms viz., those due to cervical caries especially, in which it is highly injudicious to operate by the internal method.

The first named method by the mouth is the one most frequently used for many of the cases, it is all that is necessary. If the abscess be large a quantity of the pus might be drawn
off first with a trocar & canula. As a general rule it is advisable to give an anaesthetic in the case of infants, a few whiffs of chloroform being sufficient to secure as much relaxation as is ordinarily required for the operation. The patient should be placed supine on the table with the head hanging down over the end. After applying the gag the mouth & pharynx should be cleaned of mucus in order that the exact position of the tumour can be seen & also to note whether it is single or double. As a rule the abscess has to be opened with a bistoury (as one does not usually carry a pharyngotome) which should be carefully guarded to within a short distance of the lip to avoid injury to the tongue. Dr. Roe (Trans. Laryngol Soc 1884) tells of a case, that Dr. Schmixit of Leipzig attempted to open with an unguarded bistoury, when the tongue of the child slipped from under his finger & was severely cut, copious haemorrhage followed & the life of the child was endangered.
The point at which the abscess should be opened is the most dependent portion of the pus sac, thus securing a thorough evacuation of the abscess cavity and establishing free drainage.

If the abscess be large and extends far down there is of course a danger of the pus passing into the air passages, but on the other hand if the most dependent part is not opened pus tends to accumulate there and the duration of the disease is much prolonged. It is better therefore, if upon examining the tumour before passing in the bistoury, it is found to be large or passing down so far that it cannot be conveniently reached, to abandon the internal operation and open through the side of the neck. As soon as the sac is opened, which should be by a fairly free incision, the head should be turned a little to the side & the operator should completely empty the sac before permitting the head to be raised to the level of the body. Well fixed swabs should be used to clean all the pus from the mouth.
& if any has passed into the nose it should be irrigated at once with an antiseptic
lotion.

This operation is not difficult to perform & if the case should occur at a long distance
in the country (as in my own experience), without chloroform, it is really the only one that can
be done. I unfortunately opened the cavity too
high up & for some days after the operation
had to press out the pus by passing my
finger below the opening.

The external operation advocated by Hilton & Prof. Chirne of Edinburgh is applicable to all
forms of retropharyngeal abscess & although in the case of some of the less serious it
would not be used, yet in the case of
cervical spinal caries & others mentioned
below no other should be substituted. The
operation is simple & the pus easily reached.

As a general rule patients suffering from
retropharyngeal abscess & especially if of
long duration are considerably emaciated
& the sterno-mastoid stands out very prom-
inently from origin to insertion.

The patient should be chloroformed
an incision made along the posterior border of the sterno-mastoid muscle, the centre of the incision being about the junction of the upper and middle thirds of the muscle.

Dr. Burchardt makes his incision along the anterior border of the muscle but as far as I can learn from a careful examination of actual specimens the incision along the posterior border is the simpler and more direct route (see tracings from specimen).

As soon as the border of the muscle is passed the sheath of fascia enclosing the carotic vessels and pneumogastric nerve must be sought for and pushed forwards after which a director may be passed into the abscess cavity. After evacuating the pus a drainage tube should be inserted and kept in as long as required.

The special advantages of this operation are:

1. Better drainage can be obtained and is under control.

2. Complete removal of the danger of septic material passing into the larynx and setting up complications and prolonging the disease.
3. The safety with which the operation can be performed in cases of cervical caries.
4. Preserves intact the posterior wall of the pharynx.

It is essential in all cases of retropharyngeal abscess to evacuate the pus as soon as discovered. If in doubt as to the exact nature and extent of the abscess, or as to which operation should be performed, assuming that it is convenient to do either, one cannot go wrong in selecting the external operation whilst the internal might produce fatal results.

The external operation is clearly indicated in the following:
1. When in doubt
2. When the abscess is low down and not easily accessible through the mouth.
3. In abscess due to cervical caries.
4. When the abscess points externally.
5. When the cervical glands are complicates.

It has been advocated by a number of American surgeons that a preliminary
Tracheotomy should be performed if the internal operation be selected. Such no doubt would prevent the pus being drawn down into the air passages and causing suffocation. If however the case is one in which tracheotomy is indicated without great urgency, the external operation would certainly answer the purpose much better than performing the double operation of tracheotomy and incision of the posterior pharyngeal wall besides possessing the great advantages of safety and asepsis.

After the pus has been evacuated, the general health of the patient should be strictly observed and treated with tonics. The syrup of the iodide of iron mixed with an equal quantity of cod liver oil should be freely given. Fresh air and sunshine are most essential and the patient should be well and warmly clad. Iodine ought to be applied to any glands that are enlarged.

If this line of treatment is carried
out under good hygienic conditions the results will as a rule be satisfactory.

Notes of Cases

Case 1. In March 1893 I was called to see a child aged two years and four months. Her mother stated she had been suffering from a bad cold and difficulty of breathing for a week. The child was thin, pale, weak. Her breathing was laboured and each inspiration produced a snoring sound and a deep retraction of the supra-clavicular spaces. Her temperature was 102°F and pulse 130 per minute.

Her family history was bad. Two adult brothers had died of consumption and another of croup at the age of eleven months.

After a little difficulty I obtained a good view of the throat. The whole of the posterior pharyngeal wall was bulging forward right into the posterior pillars of the fauces. I placed the child across her mother's knee with her head hanging down and made an incision into the upper part of the swelling with a small knife from my pocket case. The pus rushed out through the mouth.
nose & in a few moments the cavity ap-
peared to be empty. I passed my finger
into the pharynx below the incision and
pressed out the remainder of the pus. This
process I had to repeat for four days after
which the cavity closed up & gave no further
trouble. The pus had a very foul smell &
the danger of a septic pneumonia must
have been considerable. The recovery however
was in every satisfactory as far as the op-
eration was concerned. The case occurred
in a small crofter's cottage the surroundings
being most insanitary & the people very
unclean in their habits but as far as I am
aware the child is still alive & well.

Case 2. In June 1873 I was asked to
call & see a little boy aged 3 years in a
lonely cottage among the Sutherland Hills.
His family history was good but he had
not been very healthy himself & had
suffered a good deal from enlarged
glands all over his body. He had now
been ill for three weeks, his neck was stiff
but not painful. His breathing was but
slightly embarrassed but his voice had
a peculiar squeaking sound when he cried, swallowing was painful but not so bad as it had been a week before. The history of the case was interesting from the fact that his mother stated he had had exactly the same condition a year previously but recovery had taken place without medical aid. I made a careful examination of the throat and found a fluctuating swelling on the left side of the posterior pharyngeal wall. It was not very tense and gave little pain when pressed upon. On the left side of the neck there was a small fluctuating swelling just behind the sterno-mastoid muscle at the level of the angle of the lower jaw. I gave the patient a few whiffs of chloroform from my pocket-bottle and made an incision into the external swelling and was surprised at the amount of pus that came out. I enlarged the wound and passed my finger without resistance right into the retro-pharyngeal space, where I expected to find bare bone as the source of the pus but there was no indication whatever of any.
Considering the size of the abscess and the extent of the burrowing one might have expected much more serious symptoms. The wound, however, discharged for about a week and then closed the patient making a good recovery.

Both the above cases were no doubt due to lymphadenitis.

Case 3. Shortly after the above I attended a boy who had fallen face forward with open mouth on to a blunt stick. The posterior pharyngeal wall was much bruised and lacerated. An abscess formed but after evacuating the pus the boy made a good though somewhat slow recovery.

Case 4. About three years ago I attended a case with my late partner Dr. John Mackie in which a retropharyngeal abscess had formed in a delicate child of about four years of age. There was not any great difficulty either as regards swallowing or breathing but the patient appeared to suffer acute pain in the ear. The abscess was situated on one side of the posterior pharyngeal wall.
When freely opened by Dr. Blackie a quantity of pus escaped. No anaesthetic was used but shortly after the operation the child fell asleep and slept for three hours. The wound discharged for some days but the patient ultimately made a good recovery. I noticed in this case that the incision, as in my own, was too high up and pus collected in the lower part of the cavity necessitating its being pressed out with the finger every day.

I am sorry that I have lost the notes of a case due to spinal canes and cannot remember sufficient about it to give any particulars.

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I hereby certify on soul and conscience that the above thesis has been composed entirely by myself.

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