SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF LARYNGOLOGY.

December 4, 1931.

President, Mr. WALTER HOWARTH.

Malignant Disease of the Hypopharynx—Professor VON EICKEN, Berlin.—This paper is published in the *Journal of Laryngology and Otology*, Vol. xlvii., p. 229, April 1932.

DISCUSSION.

WILFRED TROTTER: **Treatment by Excision.**—Cancer of the pharynx presents to the surgeon a problem as urgent as it is difficult. The disease is far from uncommon and its natural course is painful, repulsive, and always fatal, so that it may well be regarded as one of the worst affections of middle age. For the surgeon the pharynx combines three of the most formidable obstacles to the exercise of his art: it is inaccessible in a high degree, it is the seat of delicate and concentrated function, and it contains septic material to which the surrounding tissues are in no way immune.

In spite of these difficulties, it can fairly be said that in the last twenty years a certain degree of progress has been made in the attack on the problem, so that a number of persons have enjoyed some years of good health or are still living, all of whom, without treatment, would have died within a few months. Two lines of treatment have contributed to this modicum of success: first, surgical excision of the disease, and secondly, radiotherapy, usually combined with some form of surgical intervention. I shall deal solely with the method of plain excision with the knife. This will be because a single theme lends itself to easy exposition and because my experience of this method is by far the longer and the more extensive; and not at all because I have any doubt that radiotherapy is a valuable addition to our resources in treating cancer of the pharynx.

The term hypopharynx is not always used in the same sense. I have been accustomed to denote by it the tubular or post-cricoid part of the pharynx, a segment which, from the physiological and the clinical points of view, deserves a distinct name. For the purposes of this discussion, however, it may be more convenient to accept the extension of the word to all the pharynx that lies below the epiglottis—that is, to the so-called laryngeal part of the pharynx. The region thus denoted has from the surgical point of view, moreover, a unitary character, in that access to the whole of it is to be had by a single operative method, the lateral trans-thyroid pharyngotomy.

With the exception of a few rarities, malignant disease of the hypopharynx thus defined is always a squamous epithelioma, and it will be assumed throughout this paper that this is the lesion in every case.

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Clinical types of the disease.—Such progress as has been made in the attack on malignant disease of the pharynx has been contributed to by three chief factors: first, a satisfactory method of access; secondly, the control of post-operative infections; and thirdly, a knowledge of the natural history of the disease itself. As has frequently happened in other departments of surgery, when it became possible to expose and explore the region with reasonable safety and precision, fresh light at once began to appear on the behaviour of local diseases. It soon became obvious that the disease occurs in well-defined clinical types, the exact recognition of which is of great importance in prognosis and treatment. The types can be learnt more effectively from experience gained in actual operative exploration of the pharynx than from the most careful clinical examination.

The value of recognising these clinical types is so great that what I have to say will consist chiefly of a brief description of them; in order to be more concrete I shall describe at least one case of each. Epithelioma of the hypopharynx has five common starting-points, in the following order, from above down—the aryepiglottic fold, the pyriform sinus, the lateral wall, the posterior wall and the post-cricoid region. Although all these points are not far removed from one another, growths originating in them differ widely in symptoms, in prognosis and in the details of treatment.

Growths of the aryepiglottic fold.—These constitute one of the classical and generally recognised types of so-called extrinsic laryngeal cancer. It is favourable in that it causes early hoarseness and stridor, and lends itself in early cases to removal without serious mutilation. I may mention in illustration a hospital patient referred to me by Sir St Clair Thomson.

CASE I.—Stout plethoric man, over sixty, with chronic bronchitis. Typical epithelioma of the aryepiglottic fold, a mass of glands in the neck on the same side, so large that it had been regarded as a lipoma. A two-stage operation was performed, glands first then, later, lateral pharyngotomy and excision of the primary growth. Patient recovered with no after-effects of the operation except some hoarseness. Seven years later he developed an epithelioma on the *opposite side* of the pharynx; the scar of the operation in the mucous membrane was still visible and quite healthy.

Growths of the pyriform sinus.—These are extremely common and are of evil repute, not so much because they are inherently difficult to cure, as because the diagnosis is not usually made at an early period. The growth, on account of its situation in a recess of the pharynx, causes at first but a slight though persistent sense of discomfort, and may escape discovery with the laryngoscope. It is not uncommon for the patient to be seen first when there is already a mass of hopelessly fixed glands. With the extension of the growth into the lumen of the pharynx the symptoms become severe.

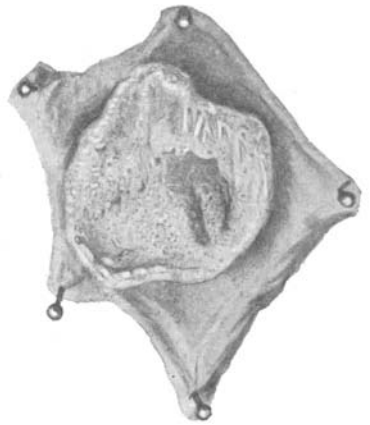
I may perhaps mention here a case in which the growth was in this situation, not, however, as typical of its class, but because of the exceptional interest of the origin of the growth. The patient was referred to me by the late Sir Felix Semon.

CASE II.—The patient had been operated on some six years earlier for an epithelioma in the floor of the mouth. He now had a rounded swelling by the side of the upper opening of the larynx and occupying the pyriform sinus. It showed a superficial ulceration. The swelling was removed by local excision. It was pronounced by the late Professor Shattock to be a squamous epithelioma possibly growing

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in a lymph node and therefore perhaps a recurrence from the mouth. The patient recovered with normal function and survives without recurrence after over 20 years.*

Growths of the lateral wall.—These constitute undoubtedly the most important type that has been revealed by operative exploration of the pharynx. Its importance lies in this—that while it is extremely amenable to treatment by excision, its exact nature is often overlooked and an unfavourable view taken of the prospects of treatment. The growth starts in the lateral wall at about the level of the apex of the arytenoid but well away from the upper laryngeal opening. As the growth develops, its anterior edge sooner or later involves the arytenoid and lateral wall of the larynx. In its earliest stages it can be removed without interference with the larynx, and the pharyngeal wall sutured completely. The growth projects inwards and overhangs the arytenoid, the vocal cord, and the upper laryngeal opening on the same side, thus often leading to a mistaken diagnosis of a primary aryepiglottic or pyriform sinus lesion. When it is of the fungating type the appearances are far more formidable than the actual state of affairs. Since there is no primary involvement of the arytenoid, the vocal cord remains movable to a late period, and this late mobility of the cord becomes of the utmost prognostic importance. Whenever therefore the cord remains movable, operation should always be considered, however grave the general picture may be. A special difficulty in diagnosis comes from the fact that the cord and arytenoid are often completely hidden by the projection of the tumour.



Epithelioma of right lateral wall (moderately early) removed by local excision. No disability and no recurrence after seven years. (CASE IV.)

The importance of this type seems to me so great that I may perhaps be allowed to quote several cases illustrative of it.

CASE III.—A hospital patient admitted on account of severe stridor and difficulty in swallowing; laryngoscopic examination showed the pharynx at the level of the upper opening of the larynx to be filled by a yellow sloughy mass which concealed the vocal cords but seemed to be attached laterally. The tumour was removed by lateral pharyngotomy. It involved the arytenoid region and was thought at the time to have arisen in the aryepiglottic fold; further experience, however, makes it practically certain that this was a true lateral wall growth. The patient recovered with good function; he failed to report after five years, but at that time there was no recurrence.

CASE IV.—A man of 57, referred to me by Sir James Dundas Grant. Typical lateral wall growth projecting moderately inwards but with movable cord. An unfavourable subject, with chronic bronchitis. Local excision by transthyroid pharyngotomy. The patient recovered with normal function, and has no recurrence after seven years. (See fig.)

* In this case the operation of lateral transthyroid pharyngotomy was used for the first time.

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CASE V.—A man, aged 62, referred to me by Dr. George Cathcart. The patient was somewhat plethoric in type, with a tendency to chronic bronchitis. A typical right-sided lateral wall growth of large size was present. A very large mass of glands extended from the mastoid to the clavicle. This was on the whole the most formidable looking case of pharyngeal malignant disease I have ever operated on. The glands and primary growth were dealt with at one operation. The primary growth had come through the pharynx wall and was fixed to the ala of the thyroid, which was therefore removed in continuity with it. The patient recovered with normal function, apart from a partial fixation of the right cord. Six years after the operation he developed an epithelioma of the gum on the upper jaw, where a dental plate had caused ulceration. This responded to radiotherapy administered by Dr. Finzi. There has never been any sign of recurrence in the pharynx or glands up to the present time—one month short of seven years since the operation.

CASE VI.—A man, aged 56, with a really early lateral wall growth well away from the arytenoid region. Treated by local excision with immediate closure of the pharynx. Recovery with normal function. The patient remains free from recurrence three and a half years after operation. The case is mentioned after the comparatively insignificant period of three and a half years only to illustrate my confidence that with this type of growth treated in this way one may regard a cure as practically certain.

Growths of the posterior wall.—The three types we have already considered are practically confined to men. The posterior wall is a region in which the liability of women to carcinoma of the pharynx begins to appear, though in this type men still predominate. The growth is seated on the posterior wall with but little inclination to one side; its upper limit may be at or a little above the level of the tip of the epiglottis, its lower limit may extend into the post-cricoid region. Although it is sometimes visible by direct inspection through the mouth, the disease is often overlooked in the early stages. The technical interest of this type lies in the fact that any excision of the posterior pharyngeal wall calls for an immediate plastic reconstitution by a skin flap.

CASE VII.—A middle-aged female hospital patient. There was a large epithelioma on the posterior wall opposite the upper opening of the larynx. Palpable glands, later proved not to be epitheliomatous; unilateral gland dissection, followed at once by lateral pharyngotomy. A large area of the posterior pharyngeal wall was excised with the growth and immediately replaced by a pedicled skin flap. A secondary operation a few weeks later divided the pedicle of the skin flap and closed the pharynx. The patient recovered with normal speech and swallowing. Eight years later rapid and extensive local recurrence took place.

Growths of the post-cricoid region.—This type has three very remarkable peculiarities: it is a disease of women, it occurs in them at an age a good deal younger than does cancer of the pharynx in men, and it is often preceded by difficulty in swallowing, of slight degree but of many years' duration. It is a disease of symptoms, and its leading symptom is a rapidly increasing dysphagia, which may be well-marked when any examination short of direct endoscopy yields no evidence. Post-cricoid carcinoma contrasts strikingly with the disease in the next common seat below it—carcinoma of the cervical œsophagus. This is a disease of men and a disease of physical signs rather than symptoms, for it causes no early dysphagia and usually shows itself first by causing paralysis of a vocal cord and enlargement of the thyroid gland.

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The post-cricoid carcinoma seems to vary in malignancy a great deal and its appearance is sometimes misleading, as is shown in the following illustrative case.

CASE VIII.—Hospital patient, middle-aged woman of excellent physical and mental character. Typical post-cricoid carcinoma; diagnosis easily made by ordinary laryngoscopy. Lateral transthyroid pharyngotomy. The growth was extensive and almost encircled the pharynx. An unfavourable opinion was formed but the operation was carried out, a complete annular resection of the tube being done and extending from the arytenoids well into the cervical œsophagus. Immediate reconstruction by a pedicled skin flap, with separation of the flap and closure of the pharynx some weeks later. Patient recovered with good function. Apart from some occasional trouble from a fibrous stricture where the reconstructed pharynx joins the œsophagus, the patient remains well and free from recurrence nine years after the operation.

Operability.—The operation of local excision for cancer of the pharynx can be recommended with reasonable confidence only when the patient is edentulous, the growth is still confined within the pharyngeal wall, and gland involvement is limited, the glands being hard, well-defined and not fixed. It must be confessed that I have often defied these restrictions with impunity, and even in the illustrative cases I have mentioned there will be found two examples of extensive gland involvement, and one example of extension through the pharynx to the thyroid cartilage. This impunity, however, merely tends to show that within the requirements I have laid down, the margin of safety is good. A greater severity must be insisted on with the post-cricoid carcinoma, in which any gland involvement is very grave, and the other restrictions are indispensable to reasonable safety and a fair prospect of success. My experience suggests that, apart from post-cricoid cases, the seriousness of lymphatic gland involvement has been exaggerated.

Late recurrences.—Every advance in the surgical treatment of malignant disease has revealed a liability to recurrence at periods far later than had been thought possible from experience with more imperfect methods. This possibility is strongly shown even in the few cases I have quoted to illustrate my theme. I have mentioned a case of direct local recurrence after eight years, a case of an epithelioma near—but not at the site of—the original growth, after seven years, a case of an epithelioma appearing in the mouth six years after excision of one from the pharynx, and a case of an epithelioma in the pharynx six years after the excision of one in the mouth. In such a small group these four cases form a remarkable little series, in that the narrow limitation of the time of reappearance of the disease to the period between six and eight years after the primary operation applies both to true local recurrence and to apparently fresh outbreaks of the disease. The hypothesis that seems most satisfactorily to account for these facts is as follows:—The growth of a cancer arouses resistance in the body of the patient. This immunity is not strong enough, except in rare cases to check the progress of the disease, but when the cancer is, as we say, successfully removed, the relative immunity survives and can keep in check the minute particles of tumour left behind or the tendency for fresh cancers (of the same type) to start. In time, however, this immunity declines and in the case of the pharyngeal epithelioma reaches so low a grade in about seven years that surviving relics of the original tumour can assert themselves or a fresh outbreak occur.

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However we may regard such a hypothesis, it is plain that estimates of the results of treatment based on periods of much less than seven years' freedom from recurrence can have only a limited value. This criticism must not of course be pressed too far, since periods of freedom far shorter than seven years, and in no sense deserving to be called cures, may, from the patient's point of view, be well worth having.

Results.—The final results of operative treatment must be considered from two points of view: (1) freedom from recurrence, and (2) the condition in which the patient survives. Throughout the foregoing remarks I have tried to lay all possible emphasis on the value of precise local knowledge of the epitheliomas of the pharynx in dealing with them by operation. Such knowledge makes possible the exact orientation of any necessary operation and so increases the prospect of cure and at the same time diminishes the need for mutilation. The view is sometimes expressed that the more extensive an excision the more likely is it to be successful; this is by no means necessarily true, for if the operation is not exactly oriented in regard to the growth, its mere extent is unlikely to save it from failure. This criticism applies to many cases in which extirpation of the larynx is practised in dealing with pharyngeal growths. There are, in my opinion, very few cases in which that formidable mutilation is of use in the treatment of such growths. Most of the cases in which the tumour cannot be got away without laryngectomy are incurable by any operation, and when the tumour can be got away by local excision the mere addition of laryngectomy gives no further security. It will be noticed that, in the small number of illustrative cases I have mentioned, the only residual disabilities left have been the occasional fixation of one vocal cord, and in one case some fibrous constriction of the œsophagus. I should not feel able to record as a true success the cure of a pharyngeal carcinoma won at the expense of laryngectomy. One of the most beneficial effects of the introduction of radiotherapy has been its tendency to make us look with increasingly critical eyes at treatment by crudely mutilating operations.

With regard to the small number of actual results I have quoted, it must be understood that they are intended to be illustrative of the various clinical types of disease rather than to embody a full statement of experience. Such a statement, to be satisfactory, would have to be much more detailed and extensive. It would include some more successful results, a good many partial successes with freedom from recurrence up to about three years, and a considerable number in which the operation was fatal or a failure. The cases I have actually quoted may be put together in a list, with a statement of the length of freedom from recurrence that followed in each case on the simple excision of the growth. In this way a more general view is obtained.

Case 1.	Aryepiglottic fold (extensive glands)	Free from recurrence	7	years
,, 2.	Pyriform sinus	,,	20	,,
,, 3.	Lateral wall (large primary growth)	,,	5	,,
,, 4.	Lateral wall (moderately early)	,,	7	,,
,, 5.	Lateral wall (large primary growth; extensive glands)	,,	7	,,
,, 6.	Lateral wall (early)	,,	3½	,,
,, 7.	Posterior wall	,,	8	,,
,, 8.	Post-cricoid (extensive)	,,	9	,,

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The eight cases thus show an average freedom from recurrence of over eight years. Even a group so small as this, especially when it is remembered that none of the patients suffered any serious mutilation, suggests that in suitable circumstances the method of plain local excision with the knife has a definite usefulness.

J. B. HUNTER: **Signs and Symptoms.**—The symptoms of carcinoma of the hypopharynx are vague. Slight difficulty in swallowing is first noted. Painful swallowing may occur only in the late stage of the disease. In female patients the difficulty, which has been present over a long period, is increased, and it is because of this prolonged difficulty that these patients are usually thin. Examination of the patient is difficult; frequently no growth is obvious on direct examination with the laryngoscope; and no patient with difficulty in swallowing over a few months should be dismissed without a direct examination. There are, however, certain small points that may give a correct interpretation by the indirect method. A pool of mucus, which is not cleared by swallowing, may be seen behind the larynx, or the edge of an ulcer, unseen in quiet breathing, can be made out on strong phonation. In other cases there may be œdema of the arytenoids, and usually both are equally swollen. This œdema is not to be taken as a sign of inoperability, as it does not indicate involvement with growth, but is merely a sign of a lesion in the neighbourhood, in the same way as the lower eyelid becomes œdematous. A digital examination should always be made, and valuable information can be obtained in this way, especially in cases of growth on the posterior wall. External examination of the neck will often afford valuable guidance to involvement of glands and thickening round the cricoid. The latter may determine the surgical procedure to be adopted.

Direct examination is necessary in cases of doubt, and in such cases no attempt should be made to pass the instrument beyond the ulcer. In my experience the results obtained by a barium swallow have been unsatisfactory.

Pathological types.—The type of growth is always a squamous-celled carcinoma and the primary growth is relatively benign, requiring but a small margin for its adequate removal, a favourable feature surgically. The degree of ulceration present appears to depend on the amount of sepsis to which the growth has been exposed, and there is frequently an apparently large area of submucous infiltration in the edentulous patient, whereas in patients with teeth the whole area involved by the growth is ulcerated. Glandular involvement is on the whole early but not intense. When the glands are fixed and inoperable the primary growth has reached an advanced stage. In this respect, growths of the hypopharynx differ from other carcinomas of this region.

Treatment.—This can be divided into two headings:—(1) Direct surgical intervention; (2) Surgical intervention with radium.

It cannot too clearly be stated, however, that until the exposure and examination of the primary growth it is impossible in the majority of cases to say which procedure should be adopted. This fact is of less importance than would appear at first sight, as the initial procedures are similar. The importance of oral sepsis in relation to the ulcerative process has

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already been pointed out, and this sepsis has a great bearing on the ultimate success of treatment. Those cases which have long been edentulous have a far less stormy convalescence after operation than those with teeth. For this reason it is advisable to delay operative procedure until the teeth have been extracted and the gums are healed. General and local improvement frequently follows this procedure.

Tracheotomy is essential, as this is not only neccessary during the operation, but will be required later for a varying period. If the case can be treated by surgery alone some plastic procedure will be required, and a flap, or flaps, will have to be taken from the anterior part of the neck. A horizontal incision is therefore necessary for the tracheotomy, as the usual vertical incision will interfere with the flap. This is made immediately above the suprasternal notch and a tracheotomy performed, the isthmus of the thyroid gland being divided or partially removed. After exposure of the trachea, cocaine is injected into the lumen, and in place of the usual longitudinal incision a disc is removed large enough to allow a St Clair Thomson tracheotomy tube to be inserted. Light chloroform anæsthesia is sufficient for the remaining procedure, and this can be augmented, if necessary, by an injection of morphia.

An incision is then begun just below the angle of the jaw and carried vertically downwards to the upper border of the thyroid cartilage, where it is carried inwards across the neck of the opposite sterno-mastoid and then vertically downwards to below the level of the cricoid, where it passes back across the neck and is continued downwards towards the clavicle. A flap is thus formed with its base on the side of the neck. The base should be a little wider than the free end.

This flap consists of skin and subcutaneous tissue until the sterno-mastoid is reached. Here the base of the flap should contain sterno-mastoid muscle as well, this last being deliberately divided. The vertical incisions are deepened and a modified gland dissection performed. This dissection includes the internal jugular vein and reaches from the omohyoid below to the digastric above, but does not include the submaxillary triangle.

The carotid vessels are now lying exposed with the stump of the superior thyroid artery. It is advisable to divide this some way from the main vessel in order to minimise the risk of secondary hæmorrhage. Some procedure must then be adopted to shut off the carotids and mediastinum from subsequent sepsis. This can be done either by suturing the remains of the sterno-mastoid to the prevertebral muscles (Trotter's original method), or by turning outwards the pretracheal muscles and the right lobe of the thyroid and suturing them to the sterno-mastoid, the fascia on their lateral and deep aspect being apparently sufficient protection from spreading sepsis after the pharynx is opened. If the latter procedure is adopted the great cornu of the hyoid, the lateral mass of the thyroid cartilage and the upper portion of the trachea are exposed.

The thyroid cartilage on the side exposed is now separated and two-thirds of it is removed. Palpation of the primary growth at this time will determine whether it is capable of surgical removal, or whether radium treatment should be adopted. Three points need attention in making this examination: (*a*) the upper limits of the growth; (*b*) involvement of the cricoid; (*c*) the lower limits of the growth.

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(*a*) A high upper edge to the growth, within reasonable limits, does not preclude operation. It will have reached a higher level posteriorly than anteriorly, and although on palpation the posterior upper edge appears to be above the level of the upper opening of the larynx, this does not necessarily mean that the arytenoid cartilages are so involved as to make the case inoperable.

(*b*) Involvement of the cricoid cartilage is usually on the signet portion, but the growth may still be operable. If it has come through on the lateral aspect an advanced condition is indicated.

(*c*) The lower limit of the growth is by far the most important. The post-cricoid growths have a tendency to spread downwards rather than upwards, and this limit of spread cannot be diagnosed beforehand, so that frequently the growth has extended beyond the cervical œsophagus and is inoperable.

Operable Growths.—With a true post-cricoid growth considered to be operable, the lower part of the pharynx and the first part of the œsophagus can be mobilised. The pharynx is then opened immediately above the growth, the raw area in the neck being protected. A strip of gauze soaked in cocaine is inserted into the larynx, to anæsthetise it and to prevent blood from running into the trachea. The area involved is then removed under direct vision. Before the œsophagus is divided across, two retention sutures should be placed in the lower portion to prevent retraction. If a growth does not involve the greater part of the circumference of the hypopharynx it may not be necessary to mobilise the post-cricoid region. There is now a gap in the hypopharynx and a reconstruction has to be undertaken. Sterile boracic powder is placed in the wound and the skin flap is brought forward. Owing to division of the sterno-mastoid it lies flat in the neck. This flap is sutured, the upper edge to the upper posterior wall of the pharynx and mucous membrane over the arytenoids, and the lower edge to the upper posterior part of the œsophagus. The free edge of the flap is then curled forwards and sewn to the edge of the skin, from which it has originally been divided. The upper lateral wall of the pharynx is then sutured to the upper skin edge from which the flap has been taken and the anterior part of the œsophagus to the lower skin edge. There is thus a trough of skin, at the lower end opening into the œsophagus and at the upper end opening into the pharynx. A feeding tube is passed into the œsophagus and left exposed in the neck.

Inoperable Growths.—If the growth is inoperable the pharynx should not be opened, but the case should be treated by radium. There is a choice either of applying radium at once or of waiting for a week to allow the neck to get shut off and so diminish the risk of sepsis. If the gland dissection has been extensive the delay is to be advocated, but if the patient has been edentulous for long and the gland dissection limited, the radium can be inserted at once.

Although the term radium has been used it is found better in carcinoma of the hypopharynx to use radon seeds. These are placed on the outside of the growth so as to radiate the whole area. The seeds are used without threads, first because the seeds are more easily placed in the position required, and secondly because the presence of threads increases the risk of sepsis, especially when the growth extends down the œsophagus.

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When the seeds are introduced the flap is at once resutured, a tube being left in the wound for a few days. If it is decided to leave the introduction to a later date only part of the flap is sutured, and that portion left which will give best access to the growth. In a week the seeds are implanted, the rest of the wound by that time being sealed off.

If radium element is used it is well to protect the flap by suturing a layer of lead foil between it and the radium ; otherwise the flap may suffer severely. The lead foil can be withdrawn with the radium. If radium treatment is employed, a feeding tube should be introduced into the œsophagus by direct vision and brought out of the mouth.

After-treatment.—The tracheotomy tube has to be kept in position until the skin flap has united, or until the radium reaction has settled down.

In cases in which a flap has been introduced a remarkable change slowly appears. The flap retracts, forming a trough, and later a gutter, so that to look into the bottom of it the sides have to be separated. This can be further accentuated by passing the feeding tube into the œsophagus and bringing it out of the mouth for a few days, and then under local anæsthesia incisions are made anteriorly and posteriorly, a tube of skin fashioned over the feeding tube, and the opposing skin-edges left are drawn together.

Untreated carcinoma of the hypopharynx has a hundred per cent. mortality. The mortality of the treated cases is high, and the number that can eventually be claimed as cured is small, but relief can be given in many cases, and with improved diagnosis and increasing experience in technique, the mortality rate will decrease. This has been the experience in other branches of difficult surgical endeavour and will doubtless prove so in the treatment of carcinoma of the hypopharynx.

LIONEL COLLEDGE: If a case of post-cricoid carcinoma comes for operation in a tolerably early stage without cord paralysis and without a severe degree of dysphagia, the operation which Mr. Trotter described about twenty years ago is ideal. Our President was kind enough to help me with the case of a lady who came from India in 1927. Mr. Trotter himself saw her with me and urged that the operation should be performed. A complete segment of the hypopharynx was removed and replaced by a flap of skin. She lived at her home near Edinburgh until last year when, as Mr. Gardiner informs me, she died from mediastinal metastases.

It has been my experience, however, that many patients are sent in a far more advanced stage. One lady arrived from Wales full of hope, but with the larynx and surrounding tissues firmly fixed to the front of the vertebral column, and others come with a severe grade of dysphagia. It is usual to regard the spreading edge of an epithelioma in this region as rising upwards behind the arytenoid cartilages towards the pharynx proper. As Mr. Hunter has emphasised, it also spreads downwards, and on three occasions I have found that in association with severe dysphagia the growth had spread down the œsophagus through the thoracic opening. In one of these the growth was a simple plaque on the back of the cricoid, but lower down it surrounded the œsophagus, forming a long annular stricture.

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Severe dysphagia is therefore a sign of ill-omen, apart from its obvious effect on the general nutrition of the patient. There is also another route of extension laterally, through the wall of the hypopharynx, and in this way the posterior border of one or both of the lateral lobes of the thyroid gland may be invaded.

I mention these pathological observations because, in addition to the numerous cases which are obviously unsuitable for operation on account of fixed lymphatic glands, there are others in which the extent of the growth is greater than appears at first sight. Thus many cases are unsuitable for any operation except gastrotomy.

A man, aged 61, was admitted to St. George's Hospital on 22nd August 1931. He had noticed dysphagia for two months, and for three weeks had only been able to swallow liquids with great difficulty. The food was felt to stick in the neck. Mr. Fedden performed gastrotomy on 25th August, and asked me to see him, having in view the possibility of a radical operation. The right half of the larynx was fixed, a mass could be felt behind the right lateral lobe of the thyroid gland, and the X-ray seemed to show the growth reaching down to the thoracic aperture. I concluded that the growth had extended in both the directions I have mentioned and therefore no operation was attempted.

On 4th September, under local anæsthesia, nine radon seeds, each corresponding to 1·5 millicuries, were implanted on each side of the neck. The X-ray shows the 18 seeds distributed round the hypopharynx. The patient was soon relieved, and now he is able to swallow solid food, no longer uses the gastrostomy, and has gained 14 lb. in weight. I cannot agree with Mr. Hunter, therefore, that an open operation is needed to implant radon seeds.

There is, however, an intermediate class of case in which the chief extension is into the posterior wall of the larynx. This invasion of the crico-arytenoideus posticus muscles causes abductor paralysis, not infrequently bilateral, and it may demand tracheotomy. The growth may even perforate the back of the larynx and appear in or near the posterior part of the glottis. It is in this class of case that I have failed to keep pace with Mr. Trotter, because, to remove the septum between the larynx and pharynx and reconstruct it to any large extent by means of a folded skin flap, presents difficulties which, I am aware, are not insuperable, but which are of a formidable nature.

In such circumstances, therefore, I have resorted to the operation of Gluck in which the larynx is removed along with a segment of the pharynx containing the growth. The pharynx is re-formed with a double layer of skin flaps after an interval of from four to six months and the patient is left in the same state as after a simple laryngectomy. I have shown such a patient here among a group exhibited at the beginning of this year to demonstrate various operations for cancer of the larynx and pharynx. She remains well, swallows easily and is quite active, and she shows that the operation is quite practical. The plastic was performed in one stage and not in a series of operations, as Professor v. Eicken suggests may be necessary.

The operation of Seiffert, described in the "Handbook" of Denker and Kahler, seems to me a kind of surgical perversion, which sacrifices the

https://doi.org/10.1017/S0022215100037233 Published online by Cambridge University Press

functions of the larynx when they might be preserved, and I cannot believe that it will take a permanent place in surgical practice.

The necessity of a bilateral gland operation must be assumed, but it is remarkable how often enlargement of the cervical glands is late in appearing, in spite of the size of the growth. When the glands appear they are often high up under the ears. Leaving the question of glands aside, the present position is that in reasonably early cases without vocal cord paralysis, the ideal operation of lateral pharyngotomy with implantation of a skin flap should be employed, and that in more advanced, but still operable cases, the operation of Gluck is justifiable. In cases which are unsuitable for operation but whose general condition is still fairly good, radon seeds may be implanted with benefit.

ST CLAIR THOMSON said that he had kept notes of seven cases which he had referred to Mr. Trotter. The important point which he hoped to illustrate was as to which cases were promising and which were not, according to the situation.

The first case which he would quote illustrated the difficulty of diagnosis. Inspection (direct and indirect) and X-ray examination had failed to reveal what he had suspected from the purplish condition of the post-cricoid region and from the froth often to be observed in the sinus pyriformis. At the end of a month the growth became evident and it had the appearance of a sea anemone. It was a post-cricoid epithelioma. At University College Hospital in 1920 Mr. Trotter operated on the case. The operation was a success, but there was a recurrence and the patient died.

The next case was that of a woman from King's College Hospital. There were no enlarged glands in the neck ; the movement of the cords was good. Mr. Trotter operated and removed the mass, but the patient had a recurrence in the neck and died eighteen months later.

In another case of post-cricoid growth he, the speaker, had pointed out the froth. There was a recurrence in this case also.

The next case was scarcely eligible for this discussion, as it was one of a growth on the pharyngo-epiglottic fold, but it was worth mentioning because Mr. Trotter had operated from the side of the neck, and the patient had remained well and free from recurrence for six years.

The next case illustrated what Mr. Trotter called the suitable type, viz., growths limited to the aryepiglottic fold. Deep glands were felt, and the cords moved normally. The case was operated upon and promised to be most satisfactory ; but two or three weeks after the operation the patient died unexpectedly from heart failure ; he was aged 67.

The next case was the fourth mentioned by Mr. Trotter.

The next case was similar to the previous one. The patient was aged 66, and was in the habit of imbibing alcohol freely. There were no enlarged glands ; one cord showed slight impairment of mobility. Operation was performed in November 1917. The patient then returned to Scotland and did not appear again until 1922. The cord on the operated side was then fixed, and had a soda-water bottle appearance, due to compensatory hypertrophy. There was no recurrence of disease on the operated side, but a fresh new growth had developed in almost the analogous position on the other side. Mr. Trotter thought the case was again suitable for operation,

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but the patient went back to Stornoway, had retention of urine and died, aged 71, five years after the operation.

The last case was that of a patient sent to Mr. Trotter from King's College Hospital on account of a similar (aryepiglottic) growth. He had been shown before the Section twice. He had remained well for eight years, and then had a fresh growth on the opposite side, in an inoperable region.

DOUGLAS HARMER: **Treatment by Radiotherapy.**—In the Semon Lecture (1931) he (the speaker) quoted the statistics collected from twenty clinics about patients treated with radiotherapy. There were 705 cases, and of these, 563 were dead and 101 living. Of the living, 18 were free from disease over two years, one over three years, five over four years, but only seven over five years. 54 other cases were living with disease still present. For years he and his colleagues had been employing different forms of ray treatment for carcinoma of the hypopharynx. In all they had treated 106 patients, of whom 95 were now dead and only 11 living. 70 died within a year, 23 after a year, one after two years, one after three years; five were living without disease, and six cases living with disease for one to two years. Thus the results from radiotherapy alone, so far, had been bad. That, however, he thought was due to two main factors: (1) that the cases were nearly all hopelessly inoperable; (2) that most of them had not been given adequate dosage. It was useless to send a patient with an extensive growth to the ordinary X-ray specialist who had only a small-current apparatus under the expectation that any good would result; on the contrary, a small dose was much more likely to do harm.

It would be asked, what was the best treatment for cases of this type. Except in rare instances he did not think it was possible to benefit such cases simply by implanting seeds or radium needles: good results could not be obtained from small amounts of radium; mostly such cases needed combined treatment. First they must receive a surface irradiation, and this must be supplemented so as to get a sufficiently high tissue dose. Patients such as these needed first an intense X-ray treatment given from outside, or treatment with a large quantity of radium at not too great a distance; (2) immediately after that treatment, before the growth had had time to recover itself, needles or radium seeds must be buried in the primary growth, or they could be placed in the secondarily enlarged glands.

He had not seen good results follow the insertion of radium needles or seeds from inside the throat, but with careful dissection of the neck, if these growths were exposed freely, without trauma to the surrounding tissues, and particularly to the growth itself, then if radium or radon seeds were applied close to the disease without opening the pharynx there was a good chance of getting rid of these growths, at least temporarily. Further research in radiotherapy for this disease was urgently needed. He hoped that by better technique and more thorough irradiation, a large proportion of these patients with inoperable growths would be given relief and in rare cases a brilliant cure might be obtained. In all cases an X-ray examination of the chest should be made before treatment was commenced.

STANFORD CADE: It is still a matter of difficulty in any given case to decide whether excision, radium, or X-radiation offers the best chance of

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cure. The difficulty is not lessened by the fact that the term "hypopharynx" is not sufficiently accurate, including, as it does, different types of lesions. A classification of neoplasms in this situation is important; such a classification must include an accurate localisation of the growth, as to the origin, position and extent, the histological variety of the tumour and the extent of metastatic involvement.

In cases which are frankly inoperable the choice of treatment is naturally limited to radiation, and the decision as to whether radium or X-rays, or a combination of both, should be advised, depends primarily on the facilities available. If the institution possesses a modern high-voltage machine X-rays have been shown to be as efficient as radium, provided that the surgeon does not forget that what matters is not only the voltage of the machine, or the quality of the tube, but the man behind it. In experienced hands, high-voltage X-rays used by experts who understand the clinical aspect of the problem and who have the courage of their convictions, good results are obtained in a sufficient number of cases to show beyond doubt that X-radiation has a definite place in the treatment of this group of tumours.

In inoperable cases, therefore, X-radiation should be given either as the sole method of treatment or as a preliminary to interstitial radium.

Operable cases present a much more difficult problem. It is convenient to subdivide the hypopharynx into three groups:—(1) The epilaryngeal group—the upper part of the hypopharynx; (2) the post-cricoid area—the middle part of the hypopharynx; (3) the pyriform fossa—the lateral part of the hypopharynx.

The first group may be either a squamous-celled carcinoma with cell-nests or a lympho-epithelioma. The latter, from its very rapid growth, high radio-sensitivity and early dissemination, is essentially suitable for external irradiation. This group should be submitted to radiation, in preference to excision, as the first method of treatment. In the squamous-celled type external radiation is to be followed by insertion of radium on the outer wall of the hypopharynx in close proximity to the growth, but well beyond it in extent; preliminary removal of the thyroid, cricoid, or hyoid skeleton, according to the exact situation of the lesion, is carried out. Needles are preferable to seeds, radium is preferable to radon, and maximum screenage is of the greatest importance. The functional results in successful cases are so superior to anything which excisional surgery can offer that patients naturally prefer radium. The ultimate expectation of life is not shortened by such treatment.

The second group—post-cricoid area—is of a less radio-sensitive type, presents great difficulties of access, and has proved, at least in his hands, unsuccessful as far as radium is concerned. Should preliminary X-ray treatment not lead to diminution in the size of the growth, excision is to be advocated, provided that the whole disease can be removed and the glands not too widely involved, the chances of survival are reasonable.

The third group—pyriform fossa—occupies an intermediate position as regards success in radiation. The disease can be made to disappear in some cases, and this is a sufficient encouragement for continuing research in radiation. Most cases are at the best on the borderline of operability and success from surgery is very limited. Radiation should be by means

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of radium with a preliminary X-ray treatment. The radium should be applied in close proximity to the lesion, either by open operation or by closed needling, later to be supplemented by careful seeding of the primary growth. In this group, so-called "teleradium" or "teletherapy" is on theoretical grounds a method of great promise. The term "tele," however is, in my opinion, a misnomer, and should be abandoned. It is meant to emphasise the idea of distance which, however, in radiumtherapy is merely an unavoidable difficulty and not a desirable condition. "Mass radiation" is preferable, and applied to the pyriform fossa does produce retrogression of the disease, whereas with teleradium I have so far had no success.

In conclusion, the choice of the method of treatment depends upon localisation, extent and type of the disease. Epilaryngeal growths should be treated by radium in preference to surgery; post-cricoid growths by surgery when possible; pyriform fossa growths by radium in split doses with massive quantities of radium. In all cases preliminary X-ray treatment is indicated.

W. M. MOLLISON said he wished to say a word in favour of deep X-ray therapy in post-cricoid growths. Eight years ago he had seen a patient who had a post-cricoid growth, and he offered her the choice of surgery or deep X-rays. Dr. Finzi carried out the irradiation, and to-day she remained well, and there had been no sign of recurrence.

Since the Deep X-ray Department was set up at Guy's, in charge of Dr. Watt, he had referred all cases of post-cricoid growth there. To-day he showed a woman who, four years ago, came to the hospital with a post-cricoid growth. She was unable to swallow anything except fluids and those only with difficulty. She had been given deep X-ray treatment, and had remained free from recurrence. Two months ago she again developed symptoms and a recurrence is present on the posterior pharyngeal wall above the level of the arytenoids: again a three-day series of deep X-rays had banished the symptoms of pain in the ear and neck, and the growth was smaller.

Admittedly some growths in this region did not respond to deep X-rays, but often they did. He had had three cases of growth in that area, all clinically similar; one responded, but in the other two the patient had soon died, *i.e.*, within three months.

V. E. NEGUS said the only point he wished to make was the necessity of early diagnosis. He had had the opportunity of seeing one patient who experienced discomfort in swallowing, which was referred to the pyriform sinus. He was examined by the direct method by means of the œsophageal speculum, and small prominences were seen on the lateral wall of the pyriform sinus, which microscopical examination showed to be fibromata with inflammatory infiltration. It was felt that the condition was progressing towards malignant change. He, the speaker, had operated by Mr. Trotter's method, and removed a wide area of the pharyngeal wall by the transthyroid method; the patient had since kept well. There were no malignant changes on examination of the specimen.

A second patient was one whom he was showing at this meeting; she had what seemed to have originated as a fibroma, growing low down on the back of the cricoid cartilage. That was removed by lateral pharyngotomy. It apparently started as a fibroma, with secondary malignant change.

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In a third patient there had been an atrophic condition of the mucous membrane of the crico-pharyngeal fold, with secondary anæmia. He had examined this patient over a long period, and at the final stage there were definite malignant changes. The secondary anæmia was severe—only 40 per cent. of hæmoglobin—and the patient died.

He emphasised the fact that direct examination was necessary, especially when any discomfort in swallowing was present. Other cases of atrophy and superficial ulceration of the crico-pharyngeal fold could be improved or cured by dilatation and liver extract.

CASES ILLUSTRATIVE OF THE DISCUSSION.

Two Cases of Carcinoma of the Hypopharynx. — E. MUSGRAVE WOODMAN.

(1) R. G., male, aged 59. Admitted to hospital 4.6.26, complaining of dyspnœa, dysphagia and loss of weight. Duration of history six months. On admission he was thin and cachectic and had a slight inspiratory stridor.

On examination under an anæsthetic there was seen to be extensive growth involving the left vocal cord, the left arytenoid, the whole of the post-cricoid region and the left lateral wall of the pharynx over a large area, and the upper entrance to the œsophagus.

Complete Laryngectomy with Partial Pharyngectomy, 10.6.26.—The sterno-mastoid muscle was stitched down to the prevertebral fascia after the method devised by Mr. Trotter. It was not possible to cover the wound area completely; the remaining part was packed with iodoform gauze and an œsophageal tube passed through the mouth.

Plastic Operation.—An attempt was made to close the area by plastic flaps taken from the neck, but there was excessive salivation and on each occasion the wound broke down, and as the area cicatrised considerably, narrowing of the food passage took place, and gave rise to a great deal of trouble. A tube pedicle was taken from the chest-wall by a series of plastic operations and the area covered over.

Criticism.—The criticism of this case is that it is probable that at the initial removal of the growth the condition of the mouth and the saliva was too septic and a sloughing cellulitis caused an additional loss of tissue in the neck. This should have been avoided by allowing a longer interval to take place between the removal of his teeth and the primary operation. Secondly, the isolation of the pharynx and the suture of the muscles of the prevertebral fascia should have been undertaken at a preliminary operation. At present it is possible by plastic work to improve the swallowing considerably, and material in the form of a tube pedicle is *in situ* ready for this. The patient himself is quite satisfied with his condition and does not wish to have any further operation.

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As it is now five years since the first operation, I think he can fairly safely be considered to be out of danger from risk of recurrence.

(2) J. B., aged 49. 29.8.28, admitted with a sudden attack of dyspnœa, following a difficulty in taking solids, and hoarseness. Duration of history six weeks.

On examination a large mass was found filling the right side of the entrance to the larynx, with sloughs on the surface. The base appeared to originate in the right lateral wall of the pharynx, and the invasion of the larynx to be a secondary extension.

The first operation was a low tracheotomy. The growth was found to have invaded the post-cricoid space, the body of the larynx and the right posterior and lateral wall of the pharynx. The pathological report showed a squamous epithelioma. A complete laryngectomy was performed at a second operation.

Subsequently the patient had a short course of lessons in voice production, so as to utilise the œsophagus as a means of voice production.

12.6.31.—Examination showed the larynx to be completely healed, with no evidence of growth.

20.11.31.—Condition quite satisfactory.

Carcinoma of the Hypopharynx.—F. J. CLEMINSON.

B. B., female, aged 69. Complained of swelling in the throat. On examination a non-ulcerated growth was observed in the posterior third of the right aryepiglottidean fold.

February 1926.—Growth removed by lateral pharyngotomy. At the same time the glands of the right side of the neck were removed.

Microscopical examination showed that the growth was a squamous-celled carcinoma, and that there were no secondary deposits in the glands.

Hypopharyngeal Carcinoma treated by Deep X-rays. Freedom from Recurrence for Four Years.—W. M. MOLLISON.

Patient, female, aged 47. Seen at Guy's Hospital in 1927 on account of high degree of dysphagia: ulcerating mass seen projecting from the hypopharynx: condemned as inoperable at a throat hospital. Deep X-ray treatment given by Dr. Watt. Disappearance of growth, and in three weeks power of swallowing almost normal.

Remained well until 1931, when she had discomfort in throat though no dysphagia. Recurrence on posterior pharyngeal wall above level of arytenoids. More deep X-ray treatment in October.

Two Cases of Carcinoma of Pyriform Fossa treated by X-rays.—DOUGLAS HARMER.

(1) Female, aged 65. August 1928, angeiomatous growth removed from the right arytenoid at another hospital. Section reported

https://doi.org/10.1017/S0022215100037233 Published online by Cambridge University Press

squamous-celled carcinoma. Seen in March 1929, complained of dysphagia, sore throat and pain in head. Right arytenoid swollen but not ulcerated; right cord fixed: small movable gland right side of neck. Mucus in right pyriform fossa. Treated by X-rays from 19th to 29th March 1929. Growth became smaller and she gained 1 stone in weight. In August 1929 growth had not entirely disappeared, so a further course of treatment was given, 25th August to 9th September. Patient improved slowly, and early in 1930 there was no evidence of growth. Weight has been maintained and the throat has remained well, but patient still complains of pain in the head.

(2) Male, aged 65. June 1928. Sore throat and dysphagia for three months; ulcerated growth in right pyriform fossa and arytenoid region; cord fixed; enlarged gland beneath the angle of the right jaw. Treated from 7th to 22nd June 1928; primary growth rapidly disappeared; second treatment from 8th to 21st November 1928; and by January 1929 gland had disappeared. In December 1929 he had acute perichondritis, but made a good recovery and remains free from disease.

Two Cases of Carcinoma of Post-cricoid Area.—STANFORD CADE.

(1) E. P., male, aged 49. Admitted to Westminster Hospital in May 1926. Six months' history of loss of voice, blood-stained sputum, difficulty in swallowing, and marked loss of weight. Extensive malignant growth involving both arytenoids and post-cricoid area. No palpable glands. Complete removal of larynx and of the major portion of the pharynx leaving only a strip of mucosa along the prevertebral area. Immediate repair by means of skin-flap over a rubber tube. Free drainage provided. Histology: Squamous-celled carcinoma.

Recovery. Free from disease to date ($5\frac{1}{2}$ years). General health good. Patient has doubled his original weight (from $6\frac{1}{2}$ to 13 st.). Earns his living as a barber. Speaks in a whisper. Is able to eat anything.

(2) M. H., female, aged 46. Admitted to Westminster Hospital in March 1927. Extensive post-cricoid growth with involvement of lateral pharyngeal wall, thyroid gland and lymphatic glands on the left side. Gastrostomy and tracheotomy performed. Two weeks later, under regional anæsthesia, complete laryngectomy and pharyngectomy, also hemithyroidectomy and removal of cervical glands on left side. Prevertebral muscles covered by skin-flap. Histology: Squamous-celled carcinoma.

Well to date ($4\frac{1}{2}$ years). General health greatly improved. Saliva dribbles from submental sinus. Refuses plastic for repair of anterior wall as she is quite content with present condition.

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Societies' Proceedings

Carcinoma of Lateral Pharyngeal Wall.—STANFORD CADE.

C. D., male, aged 55. Admitted to Westminster Hospital in August 1928. Epithelioma of left tonsillar area with extensive involvement of lateral pharyngeal wall. Six weeks' history, no palpable cervical glands. Primary lesion treated by implantation of radon seeds (16 seeds 1·2 millicurie each, screened by $\frac{1}{2}$ mm. platinum). Complete retrogression of the disease. Two months later block dissection of the left side of the neck. Histology showed a deposit of squamous-celled carcinoma in one of the glands. Small local recurrence in region of posterior pillar in June 1929, treated with diathermy. Well to date (3 years and 3 months).

Carcinoma of Vallecula involving Epiglottis and Lateral Pharyngeal Wall.—STANFORD CADE.

G. F., male, aged 64. Admitted to Westminster Hospital, March 1928. Lateral pharyngotomy for purposes of access only, cervical glands removed. Radium needles inserted (15 mgm. in 8 needles, screened by 0·65 mm. of platinum), left in position seven days. Pharynx left open till removal of needles, then allowed to heal; free drainage. Histology: Squamous-celled carcinoma. Two months later, surface irradiation of neck by means of a Columbia paste collar: 33 mgm. of radium 15 hours daily for 14 days. Well to date ($3\frac{1}{2}$ years).

Carcinoma of Pharyngeal Wall Removed by Lateral Pharyngotomy.—V. E. NEGUS.

The patient was first examined in July 1929, when an obvious neoplasm was seen on the wall of the pharynx involving the pharyngo-epiglottic fold and pushing the epiglottis and aryepiglottic fold inwards.

15th July 1929.—Tracheotomy, under local anæsthesia, followed by lateral pharyngotomy, 16th July. The operation was carried out according to the method of Mr. Trotter, the sterno-mastoid being sewn down to the prevertebral fascia after clearance of the local gland area. The growth spread downwards into the upper part of the pyriform fossa; it was excised completely, the area removed including part of the lateral wall, a portion of the aryepiglottic fold, and base of the epiglottis. The wound healed slowly without secondary suture, and the patient has remained quite well for the last two years, his only complaint being some stiffness and pain in the back of the neck.

Microscopical examination showed the growth to be an epithelioma, with a change in some parts to adeno-carcinoma. There was no keratinisation, and the microscopical appearances represented a moderately high degree of malignancy.

Sections of a lymphatic gland removed showed inflammatory gland changes, but no evidence of carcinoma.

https://doi.org/10.1017/S0022215100037233 Published online by Cambridge University Press

Royal Society of Medicine

Carcinoma of Hypopharynx.—V. E. NEGUS.

Patient, female, aged 47 (previously shown April 1927 and June 1928).

First seen 11th October 1926, complaining of gradually increasing difficulty in breathing. Symptoms had been present for five years before this date. A hard, rounded neoplasm with slightly irregular surface was seen lying above the larynx, obstructing the airway; it was removed through the mouth by Mr. C. M. Hope, 13th October 1926. A small pedicle remained arising from half-way down the posterior surface of the cricoid cartilage to the right of the mid-line.

Microscopical examination showed the tumour to be an epithelioma, with very extensive keratinisation; there was also much fibromatous tissue present, suggesting that the neoplasm was originally a fibroma the epithelium of which had undergone malignant changes.

28th October 1926.—Right lateral pharyngotomy, with local clearance of glands. The growth was found to infiltrate not only the posterior wall of the larynx but also the lateral pharyngeal wall in the pyriform fossa, there being a second pedunculated neoplasm in this region. A considerable area was removed, comprising the mucous membrane covering the right half of the larynx, together with an almost complete segment of the deep pharynx.

A gap was left between the lower cut edge of the pharyngeal mucous membrane and the top of the œsophagus; skin-flaps were turned in on 15th November, and again on 20th December 1926, but final closure of the gutter so formed was not obtained before March 1927, the long interval being due to repeated separation of the flaps.

The patient has remained well for the last five years, and swallows with ease.

CASES OF GENERAL LARYNGOLOGICAL INTEREST.

Post-cricoid Papilloma.—R. J. CANN.

Alice P., aged 51. Since Christmas 1930 has had a sensation of something obstructing her throat, the discomfort being relieved by swallowing.

6th March 1931.—Examination showed excess of mucus in the hypopharynx and the upper edge of a post-cricoid neoplasm. Two courses of deep X-ray treatment given in March and May, without effect.

29th October 1931.—Examination under a general anæsthetic showed a sessile growth encircling three-quarters of the lumen of the hypopharynx. The surface was pale, not ulcerated, while the whole mass moved freely.

Two successive biopsies were made and on each occasion Professor Nicholson reported the growth to be a papilloma.

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Abstracts

Case for Diagnosis.—D. F. A. NEILSON.

Patient, male, aged 42. First complained of sore throat and dysphagia twelve months ago. Six months later noticed a lump on the right side of his neck. First seen three months ago.

On Examination.—Extensive ulcer on right faucial pillar and smaller ulcer of similar appearance on left anterior pillar; both ulcers hard to the touch with indurated margins. Wassermann reaction, negative. Skiagram of chest: nothing abnormal. No evidence of tuberculosis. Swab from throat showed staphylococci and streptococci.

Portions of growth from pharynx and from secondary swellings in cervical glands were reported as due to chronic inflammation, and without evidence of malignancy.

During the last six weeks the ulcers have altered very little in appearance. The larynx appears to be normal. Pain and dysphagia still persist. The patient has had several injections of novarsenobillon without noticeable improvement.

Mr. E. WATSON-WILLIAMS said that the section of the gland convinced him that this was a case of malignant lymphoma.

Mr. NEILSON, in reply, said that the condition showed improvement in comparison with its appearance when he first saw it in July. Still, he intended to treat it as a malignant case, and apply radium.

ABSTRACTS

EAR.

On the Occupational Deafness of the Weaver. Dr. SOLGER (Neustadt). (*Zeits. f. Laryngologie, u.s.w.*, 1931, Band xx., p. 361.)

Following the classification of Beek of Heidelberg, the author offers a contribution relegating the weaver to the fourth and final group of workers in noise. In contrast to the coppersmith and workers in very loud noise, the third group and the fourth group (to which the weaver belongs) manifest a gradually progressive increase in deafness.

In this class of workers amidst noise, it is obvious that the defect in hearing depends upon the intensity of the noise, as well as on the duration of the stimulus.

For this reason all standards failed in the past. Beek used a measure of sound after the system of Barkhausen. The essential constituents were a buzzing intercepter and a resistance from which the current could be led in an accurately measurable manner.

In this apparatus the various measurements differentiate about 100 per cent.

Beek reported that occupations producing a noise above 500

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