NOTES

ON

SEVENTY-TWO CONSECUTIVE CASES OF REMOVAL
OF GOITRE BY OPERATION (EXTIRPATION
OR ENUCLEATION).*By JAMES BERRY, B.S., F.R.C.S.,
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In the Hunterian Lectures, which I delivered at the Royal College of Surgeons in June, 1891, I gave an account of all the cases of goitre, 8 in number, upon which I had operated up to that time.

The present series of 72 cases is a direct continuation of that series, and embraces every case of removal of goitre, of whatever kind, performed by me between June, 1891, and the present time (July, 1899).

I have no desire to claim that there is anything particularly new or original about the methods I have adopted in these operations; nor do I wish to pretend that my results are any better than those obtained by many other surgeons. Indeed, I am painfully aware that they are inferior to those of some of the Continental surgeons, whose experience of these operations has been far larger than mine.

As my series of goitre operations is however, so far as I am aware, the largest that has yet been brought forward by any English surgeon, I have felt justified in bringing it before you, and thus placing it on record. The chief points of each case are shown in the accompanying tabular form.

EXTIRPATION AND ENUCLEATION.

I presume that it is hardly necessary to explain the terms "extirpation" and "enucleation," but it is of the greatest importance that the difference between the two operations should be carefully borne in mind. By extirpation is meant the removal of a portion of the thyroid gland with its capsule; by enucleation is meant the removal of a localised tumour, a cyst, or an adenoma from within the gland. The difference between the two operations is similar to that which exists between the amputation of the breast and the removal of an encapsuled adenoma from that organ.

It will be seen from the table that in 33 cases extirpation was performed, and in 39 cases enucleation. In some of the cases both operations were performed upon the same patient on different sides of the neck.

It will also be noticed that among the earlier cases there is a larger proportion of extirpations; among the later ones a wider experience in diagnosis has led me to perform enucleation more and more. It must be remembered, however, that although enucleation is the simpler, safer, and therefore in most cases the better operation, it is not an operation that can be performed in all cases, but only in suitable ones, that is, in cases of localised tumour (cystic or solid) within the gland. Many goitres, including all the parenchymatous ones, cannot possibly be treated by enucleation without incurring grave and wholly unjustifiable risk.

A subsequent examination of the tumours removed has shown me that in the first 3 cases in my list and in a few others enucleation might have been performed. In no fewer than 25, however, of the 33 extirpation cases no enucleation would have been possible, and any attempt to perform it could only have been followed by failure or disaster. To attempt an enucleation in an unsuitable case, and to be obliged to abandon it and perform an extirpation instead, generally means considerable danger to the patient from hæmorrhage and increased difficulty in the performance of the extirpation.

It will be readily understood, then, that encapsuled tumours alone are suitable for enucleation; all other goitres requiring removal must be treated by extirpation or some modification of this.

THE QUESTION OF OPERATION.

I come next to the question of the necessity for an operation for goitre.

A large number of goitres, especially the soft parenchyma-

tous ones in young people, are curable by medical means, and require no operation. A still larger number, although not curable, yet do not cause sufficient trouble to demand an operation. No operation should be undertaken upon goitres belonging to either of these two classes.

In what cases, then, ought we to recommend a patient with goitre to submit to an operation for the removal of it? The answer to this depends upon the amount of trouble the goitre is giving, or is likely to give, and the ease and safety with which it can be removed.

In the great majority of my 72 cases—namely, in 54—it was difficulty in breathing which was the main or only reason for operating. In 9 other cases, in which the dyspnoea was comparatively slight, it was the displacement or narrowing of the trachea that led to the operation. In five cases only (29, 35, 39, 72, 73) was the operation undertaken mainly on the ground of deformity, and in some of these cases there was some dyspnoea as well. In three cases (38, 49, 56) the patients were middle-aged or elderly women, in whom the hardness of the tumour and a history of recent increase in size led to a suspicion of malignant disease in an early stage.

In one case (Case 10) it was done for prolonged suppuration following an incision into the goitre at another hospital some months before.

In many of the cases, besides dyspnoea, there was a good deal of difficulty in swallowing; these were mainly cases in which backward and inward growth of the tumour caused pressure upon the pharynx or œsophagus. In no case, however, was an operation undertaken for this reason alone; indeed, dysphagia in my experience is rarely a prominent symptom of innocent goitre.

I may as well say at once that I do not consider that deformity alone should ever lead to the operation being pressed upon a patient; it should be undertaken for deformity only when it is certain that the simpler operation of enucleation is both feasible and easy. Extirpation for mere deformity I look upon as a scarcely justifiable proceeding.

Dyspnoea, on the other hand, almost always demands operation. The worse the dyspnoea the more urgently is the operation demanded. Extreme dyspnoea caused by innocent goitre should almost invariably be treated not by tracheotomy but by removal of the goitre.

Malignant tumours, however, which have already begun to cause serious dyspnoea are usually unfit for removal, and tracheotomy affords but too often the only means of giving relief.

CASES ESPECIALLY DANGEROUS.

It should be borne in mind that there are two kinds of goitre that are especially dangerous to life owing to their great liability to cause sudden and dangerous dyspnoea. One is the rapidly-growing parenchymatous, and, of course, bilateral, goitre occurring in young people about the age of puberty. There are many such cases in my list. In these cases dyspnoea may increase so rapidly that in a few days, or even hours, a patient may pass from a condition of comparatively comfortable breathing to one of extreme, and even fatal, dyspnoea. This kind of goitre, if it does not yield to medical treatment is suitable for extirpation, but cannot be treated by enucleation.

The other very dangerous variety of goitre is that in which a unilateral tumour is situated so low down in the neck that it tends to become jammed in the upper opening of the thorax. Such tumours, by becoming displaced or by suddenly increasing in size from internal hæmorrhage, may cause most grave symptoms.

These are, on the whole, the most satisfactory cases with which I have had to deal; however deeply seated the goitre may be, it can almost always be drawn up and enucleated with scarcely any risk, and the benefit to the patient is enormous. Within a week the patient is perfectly well and completely freed from what has been to her a source of great danger and suffering.

These cases are by no means uncommon, and many on my list belong to this class (Nos. 16, 19, 45, 64, and several others); from the small size and little prominence of the goitre it is very liable to be overlooked. The cause of the dyspnoea is sometimes considered to be merely "asthma."

Unilateral goitres situated entirely above the upper border of the sternum and clavicle have, on the other hand, very

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association, August, 1899.

little tendency to cause serious dyspnoea. Until they become large, and displace the trachea, they often cause little or no dyspnoea. Such goitres are often very prominent and unsightly, but are rarely dangerous to life (see Figs. 5 and 6).

Case 59 is an excellent example of the sudden dyspnoea due to hæmorrhage into a goitre. The patient was a woman, aged 25, who during a fit of laughter was suddenly attacked with great difficulty in breathing; her goitre, which had been quite small, suddenly swelled up on one side. The swelling subsequently diminished a good deal in size, but, as the dyspnoea continued to be troublesome, I removed the goitre, which was at that time not larger than a hen's egg. Several similar cases of sudden hæmorrhage into a goitre have come under my notice.

Small tumours projecting from the back of the gland are not common, and are difficult to diagnose. They may cause considerable pressure upon the œsophagus or upon the side of the trachea; in the latter case the distortion is best ascertained by laryngoscopic examination. Cases 52 and 66 are good examples of this condition.

It is well to remember that if a prominent goitre of small or moderate size is associated with severe dyspnoea, it is almost certain that the dyspnoea is due to the pressure upon the trachea of some other portion of the goitre which is hidden from view. Such prominent goitres often at first sight look as if they were easy to remove. But it may happen that it is not until the operator has got well down into the neck that he discovers that the real source of the dyspnoea lies in a downward prolongation of the goitre behind the sternum. This downward prolongation may spring from the same lobe as the more prominent part of the goitre, as in Case 30, or from the opposite lobe (Cases 20 and 41).

Fig. 1.—(Case 41) Miss H., aged 43. A bilateral parenchymatous goitre which produced much dyspnoea. The left lobe, scarcely visible in the photograph, was deeply seated behind the sternum and caused much dyspnoea.

Case 41 was that of a lady who had, as may be seen from this photograph (Fig. 1), a bilateral, deeply-seated goitre. The right lobe was much the more prominent. It was not until I had removed this lobe that I found that the lower part of the left lobe was deeply engaged in the upper opening of the thorax and had to be removed, since it was the chief cause of the dyspnoea.

Case 20 was that of a woman who had a small bilateral goitre, the lower border of which could not be felt. As I was uncertain which lobe was the chief offender, I cut down in the middle line just above the sternum

inserted a finger, discovered that it was the right lobe that was in the thorax, and then proceeded to remove it.

Fig. 2.—The preceding several months after extirpation of the whole of the right lobe and most of the left lobe. The infrahyoid muscles were not sutured, and the scar is consequently deeply depressed and ugly.

A careful examination of the position of the displaced trachea, if it can be felt, is often of much service in determining which lobe is the cause of the dyspnoea.

CASE 65 is one of some interest; it was that of a lady aged 30, who first consulted me in 1893. She had then a bilateral goitre of small size and a good deal of dyspnoea. I recommended an operation, but the patient would not have it done at the time, as she was going abroad. Within a month of my seeing her she was seized in the middle of the night with a bad attack of suffocation. A hurried tracheotomy was performed under circumstances of the greatest difficulty by the nearest surgeon, and for four months the patient appears to have been very ill with the resulting suppuration. It was not until five years later that this lady returned to me, still wearing the tracheotomy tube, which she requested me to remove permanently. Laryngoscopic examination showed that the upper part of the trachea was so narrow that the lateral walls were only a sixth of an inch apart. She could breathe only through the tracheotomy wound. In this case I was obliged, therefore, to do an enucleation of one lobe to enable the trachea to expand, which it slowly did. Four months later I closed the tracheal fistula, and the patient is now perfectly well; but all these years of suffering might have been avoided had the goitre been removed when I first advised that it should be done.

DETAILS OF OPERATION—ANÆSTHETIC.

I will next consider some points connected with the operation itself; and the first point that admits of discussion is that of the anæsthetic. Now, if the goitre is not causing dyspnoea, there is no reason in most cases why a general anæsthetic should not be given. In all my earlier cases a general anæsthetic was given, even when dyspnoea was present. But the occurrence of a death under chloroform in Case 21, and the knowledge of many other similar cases that have occurred at hospitals in London and elsewhere, have led me to take a somewhat serious view of the question of a general anæsthetic. I believe that when dyspnoea is severe there is grave danger in the administration of a general anæsthetic. This danger is especially great at the moment when the tumour is being lifted out of its bed. I am in the habit at this stage of the operation of paying particular attention to the condition of the breathing, and am prepared to relax the tumour at once if the patient's breathing shows signs of stopping or of becoming more embarrassed.

It will be seen from the table that in ten of my later operations a general anæsthetic has been wholly or almost wholly dispensed with, and the operation performed under morphine, or cocaine or eucaïne.

There are great advantages in doing goitre operations without a general anæsthetic when serious dyspnœa is present. The main advantage is that the patient can herself give immediate warning when too much traction is being exercised upon the goitre; she exclaims at once, "You are choking me," and matters can be altered before any dangerous symptoms arise.

Another advantage of not giving a general anæsthetic is that the patient is saved from the retching and vomiting that are apt to follow general anæsthesia. The rapid healing of the wound is facilitated by the avoidance of anything that tends to favour venous hæmorrhage into the wound. All who have had much experience of goitre operations, especially of enucleations, will admit that recurrent venous oozing into the wound is a complication that should be guarded against as far as possible.

It may be thought, perhaps, by some of you, if you have not seen such an operation, that the removal of a large goitre without a general anæsthetic is a cruel and horrible performance. I can assure you that it is not. The only parts of a goitre operation that are really painful are the beginning and the end, when the skin is being incised or sewn up, and this pain can be almost wholly done away with by local anæsthetics. The deeper parts are scarcely sensitive, and the only discomfort that the patients complain of is when the goitre is being dragged upon unduly.

When the tumour has been removed, and all danger of suffocation is over, I have usually offered the patient a general anæsthetic, but it has always been declined. In many cases in which a general anæsthetic was employed, the degree of anæsthesia was very light, so that during a considerable part of the operation the patients were scarcely unconscious.

SKIN INCISION.

The next point is that of the skin incision: and I would merely state briefly that for large goitres and for all goitres in

and other incisions are scarcely ever necessary. The median incision is chiefly useful when it is uncertain which lobe is to be removed. It is easily converted into the angular if more room be required (Cases 19, 20).

All longitudinal and oblique incisions have the disadvantage that, in young people especially, the resulting scar tends to become after a time contracted, thick, and ugly, a point which is worth considering if the operation is being undertaken for deformity. In middle-aged or elderly people, the scar usually remains fine and linear.

The transverse incision has the great advantage of leaving a better scar; it is low down in the neck, and therefore easily covered by the dress; it lies in the same direction as the natural creases in the skin, and is therefore scarcely noticeable (see Fig. 4). It has no tendency, even in young people, to become contracted and ugly.

Fig. 4.—The preceding, three weeks after enucleation of solid adenoma weighing 6 ounces. Showing transverse scar low down in the neck.

On the other hand, it does not give the operator nearly so much room. Except with very small goitre it necessitates free divisions of the infrahyoid muscles and even of the sterno-mastoid. I have myself employed it only for enucleations, and its use is in my hands limited to easy cases of enucleation where appearance is of importance to the patient; that is chiefly in the case of young ladies who wish to wear low dresses.

So far, what I have been saying about the operation applies equally to extirpation and enucleation. I must now say a few words about these operations separately.

EXTIRPATION.

The operation of extirpation I have always done as quietly and deliberately as possible; all large vessels being tied before they are cut. Especial care must be taken not to wound the recurrent laryngeal nerve. Formerly I used to look for it and hold it out of the way; now I seldom even see it, and it is much better not to disturb it by dissecting it out. I have never cut it, but in one difficult case of bilateral extirpation (41) in which the wound healed by granulation the cord became paralysed soon after the operation, owing to involvement of the nerve in the inflammation.

A modification of extirpation that I have of late frequently adopted consists in cutting through the goitre near the trachea after it has been isolated from the other parts. The capsule

Fig. 3.—Case 53. L. H., aged 54. The tumour lay partly behind the sternum and caused severe dyspnœa. which it is desirable to have plenty of room the single oblique incision along the anterior border of the sterno-mastoid is by far the best. The complicated, angular, T-shaped, L-shaped,

Mr. James Berry's Seventy-two Consecutive Cases of Removal of Goitre by Operation (Exstirpation and Enucleation).

No.	Date of Operation.	Name.	Age.	Chief Reason for Operation.	Operation.	Nature of Goitre.	Result.	Remarks.	Highest Temperature after Operation, †	Number of Days after Operation on which Temperature Reached 100° or Exceeded 100°.	Incision.	Anæsthetic.	Latest Report (and Source of).
9*	1891 Dec. 8	Eliza R.	45	Dyspnoea	Exstirpation, left	Cystic adenoma, mainly solid; size of tangerine orange, partly substernal	R.	No drainage; slight suppuration with sinus for 9 months.	102.2°	10	Median	A.C.E.	July, 1899.—Quite well (personal observation).
10	" "	Kate C.	35	Continuous suppuration and sepsis following incision at another hospital 11 months previously	Exstirpation, right	Cystic adenoma, size of goose's egg, mainly solid	R.	Drainage: primary union	99.0°	—	Oblique	"	July, 1899.—Quite well (letter).
11	1892 Oct. 26	Amelia C.	25	Dyspnoea	Exstirpation, right	Cystic adenoma, one-third solid; weight 4½ oz.	R.	" "	102.2°	3	"	"	July, 1899.—Quite well (personal observation).
12	1893 Jan. 5	Sarah B.	33	"	Enucleation, right	Cystic adenoma, size of tangerine orange, half cystic, half solid	R.	" "	98.6°	—	"	Chloroform	July, 1899.—Quite well (personal observation).
13	" "	Annie W.	23	"	Exstirpation, left	Solid adenoma; weight 3 oz.	R.	" "	99.0°	—	Median	"	April, 1894.—Quite well (personal observation). Not heard of since, having changed her address.
14	" 7	Annie R.	15	Severe dyspnoea	Exstirpation, both lobes (leaving small piece on each side)	Parenchymatous; weight 10 oz.	R.	Drainage: mild suppuration; wound had to be opened up at lower part on fifth day; slight pneumonia; temperature normal after 16th day; sinus for about 6 weeks	101.0°	9	Oblique, crossing middle line	"	July, 1899.—Believed to be quite well (Dr. Marshall, of Yeovil).
15	Feb. 4	Albert N.	19	Dyspnoea, dysphagia	Exstirpation, lower part of left lobe	Cyst size of small orange, sub-sternal, very deeply seated	R.	Drainage; primary union; lower part of scar subsequently broke down and a sinus formed; this healed in a week	100.0°	1	Median	"	Quite well on leaving hospital. Not heard of since; believed to be quite well at present time (relations).
16	March 8	Archibald T.	53	Severe dyspnoea	Enucleation, left	Cystic adenoma, four-fifths solid, size of orange, almost wholly substernal	R.	Drainage: primary union	101.0°	3	Oblique	"	July, 1899.—Quite well (personal observation).
17	" 25	Caroline B.	45	Dyspnoea	Exstirpation, left; enucleation, right	Left, cystic adenomatous tumour 4½ ins. long; right, cyst size of walnut	R.	No drainage; primary union	98.8°	—	Median	"	July, 1899.—Quite well (personal observation).
18	April 24	Emily J.	30	Stridor; displacement of trachea	Exstirpation, left	Thick-walled cyst 4½ × 3 × 2½ inches	D.	Drainage; operation difficult owing to adhesion of internal jugular vein to tumour. Death from recurrent venous hæmorrhage 8 hours after operation. Patient had mitral disease	97.8°	—	Oblique	"	—
19	April 24	Lucy P.	33	Severe dyspnoea	Enucleation, left	Substernal adenoma, partly cystic, size of hen's egg	R.	No drainage; primary union, except at one corner of wound	101.4°	2	Angular	"	July, 1899.—Quite well (Dr. Ingle, of Cambridge).
20	May 13	Ellen C.	44	Dyspnoea	Exstirpation, right	Substernal, chiefly solid; measured 6 inches vertically, 5 inches in circumference; inferior horn 3½ inches, extended deeply into thorax; weight 6 oz.	R.	Drainage; primary union, except in track of tube; sinus healed in three weeks	100.8°	3	"	"	July, 1899.—Quite well (personal observation).
21	June 17	Jane V.	43	Dyspnoea (paroxysmal)	Exstirpation, left	Parenchymatous, size of goose's egg	D.	Sudden death from anæsthetic 12 minutes from beginning of operation	—	—	Oblique	"	—
22	June 21	Albert P.	25	Dyspnoea	Exstirpation, right	Parenchymatous, 8½ oz.	R.	Drainage; primary union except in track of tube; sinus healed within a week	100.0°	1	"	"	Quite well on leaving hospital. Known to be well several months later; not heard of since (address changed).

* Cases 1 to 8 already published in the BRITISH MEDICAL JOURNAL, June, 1891. † Temperature taken every four hours.

23	Sept. 21	Mary Ann P.	14	"	"	"	9 oz.	R. Drainage; primary union	101.6°	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
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No.	Date of Operation.	Name.	Age.	Chief Reason for Operation.	Operation.	Nature of Goitre.	Result.	Remarks.	Highest Temperature after Operation.	Number of Days after Operation on which Temperature Reached or Exceeded 100°.	Incision.	Anæsthetic.	Latest Report (and Source of).
46	May 22	Francis L.	18	Slight dyspnoea: tracheal stenosis	Extirpation, right	Parenchymatous, 10½ oz.	D.	Drainage; operation long (nearly 2 hours), but presented no unusual difficulty: profuse recurrent hæmorrhage 4 hours after operation; wound opened up by house-surgeon; death 15 hours later	101.8°	—	Oblique	Chloroform	—
47	July 17	Albert R.	22	Dyspnoea	"	Parenchymatous, 7½ oz.	R.	"	101.0°	3	"	"	July, 1899.—Quite well (Dr. Haig Brodie, Battle).
48	July 22	Sarah Ann H.	40	"	"	Parenchymatous with adenomatous nodules; partly sub-sternal, 11 oz.	R.	"	101.4°	5	"	Morphine and cocaine	July, 1899.—Quite well (Dr. Per-ram, Whitechurch, Salop).
49	Sept. 16	Eliza B.	46	Dyspnoea, dysphagia; recent increase in size; suspected malignancy	Extirpation, right; enucleation, part of left	Solid adenomata, 3½ oz.; right size of orange, left of walnut	R.	"	101.8°	2	"	Chloroform	July, 1899.—Quite well (personal observation).
50	Sept. 30	Lucy S.	38	Dyspnoea	Extirpation, right	Solid adenoma, 7½ oz.	R.	"	100.6°	2	"	"	July, 1899.—Quite well (personal observation).
51	Oct. 16th	Edith W.	18	Dyspnoea, dysphagia	Enucleation, left	Two tumours.—1. Hæmorrhagic cystic adenoma, size of walnut. 2. Solid adenoma, size of hazel nut	R.	"	100.5°	1	Transverse	"	July, 1899.—Quite well (personal observation).
52	1898 Jan. 23	Mrs. F.	39	Dyspnoea	Enucleation, right	Solid adenoma size of large walnut, deeply-seated and projecting from back of gland	R.	"	99.8°	—	Oblique	"	April, 1899.—Quite well (personal observation).
53	Jan. 29	Louisa H.	54	Severe dyspnoea	"	Solid adenoma, size of large lemon, partly sub-sternal; 6 oz.	R.	"	100.4°	—	Transverse	"	July, 1899.—Quite well (personal observation).
54	March 2	Miss P.	25	Dyspnoea	Enucleation, left	Cystic adenoma, one-third solid, size of duck's egg	R.	"	100.8°	1	"	"	June, 1899.—Quite well (personal observation).
55	May 7	Rénée C.	27	"	Enucleation, right	Solid adenoma, size of an orange; the tumour was broken up and removed through an incision 2½ ins. long	R.	"	101.0°	1	"	"	Quite well on leaving hospital: not heard of since (address changed).
56	May 13	Charlotte G.	40	Rapid growth; hardness; suspected malignancy	Extirpation, right	A hard, white, shiny solid tumour, size of a hen's egg, microscopically not malignant	R.	"	99.8°	—	Oblique	"	July, 1899.—Quite well (personal observation).
57	May 13	Alice B.	30	Dyspnoea, dysphagia	Enucleation, left (atypical)	Solid tumour, not well encapsuled; about 1½ in. in diameter	R.	"	102° (temp. 100° before operation)	2	"	"	Nov. and 1898.—Quite well (personal observation). July, 1899.—Well as regards neck, but ill with renal disease (letter).
58	" 21	Emily M.	33	Dyspnoea	Enucleation, right	Solid adenoma, size of orange, broken up and removed through incision 2½ ins. long	R.	"	100°	1	Transverse	"	July, 1899.—Quite well (Dr. Pruett, Cheltenham).
59	" 21	Harriet S.	25	"	Enucleation, right and left	R. hæmorrhagic cyst, size of hen's egg. L. Cystic adenoma, size of orange	R.	"	100.8°	1	Oblique	"	July, 1899.—Quite well (Dr. Kendall, Chiddingfold, Surrey).
60	July 9	Charlotte J.	54	"	Enucleation, right	Cystic adenoma with hæmorrhage; three-fourths solid. 3 x 2 ins.; patient also had cancer of breast	R.	"	99.6°	—	"	"	July, 1899.—Quite well (Dr. R. M. West, Leicester).
61	Oct. 6	Eliza J.	50	Dyspnoea, great deformity	Enucleation	Cyst 5 ins. in diameter	R.	"	100.4°	1	"	Morphine and cocaine	July, 1899.—Quite well (Dr. Richardson, Alverstoke).
62	" 6	Harriet M.	48	Tracheal displacement; increasing size; slight dyspnoea	Enucleation, left	Cystic adenoma, chiefly fluid; maximum diameter 5 ins.; 43 oz.	R.	"	100.4°	1	"	only	July, 1899.—Quite well (personal observation).

63	Nov. 26	Rhoda S.	59	Dyspnoea	Enucleation, left	Cystic adenoma, mainly fluid; 4 x 2½ ins., patient has valvular disease of heart	R.	"	"	100.0°	1	"	"	June, 1899.—Quite well (personal observation).
64	" 26	Edith C.	27	Dyspnoea; dysphagia	Enucleation, right	Hæmorrhagic cystic adenoma, partly substernal; three-quarters solid; 2 ins. in diameter.	R.	"	"	99.6°	—	"	"	July, 1899.—Quite well (personal observation).
65	" 28	Mrs. W.	30	Extreme bilateral tracheal stenosis; old tracheotomy operation on fistula	Enucleation, right (March 14, 1899, plastic operation on tracheal fistula)	Solid adenoma, size of large walnut	R.	"	"	100.2°	1	"	Chloroform	May, 1897.—Quite well; fistula closed (personal observation).
66	1899 Jan. 7	Annie L.	24	Tracheal narrowing	Enucleation, right	Cystic adenoma two-thirds solid, size of walnut, deeply seated	R.	No drainage; primary union	"	99.2°	—	Transverse	"	July, 1899.—Quite well (personal observation).
67	" 7	Ada H.	32	Steady increase in size; dyspnoea	Enucleation, left	Cystic adenoma two-thirds solid, size of hen's egg	R.	Drainage; primary union	"	99.4°	—	Oblique	"	July, 1899.—Quite well (personal observation).
68	" 13	Miss S.	35	Deformity, displacement of trachea	Enucleation	Solid adenoma, size of hen's egg	R.	"	"	100.0°	1	"	"	May, 1899.—Quite well (letter).
69	Jan. 14	Caroline T.	43	Dyspnoea	Enucleation, right	Solid adenoma, 2½ x 1½ inches	R.	"	"	100.4°	2	"	"	July, 1899.—Quite well (personal observation).
70	" 23	Phoebe H.	14	"	Extirpation, right	Parenchymatous, 3 x 2 inches; 3 oz.	R.	"	"	99.4°	—	"	"	July, 1899.—Quite well (Dr. Periam, Whitechurch, Salop).
71	" 28	Ernest W.	14	Slight dyspnoea; Deformity	"	Parenchymatous; 3½ x 2 inches; 3 oz.	R.	"	"	102.8°	2	"	"	July, 1899.—Quite well (Dr. Wallis, Leiston, Suffolk).
72	Feb. 17	Miss N.	26	"	Enucleation, left (evident)	Solid adenoma, size of walnut	R.	No drainage; primary union	"	99.6°	—	Transverse	"	July, 1899.—Quite well (Dr. Crosskey, Lewes).
73	Mar. 13	Mrs. M.	29	Deformity; slight dyspnoea	Enucleation, right	Cystic adenoma, 3½ inches in diameter (removal through incision 2 inches long)	R.	Drainage; primary union	"	100.4°	2	"	"	July, 1899.—Quite well (Dr. Baker, Rushden, Northamptonshire).
74	April 22	Alice E.	33	Dyspnoea	Enucleation, left	Solid adenoma, size of duck's egg; 1½ oz.	R.	No drainage; primary union	"	99.8°	—	Oblique	"	July, 1899.—Quite well (Dr. Tanner, Farnham).
75	" 22	Hilkiah W.	20	Deformity; dyspnoea	Extirpation, right	Parenchymatous; 10½ oz.	R.	Drainage; primary union	"	100.8°	2	"	phine; chloroform and skin incision only	July, 1899.—Quite well (Dr. Wallis, Leiston, Suffolk).
76	May 14	Mrs. D.	40	Dyspnoea	Enucleation, left	Parenchymatous; about 5 oz.	R.	"	"	101.0°	2	"	"	July, 1899.—Quite well (Dr. Hulke, Deal).
77	June 3	Beatrice C.	20	"	Enucleation, right	Cystic adenoma, one-third solid, size of duck's egg; partly substernal	R.	No drainage; primary union	"	99.6°	—	Transverse	"	July, 1899.—Quite well (personal observation).
78	July 6	Lucy H.	35	"	"	Two solid adenomata, size of hen's egg and cherry respectively	R.	No drainage; slight superficial suppuration; healed in 18 days	"	100.0°	2	"	"	July 25th, 1899.—Quite well (personal observation).
79	" 13	Rose S.	17	Slight dyspnoea	Enucleation, left	Solid adenoma, size of duck's egg, broken up and removed through incision 2½ inches long	R.	Drainage; primary union except in track of tube	"	100.6°	2	"	"	July 29th, 1899.—Quite well except for small sinus (personal observation).
80	" 22	Caroline W.	35	Slight dyspnoea; going abroad	Enucleation, left (evident)	Cystic adenoma, size of banana's egg, two thirds solid	R.	No drainage; primary union	"	99.4°	—	"	Chloroform	July 29th, 1899.—Quite well (personal observation).

and a small part of the goitre near the trachea are thus left to protect the nerve. Ligature of the main trunk of the inferior thyroid artery at a distance from the goitre is a proceeding that of late I have almost abandoned in favour of cutting the branches of this artery close to the capsule of the globe.

ENUCLEATION.

With regard to the details of enucleation I have but little to say. The chief difficulty in the operation is to recognise the thin layer of (often much altered) gland tissue that covers the tumour itself. It is essential for the proper performance of the operation that the incision be carried through this layer but no further. I have on several occasions seen an inexperienced operator begin to enucleate before he had divided this layer; on such occasions he has found the operation much more difficult than he expected, and the danger to the patient has been greatly increased.

Unlike some operators, I attach no importance whatever to removing the tumour in an unbroken condition; on the contrary, at an early stage of the enucleation I generally plunge a blunt instrument of some kind into the middle of the tumour and seek to diminish its size by letting out some of the fluid within it. By this means I have more than once been able to remove tumours 3 or 4 inches or more in diameter through skin incisions not more than 2 or 2½ inches in length. But before attempting this the operator should be quite certain of the nature of the case with which he is about to deal, or he may get into trouble with hæmorrhage.

I use my finger much less for the actual enucleation than I formerly did. I find that a finger is rather apt to leave the surface of the tumour, and to travel through the glandular capsule, especially if the goitre be a soft one. There is, however, little danger of this if the tumour is firm and well-defined, I usually prefer to draw the whole tumour forwards

with the left hand, the forefinger of which is inside the tumour. With a pair of dissecting forceps or a goitre scoop the healthy gland tissue can then be rapidly and easily peeled off the tumour. In most cases this part of the enucleation has to be done rapidly on account of the hæmorrhage.

Fig. 5. Case 61.—E. J., aged 50. Large cyst of right lobe. It had been growing slowly for more than 20 years, and caused much discomfort.

In cases of large and old cysts or adenomata, such as that of Case 61 (Figs. 5 and 6), I have sometimes proceeded differently, by a slow and deliberate operation. In this case, where the cyst was 5 inches in diameter, and had been in existence more than 20 years, I exposed the gland as usual; then, instead of excising it in front, I cut horizontally all round it, clamping all the vessels met with, and some were as large as a little finger. The network of large vessels in the gland was then slowly peeled from off the surface of the nearly avascular tough old cyst. This is the operation known as resection-enucleation. By adopting this manœuvre I diminished by one-half the area of enucleation, and avoided the very serious hæmorrhage that would certainly have occurred had these huge vessels been torn through with a finger. I have seen an operator who adopted the more common method lose a somewhat similar case from venous hæmorrhage. The wound was packed, but the hæmorrhage continued, could not be controlled, and the patient died a few hours later. In this case the vessels were not nearly as large as they were in mine.

It must be borne in mind that in the enucleation of large tumours in old people and in the enucleation of solid tumours of any size, especially in young people, a large and even dangerous quantity of blood may be lost in a very few minutes, and it behoves the operator to be both prudent and dexterous.

RESULTS.

Turning now to the results of the operations, it will be seen that among the whole 72 there were 3 deaths. One was from chloroform (Case 21) as already mentioned: in the other 2 cases (18 and 46) the goitres were large and the opera-

tions formidable ones; one of these patients had also valvular disease of the heart.

The total mortality amounts then to as nearly as possible per cent., but those who think such a mortality excessive must remember that many of these operations were extensive ones, performed often upon patients suffering urgently from dyspnoea. Among the 39 enucleation cases there was not a single death nor a serious complication of any kind either immediate or remote.

Fig. 6.—The preceding one week after resection-enucleation. Operation under cocaine and morphine only.

In 56 cases the wounds healed by primary union, in 9 other cases the wound healed almost by primary union, but a small sinus, generally in the track of the drainage tube, remained open for a few days. In 4 cases only was there any prolonged suppuration, and in these cases, fortunately, the suppuration was of a very mild type. All these occurred in the first half of the series.

It will be noticed that the results as regards the healing of the wound have been much better in the later operations than in the earlier. This is no doubt due partly to increased skill in operating, but largely also to the adoption of the dry aseptic method of operating.

In the last year and a-half I have with rare exceptions used only this method. It will be seen that in the last 34 operations primary union occurred in every case with two trifling exceptions (78 and 79). A temperature as high as 100°, and lasting for more than two days after the operation, was recorded in only 2 of these cases. In many of the cases it never reached 100° at any time. I think this a tolerable severe test when it is remembered that the temperature was always taken every four hours.

In most cases drainage has been adopted, but only for twenty-four hours. With scarcely an exception all patients have been allowed to get up on the fourth day after the operation, or even sooner, and by the end of a week they are perfectly well. Indeed, it is usually only in the first twenty-four hours after the operation that they suffer any real discomfort, and often there is no discomfort at all.

There was one case, already mentioned, in which a vocal

cord was found to be paralysed some weeks after the operation, and in two other cases which I examined many years after the operation I found that there was some impairment in the movement of the cords, although neither patient had noticed any alteration in her voice, and neither was aware that there was anything at all the matter with the larynx. A very slight attack of pneumonia in one case (Case 14), and I have now mentioned every complication that has occurred in the whole 72 cases.

The ultimate results have been uniformly good. There is not a single case, so far as I am aware (and I have traced all except three) in which the operation has been followed by any remote complications; none of the patients at present have dyspnoea or any other trouble. I know of no class of patients so grateful to the surgeon as those from whom a suffocating gout has been removed.

NOTE.—Since this paper was read I have operated on 20 more cases, bringing the total number of operations up to 100. Of these last 20, 18 healed by primary union, and the patients were well within a week; in the other 2 a sinus formed (May, 1900).

A CLINICAL LECTURE

ON

SOME UNUSUAL SEQUELÆ OF EPITYPHLITIS

Delivered at University College Hospital.

By ARTHUR E. BARKER, F.R.C.S.,

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GENTLEMEN,—Among the numerous routine cases of epityphlitis with which the modern surgeon has to deal wholesale, there crop up from time to time cases which illustrate more especially the many peculiarities of the disease and its more remote dangers. Of these I venture to think we require occasionally to be specially reminded.

The following cases serve to impress upon us that if we are disposed here and there to pause before operating in any given instance, such delay must not be too long. At the same time I confess I am one of those who believe that there is such a thing as unnecessary haste in operating in many cases of epityphlitis. But still, in numerous other instances delay is a terrible mistake. The study of any long series of consecutive cases teach us both these conclusions.

The first of the following cases illustrates the development of subphrenic abscess as the result of epityphlitis, a complication probably more frequent than is commonly supposed. Sonnenburg met with this complication 9 times in 600 cases operated on by himself.

The second case also emphasises the danger of lung complications from either extension of the inflammation around the cæcum upwards to the under surface of the diaphragm, or of infarcts lodging in the lung and producing an abscess there.

The third case shows the disastrous local results of leaving a perityphlitic abscess too long unopened, and the way in which the resulting "artificial" anus may be brought to heal.

The fourth case illustrates a form of ulceration due to concretion in the appendix with which I was before unfamiliar, and that it may open up adjacent small intestine without the formation of an abscess.

The fifth case shows almost the same course of events where an appendix inflamed, but without any concretion, and nearly ulcerated into the colon.

CASE I.—Some years ago a gentleman, aged about 30, called upon me from the country and gave the following history: He stated that some weeks before he had passed through an attack described by his medical attendant as acute typhlitis. In the course of this a large swelling had formed in the right iliac fossa, but though there was plain evidence of the formation of an abscess, the latter was not opened. In due time the swelling became smaller, but at the same time he began to suffer from night sweating and emaciation, with great enlargement, as was supposed, of the liver. When this condition had gone on for some time he came to consult me. He then looked very ill and thin. There was but little swelling now in the iliac fossa, but on examining the flank, fulness was found in the right renal region. The liver border was below the umbilicus, and the dulness behind extended upwards above the usual level on the right side. Just below the angle of the right scapula was a fluctuating swelling the size of half an orange. There were no signs of a general pleurisy or empyema.

On admitting him to a nursing home he was kindly seen for me by Dr. Sidney Ringer, who agreed with me as to the presence of a large subphrenic abscess on the right side which was beginning to point through the lower pocket of the pleura, and which was pushing down the liver. On incising the abscess over about the eighth intercostal space behind and putting in my finger between the ribs, I found a track leading down to the diaphragm and apparently through it. From this a large quantity of pus was evacuated and a drain tube was inserted. The relief was immediate and great. The liver border began at once to rise, and during the six weeks of his stay in the home resumed its normal position. Finally the wound closed, and he went convalescent to the South of England.

In this case there appeared to be clear evidence that the original suppuration (probably behind the cæcum) had crept up behind the peritoneum, forming ultimately a very large subphrenic abscess, which worked its way at last through the lower pocket of the diaphragm and presented through the ribs under the skin of the back. When this was opened the rapid return of the liver to its normal level was most marked. There was a tuberculous element in this case, and some years later I heard of the patient's death from phthisis in Madeira.

CASE II.—In May, 1896, I was asked by Dr. F. Rushworth, of Hampstead, to see a gentleman, aged 25, who for some fourteen days had been suffering from typhlitis. He was a strong man and an active football player. The attack had begun in the usual way, and was treated by the expectant method. Some days after the onset there was evidence of right basal pleurisy, for which Dr. Mitchell Bruce was asked to see the patient. When I saw him on the fourteenth day this was not a very prominent feature in the case, but there was obviously a large abscess in the right iliac fossa and flank. This I opened on May 27th, 1896 (the fifteenth day) and evacuated a large quantity of pus containing faeces from behind the cæcum. On May 31st the patient was suddenly seized with the most intense dyspnoea, and coughed up a large quantity of foul pus. The dyspnoea was extreme, with great cyanosis, and required the frequent administration of oxygen, which was kept at the bedside in a cylinder for use during the paroxysms which were frequent for some days, and then ceased. Our great fear now was that the other lung should become infected by inhalation of pus from the right bronchus into the left. This fear was justified, for on June 5th he began to complain of severe pain at the left lower base, where there was found to be evidence of pleurisy and consolidation. The next day he coughed up with the same severe dyspnoea a considerable quantity of foul pus, the right side of the chest in the meantime having greatly improved.

From this on there was steady improvement, and although a faecal fistula lasted for some weeks it ultimately closed, and convalescence in the end was complete, and the patient was able to undertake a sea journey.

Here, too, I felt justified in the conclusion that the suppuration from the cæcum had extended up to the diaphragm on the right side and finally burst into the lung. From this it had infected the left lung, the abscess bursting into the bronchi finally, each attack nearly costing the patient his life.

CASE III.—On September 12th, 1899, a woman aged 42, was admitted into University College Hospital with a large abscess in the right iliac fossa and flank, dating apparently from an attack of suppurative epityphlitis. When this had been opened it was found not only to have run riot in the extraperitoneal areolar tissue of the flank, but also to have spread widely among the lateral abdominal muscles. The incision was made by Mr.

FIG. 1A

A. Fistula from sloughing of the cæcum. B. Anastomosis of ileum and transverse colon. C. Artificial kinking of ileum below anastomosis. d.d. Line of division of colon. f.f. Line of division of ileum.

Pollard above the crest of the ilium obliquely from above and behind downwards and forwards between the last rib and the iliac crest. The contents of the abscess were pus and faeces which evidently escaped from a wide opening in the large bowel. In due time the general cavity of the abscess began to contract, but practically all the faeces continued to be discharged from the opening in the loin, only a small fragment of solid material coming away at intervals *per rectum* when an enema was given.