REPORT OF A CASE OF OESOPHAGEAL DIVERTICULUM:

WITH SOME REMARKS ON THAT CONDITION.*

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THE case about to be recorded is that of a condition comparatively rare—namely, an oesophageal pouch or diverticulum.

History.

A gentleman, aged 54 years, stated as follows: "About twenty years ago I observed, when taking a cold in the head, that a white substance like fat, about the size and shape of a small bean, came up out of my throat. A few years later I began to feel a slight inconvenience in swallowing food, which gradually increased. At this time a piece of meat would sometimes remain in the throat for a night without my knowing it, and would come out when in the bath in the morning. This condition continued for a number of years. During the past seven years I had very great difficulty in swallowing, especially during the last two years, during which time considerable quantities of food had to be cleared out of the throat after each meal." He told me subsequently that he often noticed if he took aperient pills at night he could bring them back into his next mouth morning.

My introduction to the patient was through Dr. Finny, by whom the patient was being treated for a severe attack of influenza and its effects upon his heart. Dr. Finny had been this gentleman's family physician for some years, and has frequently expressed the opinion of the probable existence of a pouch or diverticulum above a stricture.

Condition on Examination.

On seeing the patient in consultation with Dr. Finny and hearing the above history, several bougies were passed into the oesophagus, but none could be introduced more than about 9 in. from the teeth. Their passage caused a good deal of irritation and produced severe retching. The passage of the bougies seemed to me to become arrested from spasm of the oesophagus, rather than from encountering any other source of obstruction. Prior to passing the bougies nothing was to be detected on inspection of the neck or pharynx, nor was there any physical sign of any thoracic condition which might produce pressure upon the oesophagus. The patient was then asked to swallow a mouthful or two of water. The effort to do so was accompanied by a good deal of unpleasant gurgling about the pharynx, quite audible all over the room, and about ten to fifteen seconds subsequently the fluid could be heard through the stethoscope trickling into the stomach, but apparently only in small amount. Half a pint of water was then drunk, apparently with more ease than a single mouthful. There was no visible change or fullness to be detected about the neck, but the patient pressing upon his neck with his fingers on each side of the larynx immediately ejected from 2 to 3 oz. of the water. A biscuit was then given to him to eat, but pressure upon the neck in the same way failed to eject any of it. Another glass of water was swallowed, after which pressure on the neck as before ejected some 2 oz. The stomach presented evidences of dilatation, and splashing was easily detected. Having left the room to consult about the case, we were almost at once recalled, and the patient then, by slight pressure upon the neck, ejected the biscuit he had just previously eaten.

The diagnosis of oesophageal pouch was subsequently confirmed by Dr. Watson, who took an excellent radiogram, after giving the patient some bread and milk, containing a considerable amount of bismuth oxide. On looking through the screen, the bolus of food could quite easily be seen entering the pouch when he attempted to swallow. Four spoonfuls were

given to the patient while we were looking through the screen, and the bolus on each occasion could be seen passing down the pharynx and entering the pouch, but none could be detected passing down the oesophagus into the stomach. On any attempt at deglutition, such as the attempt to swallow saliva, we could see the now distended pouch with its black contents, about the size of a hen's egg, rising and falling. It seemed to spring from the left side of the oesophagus, pass downwards towards the middle line, and terminate a little towards the right side, just below the level of the suprasternal notch. The screen was placed directly under the chin, with the head thrown well up and back, so as to obtain a good view of the bismuth food from the moment it entered the mouth. It was subsequently found that the patient himself had discovered that he was able to swallow much more easily when the head was inclined towards the right side and bent forwards, but with the head thrown upwards and directed towards the left side deglutition was more difficult, and less food seemed to him to pass onwards into the stomach. He always referred his sense of discomfort and fullness after deglutition to the right side of the neck about the level of the hyoid bone.

Operation.

The pouch was removed on May 27th, 1908, in the presence of Dr. Finny, Mr. Henry Stokes assisting me, and Dr. Drury giving the anaesthetic.

The pouch was readily exposed by making an incision along the anterior border of the sterno-mastoid muscle from the hyoid bone to the sternum. The omo-hyoid muscle (anterior belly) was divided, and the superior thyroid vessels divided between two ligatures. A rather large lateral lobe of the thyroid gland was displaced, so as to expose the oesophagus. The pouch, which was slightly distended with air, passed downwards directly behind the oesophagus, its lower end extending to a point just below the level of the suprasternal notch. There were no adhesions, and it was readily drawn out of the wound; it had its origin from the posterior aspect of the oesophagus, about its junction with the pharynx. A few muscular fibres were spread out over its neck, but the major portion of the pouch seemed to consist mainly of thickened mucous membrane.

An oesophageal bougie was passed by Dr. Drury, after which two small intestinal clamps were applied to the neck of the pouch, a division made between them with the knife, and the diverticulum removed. Before removal of the clamp a continuous fine silk suture was applied to the cut end, and this was then enfolded towards the lumen of the oesophagus by a second fine silk suture, which passed through the muscular tissue alone. The application of this suture was the only difficult part of the operation, as the oesophagus slipped back into its normal position the moment the clamp was removed. In any subsequent case, I intend before removing the clamps to pass two traction sutures through the oesophagus above and below the situation of the communication of the pouch with the oesophagus by which the assistant could pull it out, allowing the second row of sutures to be passed with greater certainty and rapidity. The suturing of the oesophageal opening completed, a soft stomach tube was passed and the stomach washed out, so as to diminish any tendency to vomit. A small tube was passed from the middle of the wound towards the sutured oesophagus, and around this tube a piece of gauze was loosely packed. About three-fourths of the wound was closed by silkworm gut sutures and protected with flexile collodion dressing.

After-Treatment.

The subsequent treatment consisted in giving salines with and without raw meat juice by the rectum at regular intervals, and in withholding all nourishment by the mouth for four days. The mouth was frequently rinsed with formolyptol solutions and kept as clean as possible. On the fifth day teaspoonful doses of raw meat juice and sterilized milk and small pieces of jelly were given by the mouth, and when it was seen that there was no sign of leakage from the oesophageal wound fluid

* Read before the Surgical Section of the Royal Academy of Medicine in Ireland.

nourishment was increased both in amount and in frequency, until by the eighth day as much as 4 to 6 oz. were taken at a time. Junket was then added and beaten-up eggs. From this on the diet changed to fish cream and chicken cream, then to boiled fish, and finally, by the end of three weeks, roast lamb with vegetables could be partaken of easily and with comfort. The chief trouble lay in getting the bowels to act. The temperature rose to 102°, but the pulse kept quiet, and there never at any time seemed any sign of irritation about the wound, which indeed healed up by first intention (the sutures were removed on the fifth day), except at the site of drainage, which healed within a couple of days after the drainage was left out. There was never at any time any sign of leakage. An attack of pleurisy on the day when the patient was about to return home detained him in the private hospital for another week.

On July 9th, 1903, the patient wrote: "Since the operation in June last I have no inconvenience in swallowing." He has since taken a trip to New Zealand, and has returned in perfect health. There is no discomfort whatever about his neck while swallowing.

Pathology.

Etiologically there are two varieties of diverticula—traction and pressure diverticula.

In the former the wall of the oesophagus is pulled outwards by the contraction of fibrous tissue formed in connexion with some old-standing inflammation in a neighbouring structure to which the oesophagus had become adherent. Most traction diverticula are small and situated on the anterior aspect of the oesophagus, though they have also been observed on the posterior wall. They do not, as a rule, produce symptoms, because the apex of the diverticulum is at a higher level than the opening, so that food either does not enter the diverticulum at all or does not stay in it. Such a condition is said, however, to favour the development of carcinoma.

Pressure diverticula are produced, as the term implies, by pressure, and the mouth of the diverticulum is at a higher level than the sacculus itself; consequently food enters the pouch, and the tendency is for the diverticulum, having once formed, to continue to increase in size. They are situated at the posterior or postero-lateral aspect of the oesophagus at its junction with the pharynx.

Their production is said to be favoured by the physiological narrowing which exists at the level of the pharyngeal constrictor and the gap said to exist at that point in the longitudinal muscular layer. They vary in size, and may extend for a considerable distance into the thorax. They usually pass downwards towards the left, but may be met with on both sides. Something like 100 cases have been reported from time to time. Mr. H. T. Butlin has reported no less than 8 cases upon which he operated, with 1 death. He states that he has notes of some 6 or 7 other cases; that in his opinion the cases are not so rare as we have been led to suppose; and that it only requires the attention of practitioners to be directed to the symptoms for more cases to be recognized.

Symptoms.

In the early stages the patient complains of dryness and a scratchy feeling in the throat, frequent hawking, nausea, expectoration of mucus, and a flow of saliva. Hawking brings up particles of food from the last meal mixed with mucus. A feeling of pressure may be experienced after taking solid food. After some time the sensation of the presence of a foreign body in the throat is experienced, and there is difficulty in swallowing. Small quantities of food regurgitate into the mouth, sometimes while eating, at other times after long intervals—for example, on getting up in the morning a portion of the previous night's supper may be regurgitated; this is a most important sign of the condition. Pressure on the side of the neck after eating or drinking may empty the contents of the pouch into the mouth. The regurgitated or ejected contents—unless when decomposition has taken place in the pouch—appear just as if recently swallowed. They are mixed with saliva and mucus, never appear digested, and are never mixed with stomach contents. Efforts to swallow may be associated with a gurgling noise in the pharynx owing to the escape of air from the pouch. Large diverticula when distended may produce dyspnoea and hoarseness from pressure, while the pressure upon neighbouring blood vessels may produce congestion. The pressure of a distended diverticulum, if large, may obliterate the oesophagus so as to render further deglutition impossible. Decomposition of the contents of a diverticulum will produce great fetor of the breath. These symptoms may not manifest them-

selves till late in life. Most cases are over 40 years of age and some 70 years or more. One case of Butlin's, operated upon successfully, was 73, and one case, also successfully operated upon by Dr. George E. Brewer,¹ was 78 years of age.

Diagnosis.

The diagnosis can generally be readily made from the history which is quite characteristic. Nothing could be more typically characteristic of an oesophageal diverticulum than the history of the case just detailed. Examination with x rays by the screen while giving food containing some salt of bismuth, particularly a heavy salt such as the oxide, will confirm the diagnosis. An x-ray photograph taken when the pouch is full of the bismuth food will be a permanent record of the situation and extent of the pouch. The oesophagoscope, I have no doubt, would also confirm the diagnosis as well as show the position and size of the diverticulum.

Cases have been mistaken now and again for stricture of the oesophagus, either simple or malignant. One case was operated upon by Mr. Whitehead, of Manchester, under the impression that the patient was suffering from cancer of the oesophagus (gastrostomy being the operation). She survived some six years, and *post-mortem* examination showed the real cause of the trouble to have been an oesophageal pouch. One of Mr. Butlin's patients had his throat cauterized and the uvula cut or burnt off under the impression that the elongated uvula produced the symptoms reflexly. The subject of this communication was cauterized several times under the same impression by a specialist.

Prognosis.

Without operation the prognosis is bad. The condition gradually gets worse, until death takes place from inanition or until decomposition leads to suppurative abscess, mediastinitis, or septic pneumonia. The condition may, it is said, lead to the development of cancer, the pouch itself becoming cancerous.

Treatment.

The correct treatment consists in the complete removal of the pouch. This operation does not tax the patient's strength or vital powers unduly, is simple to perform, and the results are eminently satisfactory. Old age does not seem to be any bar to the success of the operation.

The mouth and teeth should be attended to before the operation, and the pouch itself should be empty. If the breath is fetid the probability is that decomposition is taking place in the pouch. It should therefore be washed out with some non-poisonous antiseptic or disinfectant.

The incision should extend from the hyoid bone to the sternum, on whichever side the pouch is situated, and along the anterior border of the sterno-mastoid muscle. The anterior belly of the omo-hyoid muscle and the superior thyroid vessels must be divided.

The lateral lobe of the thyroid gland may require displacement. The pouch can then be easily seen and withdrawn, for unless decomposition has led to inflammation it is not adherent. The continual movements of the oesophagus during deglutition prevent adhesions. On drawing the pouch out of the wound a bougie should be passed to ensure the absence of stricture, and to indicate accurately the position to which the clamp may be applied so as not to encroach too much upon the oesophagus. Risk of infection of the neck will be minimized, if not abolished, by having the pouch emptied and by cutting between clamps. The loose tissue at the root of the neck should be disturbed as little as possible, otherwise infection of the neck, if it supervened, would readily extend to the mediastinum and cause death. The oesophageal wound should be accurately closed by two, or possibly three, rows of sutures. The first row should be applied to the cut edges of the neck of the diverticulum before the clamp is removed. Two traction sutures should be passed through the oesophagus above and below the site of the pouch, so as to facilitate the application of a second, or even a third, row of sutures to enfold the first row. The oesophagus can thus be drawn outwards and forwards by the assistant pulling upon the traction suture. The second row of sutures should only pick up the muscular tissue of the oesophagus, while a third row, if desired, may close the loose cellular tissue over the muscular layer. Drainage should always be provided for by tube and gauze; but I see no reason for

leaving the entire wound open, as Mr. Butlin and others recommend (von Bergmann's operation). The stomach may be washed out after the oesophagus has been sutured, so as to diminish the likelihood of post-anaesthetic vomiting. The stomach tube passes readily.

The post-operative treatment is also important. In any future case I shall certainly carry out a similar line of post-operative treatment to that adopted in this case—namely, the avoidance of all nourishment by the mouth for four days, frequent rinsing of the mouth and pharynx with an antiseptic mouth-wash, and rectal administration of salines with raw meat juice. It may be said that as the patient is constantly swallowing saliva he will be no worse off if allowed to take liquid nourishment; but I think less strain will be thrown upon the oesophageal wound by simply leaving the patient to swallow saliva than by giving milk and other liquid nourishment to drink.

Some authorities recommend preliminary gastrostomy a couple of weeks before removing the diverticulum, with the object of increasing the patient's strength before operation and of being able to feed him from the first without running any unnecessary risk of producing leakage of the oesophageal wound. In greatly emaciated patients badly exhausted by inanition, such a preliminary operation under cocaine anaesthesia should unquestionably be performed, but in cases not so exhausted it is unnecessary.

The removal of the diverticulum itself could easily be accomplished under local anaesthesia, and the patient given a satisfactory meal through the stomach tube passed before the neck wound is closed and while the sutured oesophagus is still under the operator's eye.

Passing a tube through the mouth into the stomach or oesophagus, and leaving it in position so as to feed the patient subsequent to the removal of the pouch, is a procedure to which I should not have recourse.

REFERENCE.

¹ *Annals of Surgery*, October, 1908.

Remarks

ON

COMMON TYPES OF SORE THROAT.*

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SORE throats present considerable difficulties both in diagnosis and treatment, and are amongst the most anxious cases that the medical man is called upon to treat in his practice, especially amongst children, for when a child complains of a pain in the throat the mother is filled with anxiety, sends for the doctor, and her first question is, "What is it, doctor? Is it diphtheria?" and the doctor is expected to give it a name forthwith. Now, in some cases this is an easy matter, but in a large number the diagnosis presents many difficulties, and the cautious man will exercise reserve in giving a definite opinion.

Scarlet Fever.

I do not propose to enter into any details with regard to the differential diagnosis of the acute specific infectious diseases from the appearance of the throat; so many other circumstances have to be taken into consideration with which you are all more familiar than I am, for my practice does not lie in that direction. I often hear the expression, "He's got a typical scarlet fever throat"; but there are four different conditions of sore throat met with in scarlet fever.

1. The tonsils, faucial pillars, palate, uvula, and oropharynx are swollen and of a deep red colour. Sometimes there is inflammatory oedema. (This picture was exactly reproduced in all the throats in our milk epidemic, and many cases were isolated, the isolation being strictly enforced until the patient had finished peeling; in all my

cases the oedema was very marked, and the submaxillary glands were involved very early and to a considerable extent.) I have also seen several throats this spring which presented the same appearance, but they were due to influenza; but in these patients the glands were not affected, but a very troublesome cough annoyed the patients, especially at night, and caused a sharp cutting pain in the larynx, which, however, on inspection was found to be normal, but the mucous membrane of the trachea was the seat of inflammation. I found that glyco-heroin acted as a specific for the cough, and the pain was relieved by benzoic acid lozenges sucked freely.

2. The appearance presented may be that of a follicular tonsillitis.

3. A definite membranous inflammation may occur; the membrane is soft, and leaves superficial ulceration as it disintegrates.

4. Marked and deep ulceration occurs in the septic variety; the ulceration may spread upwards to the nasopharynx and nose and downwards to the epiglottis and larynx; the soft palate may be perforated or the uvula may slough off.

The treatment of the throat symptoms in these diseases merits more attention than is usually paid to them; a gargle is frequently ordered, which many patients, especially children, are unable to use, and in any case the fluid seldom reaches the oropharynx; it is far more efficacious to prescribe a lozenge—for example, formamint—or apply whatever fluid is chosen with a brush; this the physician should do once a day himself, because parents, and indeed many trained nurses, are unable to carry this out efficiently, and more is deposited on the surface of the tongue than reaches the inflamed area. I find it better in many cases not to depress the tongue with a spatula—this causes the patient to hawk and retch; if the patient is directed to open the mouth wide and take a deep breath, the tongue sinks down, and the brush can be passed in rapidly, and the whole area thoroughly swabbed. Inasmuch as the inflammation in a large percentage of cases extends upwards through the Eustachian tubes to the middle ear, causing acute otitis, it is always advisable to douche the nasal cavities; personally I never use a spray, as they are inefficient, easily get out of order, and frighten a nervous child. I find the glass douche the easiest to use, and a warm alkaline solution the most efficacious in clearing away the mucus and freeing the nasal passages.

Diphtheria.

I need not say much about diphtheria; the only question is one of early diagnosis, and the prompt injection of serum in efficient doses. The diagnosis is often attended with difficulty, especially when the membrane is confined to one or both tonsils; indeed, when I was a student I was taught that such cases were not diphtheria, but I have seen several cases in which only one tonsil was covered with membrane, but bacteriological examination revealed the specific organism; these cases are very important, because many of the patients are well enough to walk about, but at the same time are sources of infection to their comrades, and may themselves suffer from subsequent paralysis. The injection of serum is sometimes followed by very unpleasant symptoms.

I had a case lately where I injected 3,000 units of anti-diphtherial serum, and in less than ten minutes the patient's eyelids commenced to swell and this swelling involved the whole of the face in less than one hour; the lips were as thick as a negro's, and the whole body was covered with an urticarial eruption which caused the patient intolerable irritation. I remembered that I had treated her six years previously for hay fever, and that one of her sisters had suffered from chilblains, so I prescribed 20-grain doses of calcium chloride every two hours, with the result that in fourteen hours all the swelling had disappeared from her face and only small areas of eruption were causing any irritation.

Vincent's Angina.

Vincent's angina is a condition met with more commonly than is generally supposed. There are two varieties, but only the ulcero-membranous presents any interest for us; the diphtheroid is extremely rare. The more common type is ushered in by headache and fever with redness of the fauces and enlargement of the tonsils; the breath is fetid, tongue coated, and the submaxillary

* A paper read before the Boston and Spalding Division of the British Medical Association.