Clinical Observations

ON

A CASE OF DIVERTICULUM OF THE OESOPHAGUS.*

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GENTLEMEN,—I show you a specimen of a variety of diverticulum of the oesophagus—the so-called pressure pouch of the oesophagus—removed from a woman aged 45. The existence of the pouch was recognized five and a half years before it was removed, and during that period the progress of the case was observed. The pouch was large, its capacity being nine fluid ounces. Its position was accurately located and registered by radiography, and is shown in the accompanying skiagram. Its removal was very simple, and the patient made a quick and complete recovery.

The case is a typical instance of the most common form of diverticulum—that which gives rise to the most distressing symptoms, and that for which surgical intervention is most commonly required. It arises in the middle line posteriorly just at the junction of the pharynx and the oesophagus, at the weak spot left by the divergence of the longitudinal muscular fibres of the oesophagus. It may with equal propriety be spoken of as a diverticulum of the pharynx or of the oesophagus. The latter is, however, the best name, as there are other pouches, probably of embryonic origin, which are definitely connected with the pharynx.

History.

The patient was 45 years old at the time of the operation, which took place in December, 1904. She had always been delicate, and nearly every winter she had suffered from some chest complaint. She had had several more or less severe attacks of pneumonia and bronchitis, and she had had a severe attack of double pleurisy. In 1892 she began to suffer from asthma. The attacks were severe, and lasted till 1899, when they ceased. The strain of coughing is thought by some to be an important factor in the causation of these pouches. This patient had certainly been troubled by frequent attacks of coughing for several years preceding the onset of the symptoms due to the pouch, and their influence in causation cannot be denied, though there are other and possibly more important causes to which reference will be made later. In 1893, about eleven years before the operation, the patient noticed the first symptom which may now be attributed to the diverticulum. She had taken a pill, and the sensation of the pill having lodged in her throat continued, and the taste of the pill also remained till the next morning. After this the patient often noticed that pieces of food swallowed several hours before, in some cases a day or more before, returned to her mouth. For instance, she often noticed that pieces of coagulated white of egg were returned, though she had taken several meals in the interval, which had apparently been swallowed into the stomach normally. Here was a symptom which was quite inexplicable on any other theory than the presence of some pouch capable of interrupting food, and protecting it from the action of the gastric juice for a long period. This symptom, regurgitation of food, became more marked, and actual difficulty in deglutition was added to it.

When the diverticulum is small it may intercept the food first taken, whilst that taken later, when the pouch is filled, may pass quite normally into the stomach. There is thus established a condition resembling rumination, for the intercepted food may be returned to the mouth later on. But as time goes on, and the pouch gets more and more distended and heavy, it pulls on the pharynx, and appears to be the direct continuation of it, whilst the distended pouch presses on the oesophagus and the lower margin of the opening into the pouch falls against the anterior wall of the oesophagus and blocks the entrance into the oesophagus like a valve. In 1897 the

case was diagnosed as one of "loss of power of the gullet," the condition having been mistaken apparently for the incurable one known as idiopathic dilatation of the oesophagus. About this time, that is to say, about four years after the onset of the symptoms, a very trying and characteristic symptom developed. About an hour after going to bed the patient was awakened by irritation in her throat which induced incessant and violent coughing; the attacks of coughing were repeated several times during the night, but during the day she was rarely, if ever, troubled by them. During each night she expectorated or regurgitated about a pint of frothy mucus. This is a common symptom, and patients soon learn the necessity for emptying the pouch and washing it out by repeated drinks and regurgitations before going to bed. The saliva and mucus is swallowed and it collects in the pouch. In the recumbent position the contents of the pouch overflow into the larynx and set up the fits of coughing, and, indeed, the irritation of this overflow secretion may set up chronic laryngitis. Some patients find that if they stoop well forwards the contents of the pouch will run out.

In April, 1899, the patient first consulted me in regard to nasal polypi, to which her asthmatic attacks were attributed. I removed the polypi, and the attacks of asthma ceased. At the same time the patient told me of her other symptoms, from which it was evident that she had a diverticulum of the oesophagus. The question of its removal was discussed, but the patient decided that her chief trouble was asthma, and that the symptoms attributed to the pouch were not sufficiently distressing to necessitate its removal at that time.

The diagnosis was at once suggested by the symptoms, and was supported by examination with bougies. A medium-sized oesophageal bougie was at once passed into the stomach. It went down with the greatest ease, and was not gripped at all; but subsequent attempts to pass bougies of larger size failed, as also did the attempts to pass smaller ones, or even the one originally employed. It was clear that there was no stricture as a medium-sized bougie had been passed so readily. The only explanation seemed to be that the bougies passed into the diverticulum. It has sometimes been found that by varying the position of the patient's head and neck, turning it to one side or the other or backwards or forwards, the bougie could be passed. But in this case it was not possible to coax it down by any manoeuvre. It was always arrested at a distance of 7 in. from the teeth. On two subsequent occasions the whole series of oesophageal bougies were passed with the greatest ease, and so the absence of oesophageal stricture was definitely determined.

I next saw the patient about two years later—February, 1901. The symptoms had been getting gradually worse; deglutition was more difficult; some fullness was observable at the root of the neck, particularly on the left side, and pressure at this spot occasionally caused gurgling. About this time the patient consulted Mr. Tilley on account of laryngeal catarrh. Mr. Tilley advised the patient to consult Mr. Butlin, who confirmed the diagnosis of oesophageal pouch and advised its removal. During the three succeeding years the symptoms became much aggravated, and the patient had to spend the greater part of the day in endeavours to get enough food into the stomach to maintain life. She ate her meals with a basin by her side, and into it she was continually returning the food which she had taken and had failed to swallow into her stomach. Then she started again and took more, but only to bring it back again. She was steadily getting thinner. When she first consulted me in the early part of 1899 she weighed 7 st., but when towards the end of 1904 she consulted me for the third time her weight had fallen to 5 st. 13 lb. The difficulty in getting food beyond the pouch was then extreme. She could drink from 8 to 10 oz. of milk at a time, but not more than 1 oz. of this got into the stomach; the rest passed into the pouch, distending it and causing fullness of the lower part of the neck and pain in that situation and behind the sternum, until by straining and squeezing the lower part of her neck with her hands she succeeded in emptying the pouch. She never had much difficulty in emptying the pouch, and there was never the slightest evidence of digestion or of decomposition of the regurgitated food. It always came back in exactly the same condition as it had been swallowed. By forced attempts at expiration, with closed

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mouth and nostrils held, the patient was readily able to distend the lower part of her neck, which was thereby rendered tympanitic on percussion.

It was still impossible to pass bougies into the stomach. They were now arrested at a distance of 9½ in. from the gums. In April, 1899, the bougies were arrested at a distance of 7 in. from the gums; in November, 1904, they could be passed 2½ in. farther. The length of the pouch had greatly increased during the interval of five and a half years.

In order to gain the most accurate idea of the size and position of the pouch I had a radiograph taken of the lower part of the neck and the upper part of the thorax after the patient had filled up the pouch with half a pint of gruel, in which were suspended 2 drachms of oxide of bismuth. The radiograph, which was taken by Mr. Worrall, is excellent, and the accompanying illustration is a reduced copy of it. The plate was held against the patient's back, so that the interval between it and the pouch might be as small as possible. The position and relative size of the pouch is well shown. It extends down into the thorax and reaches well beyond the arch of the aorta, indeed to beyond the sixth rib near the spine. After the radiographic exposure had been made the patient regurgitated 9 oz. of the gruel which she had swallowed.

After struggling against her malady for eleven years, and steadily losing ground all the time, the patient

determined to face the risks of the operation, as she was convinced that she could not live much longer in the condition to which she had been reduced.

Operation.

The operation was performed on December 2nd, 1904. For two days before the operation the patient only took sterilized food, and she frequently washed out the pouch, first with saline solution, and then with boric acid lotion. The operation itself was an extremely simple one. An incision was made along the anterior border of the sternomastoid muscle from the sternum to the level of the hyoid bone. The anterior belly of the omohyoid muscle and the superior thyroid artery were divided, thus exposing the carotid sheath freely. The pretracheal layer of the deep cervical fascia was divided as it passes from the carotid sheath to the thyroid body, the larynx and trachea were rotated to the right by traction on the posterior border of the left ala of the thyroid cartilage. The pouch was at once found lying behind the oesophagus, and apparently in direct continuity with the pharynx. It was lying in loose connective tissue, and was easily isolated and hauled up from the posterior mediastinum, and brought out through the wound, whence it projected like a partially-distended balloon, swelling out during expiration and partially collapsing during inspiration. Its average size was about that of an ordinary tumbler with a narrow mouth. The circumference of its neck measured about 4½ to 5 in. at its attachment to the pharynx and oesophagus. The pouch was attached at the usual position in the middle line just below the inferior constrictor muscle. Its neck

was bounded above by the lower border of the muscle just mentioned and on either side by the diverging longitudinal muscular fibres of the oesophagus. It was itself devoid of a muscular covering and consisted of mucous membrane and submucous tissue only. The cause of the difficulty in deglutition was very evident. The pouch with its wide mouth was the direct prolongation downwards of the pharynx, whilst the oesophagus opened into it in front by a narrow mouth. The pouch was divided at its neck and removed. On passing the forefinger into the oesophagus a resistance was encountered at its commencement. There was no stricture in the ordinary sense and the mucous membrane appeared quite normal. But, nevertheless, the commencement of the oesophagus was firm, not dilatable, and would only admit the first phalanx of the forefinger. Immediately above the resistant ring at the upper end of the oesophagus was the weak point in the middle line behind, at which the pouch had been developed. To the combined effect of these two conditions the origin of the pouch may be attributed. A large bolus, either solid or fluid, meeting with a little resistance at the entrance to the oesophagus, would exert pressure on the weak place at the junction of the pharynx with the oesophagus.

To resume the description of the operation, the opening left by the excision of the pouch was closed by three layers of continuous sutures. The first involved the mucous membrane alone, the second the muscle alone, and the third the outer fibrous layer, together with some of the muscular coat. The last row of sutures were inserted after the manner of Lembert's intestinal sutures. The greater part of the skin wound was closed. Two pieces of gauze were inserted for drainage, one being passed into the posterior mediastinum and the other down to the neighbourhood of the sutured oesophagus.

After-History.

Rectal feeding was commenced at once after the operation. But the patient was not restricted to rectal feeding. It had been intended to feed her through a small rubber tube, which had been passed from the mouth into the stomach at the operation, but the patient vomited this tube six hours after the operation. No attempt was made to replace it. It was decided that it would be no more harmful for her to swallow little sips of milk than to swallow her saliva, which she was continually doing. No leakage from the oesophagus into the wound occurred, and so more liberal drinks were allowed and the intervals increased. By the sixth day after the operation the patient was taking soft solid food, such as pounded fish or breadcrumbs in milk and custard. On the sixteenth day after the operation the patient was taking ordinary diet.

The dressing was changed daily, and on the second day and daily afterwards the gauze drains were changed. They were finally left out on the ninth day after the operation.

On the day after the operation an attack of right basic pneumonia commenced. The crisis occurred on the eighth day, and afterwards the patient's temperature continued normal and she made rapid progress. She left the nursing home three weeks after the operation. I saw her again five months later. She was still quite well. She could swallow anything, she had put on flesh, and indeed weighed 3 lb. more than she did before the onset of her troubles eleven years previously. The patient was last heard of about two years after the operation. She was quite well and free from any difficulty in deglutition.

THE late Mr. William Whiteley left £2,000 to St. Mary's Hospital, £1,000 to the London Fever Hospital, £500 each to the Children's Hospital, Paddington Green, the Cancer Hospital, the Middlesex Hospital, the West London Hospital, and the Chelsea Hospital; and £100 each to the Royal Hospital, Richmond, and Hayes Cottage Hospital, Middlesex.

DR. JULIUS ARNOLD, Professor of Morbid Anatomy and General Pathology, and Dr. Wilhelm Erb, Professor of Internal Medicine in the University of Heidelberg, have retired from the active duties of their chairs. On both of them the German Emperor has conferred the honour of an Active Privy Councillorship with the title of Excellency.