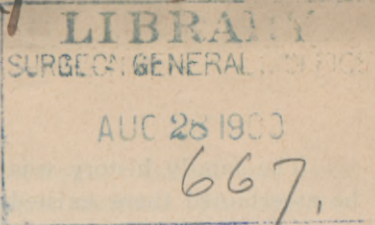


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A CASE OF DIVERTICULUM ŒSOPHAGI.

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The following case of diverticulum of the œsophagus is reported on account of its peculiar location, large size, and the difficulties of definite diagnosis. In studying the literature I have found very few similar cases reported. Diverticula occur almost always opposite the cricoid cartilage, as has been shown in the classical article of Zenker and Von Ziemssen. Their pathogenesis is not quite clear, but it is probable that a congenital weakness at that point in the œsophagus is the prime factor. This may be due to a displaced vitelline duct, abnormal development of the bronchial clefts, or possibly a faulty development of muscular fibers so that a hernia of the mucous membrane results. At any rate diverticula do not seem to be found in infants and children. We know, therefore, that these pouches are formed gradually during life, and the patient is usually full grown before serious symptoms develop. The direct cause in their development is retention of food and the muscular effort in deglutition which gradually distends the sac. At the same time active proliferation of the cells in the wall of the diverticulum keeps the thickness almost constant and prevents rupture. These have been designated pulsion diverticula.

The so-called traction diverticula occur usually at the bifurcation of the trachea, and are caused by an adhesive inflammation between the œsophageal wall and some surrounding structure, as the bronchial glands. The traction diverticula are very small and give rise to no symptoms.

F. W., male, aged 20 years, consulted me in December, 1895, in reference to a difficulty in deglutition.

The family history was unimportant. As far as could be ascertained there existed no tendency to tuberculosis or cancer in the family. Syphilis was utterly excluded. The father died of an operation for inguinal hernia. The mother was living and perfectly well. Patient had lost a brother and sister, one of typhoid fever and the other of diphtheria. No evidence of malformations or structural weakness in the ancestors could be elicited, with the exception of the hernia in the father. No stigmata of degeneration were discovered. The patient had always been free from acute diseases, except that he had diphtheria in infancy. Patient had never had any disease of the chest, no cough and no glandular enlargement of neck. During childhood it was noticed that he spit mucus very frequently, and this was made the subject of great anxiety by relatives, saying that he would not live long. The patient remembers that even in early childhood, at times he had a disagreeable sensation during deglutition. He positively denies ever having swallowed lye, acids, or corrosive poisons. The mother was carefully interrogated on this point and not the least evidence could be obtained that patient during childhood swallowed anything that might cause a traumatic œsophagitis.

For several years the difficulty in swallowing has been growing progressively worse. Regurgitation of food has been very common for some time. Among an early symptom during childhood was the fact that remnants of food and fluid were found on his pillow every morning. This has increased to such an extent that he provides himself with a cup at bedtime, and on lying down some food soon regurgitates and he spits it into his cup. This regurgitation of food after or during meals and at bed time is the source of nearly all his worry. He is unable to attend any dinner outside of his home, as he is liable at any time to regurgitate. At present this regurgitation is more pronounced than ever. When patient attempts to eat he swallows several mouthfuls, but it all seems to stop somewhere before it reaches his stomach, finally he swallows by contracting all the muscles of the neck and fixing his respiratory muscles, and by this extraordinary effort succeeds in forcing the food into his stomach. Patient is fairly well nourished, but rather pale.

His intelligence is about the average. Patient has been treated by various physicians without success. For over one year he has been under the care of one of our leading physicians, who treated him for stricture of the œsophagus. The treatment consisted in passing sounds and bougies. The physician had passed large olive-tipped œsophageal dilators. The patient himself had been taught to introduce a hard rubber bougie, and for nearly one year he passed a bougie daily, with the object "to keep the stricture open." Nevertheless, there ensued no improvement. Great difficulty in swallowing still persisted, and regurgitation was just as common. Patient stated that he could introduce his bougie at times without any trouble, at other times he seemed to strike an obstruction which prevented the bougie from entering the stomach.

The Diagnosis.—Two facts concerning the patient were definite: First, he had great difficulty in swallowing; second, he regurgitated large quantities of food at various intervals. What pathological condition of the upper alimentary tract could explain these prominent symptoms?

The great difficulty in swallowing could only be explained by a narrowing of the œsophageal canal. What caused this narrowing in caliber? A large hard rubber bougie was introduced and passed without difficulty into the stomach. The conclusion was inevitable that no organic stricture was present.

The contraction in the lumen must, therefore, arise from some tumor pressing on the gullet or, as has been shown in at least one instance, an angular flexure of the œsophagus. Finally spasm of the cardiac orifice must be considered.

In regard to the regurgitation or vomiting of food the question of its source presented itself. If this food came from the stomach the diagnosis of rumination seemed probable.

A chemical examination of the regurgitated food revealed the following: Starch well digested; entire absence of hydrochloric acid; pepsin not demonstrable; lactic acid showed a marked reaction by Uffelman's test; peptones absent.

Microscopically starch granules numerous, but meat fibers totally undigested. This showed that either it did not come from the stomach or that organ secretes no true gastric juice.

The physical examination revealed no abnormality in the

lungs, heart and abdominal organs. Posteriorly over the chest in the left infra scapular region a small area of dullness was discovered. Over this there existed an absence of the respiratory murmur. Kidneys as revealed by urinary examination were absolutely healthy.

By clapotement a loud splashing sound was heard over the epigastrium, so that gasticasia seemed possible. On auscultation over the œsophagus during the act of swallowing the deglutition murmur was not audible.

Ewald's test breakfast was given, and one hour afterward the stomach tube was passed. To my surprise it did not enter the stomach, but at a distance of 40 cm. it struck an obstruction. Nevertheless, nearly one pint of fluid and food was withdrawn. This fluid seemed to contain the ingredients of the test breakfast. Also a piece of coagulated egg albumin which the patient assured me he had ingested the day before. Clearly it seemed that a diverticulum existed immediately above the diaphragm. One peculiarity seems important to notice that while the rigid bougie could pass into the stomach, the soft, flexible tube could not be induced to enter. More experiments with the bougie demonstrated that at times it seemed to meet with some obstruction, at other times it would enter the stomach. I was unable to procure a rigid stomach tube, consequently after many trials I gave up the attempt to introduce the soft rubber tube into the stomach. After each meal nearly one pint of fluid could be emptied from the sac. After emptying the sac, the dullness in the left infra-scapular region constantly disappeared.

The patient was given a soft rubber stomach tube and instructed to introduce it and empty the diverticulum after each meal. A few days afterward he came to me with the surprising information that he had pushed the tube into his stomach. I was incredulous, but he offered to demonstrate it. After several failures he finally pushed the tube to 52 cm. I immediately expressed some contents and was able at once to demonstrate the presence of true gastric contents. Hydrochloric acid, by Boas' test a marked reaction; the biuret reaction showed the presence of peptones, and pepsin was also demonstrated. This was in marked con-

trast to the many examinations which had never shown either hydrochloric acid, pepsin, or albumoses.

A great many other tests were made. A capsule of potassium iodid was swallowed on an empty sac. Twenty-five minutes later no trace could be found in the saliva by nitric acid and starch paper. One dram each of tartaric acid and bicarbonate of soda injected in solution separately did not distend the stomach, but repeated eructations ensued. It was obvious that it entered the sac, the orifice of which was too large to prevent the escape of the carbon dioxid formed.

These examinations very clearly demonstrated the existence of a pulsion diverticulum of the œsophagus situated immediately above the diaphragm. Its size was larger than any of which I was able to find a record; it held about 400 cc. Diverticula at this location are very rare, according to Zenker.

Prognosis seemed rather unfavorable. The danger lay in the possibility of ulceration and subsequent perforation. Another danger lay in the continued enlargement of the sac and a consequent complete stenosis of the gullet. Food entered this dilatation first and, being full, pressed on the sides of the œsophagus, and thus occluded the lumen below the mouth of the sac. This last mentioned danger is almost sure to arise in time. Surgical intervention, on account of the peculiar location, being surrounded by important structures, seemed impossible, and in consultation Prof. Tuholske advised against an operation.

The treatment consisted in evacuating the sac with the stomach tube after each meal. Thus the patient regurgitated no more food in the interval between meals and at night and felt very well.

A few months later he presented himself one evening to me saying he had been cured. He had visited Schrader, the healer, in Illinois. He felt so much stimulated that he ate his supper without much distress, and he believed himself healed. A few days later he acknowledged that he was still the same.

Three years have elapsed. The condition is about the same. He still continues to withdraw the fluid from the sac after meals. He has grown somewhat melancholic lately,

the depressing effect of his helpless condition is telling forcibly on his intellect.

He still has great difficulty in swallowing, but he manages to eat very well at home. But he avoids company and never takes a meal away from his mother's table.

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