TWO UNUSUAL CASES OF STRICTURE OF THE CESOPHAGUS IN WHICH GASTROSTOMY WAS PERFORMED.

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In each of the following cases the cesophageal lesion which necessitated gastrostomy was of a most interesting nature; in the one case it was a cicatrix after previous ulceration, and in the other swelling caused by an existing ulcer.

The first case is that of a married woman now barely 32 years of age, who first came under the care of Dr. Walker Downie in September, 1898, complaining of great difficulty in swallowing.

History.—She said that during the past two years she had had occasional sore throat, but had observed no particular difficulty in swallowing until Christmas, 1897. On that day a piece of meat became impacted in her gullet, and as she was unable to get it either up or down she went to the Western Infirmary, and there the house-surgeon on duty pushed the impacted bolus into the stomach. The patient appeared to experience no further difficulty in swallowing until April, 1898, when she began to remark, both to herself and to her friends, on the difficulty she had in swallowing butcher's meat. Even when carefully masticated the meat would stick somewhere about the level of the upper border of the sternum, where it caused great discomfort. On these occasions she usually discharged the food by tickling the fauces so as to cause vomiting. In the following month she received extensive burns over the body and extremities while escaping from her house which was on fire, and for the treatment of these injuries she was an indoor patient of the Western Infirmary for four weeks. She subsequently attended as an out-patient till August, by which time the sores were healed. At the end of this month, August, she had again to go to the infirmary on account of a bolus of meat becoming impacted in the gullet, which, as on the former occasion, was pushed onwards by an cesophageal bougie. Up till this date she considered that she simply had what she termed "a narrow swallow," and had experienced no difficulty in swallowing the ordinary articles of diet, with the exception of butcher's meat, provided the food was well masticated; and she had no difficulty in swallowing fluids. In September, however, the swallowing of both semi-solids and of fluids caused her considerable trouble, and she found it necessary to assist their passage downwards by pressure and by massage of the neck. She now partook of milk in sips, and would take from twenty to thirty minutes to swallow a cupful, and if she attempted to drink hurriedly the fluid regurgitated through the nose.

Condition on Examination on September 16th, 1898.—The woman was pale and thin, weighed 8 stone, and was 5 ft. 5 in. in height. It was observed that when she spoke her voice was variable and slightly husky, and on her attention being drawn to this fact she stated that both she and her friends had noticed this peculiarity early in the course of her illness. On examination, her fauces and pharynx were found to be healthy, and while the appearance of the larynx was also healthy, the left vocal cord was found to be fixed very near to the middle line—left abductor paralysis—and that during phonation the right cord, which moved freely, crossed over to meet the fixed left cord. No other intralaryngeal abnormality was observed. On examining the gullet a hard, firm stricture was detected at a distance of $\frac{7}{8}$ inches from the upper incisor teeth—that is, in this patient about the level of the second tracheal cartilage. By careful manipulation a medium-sized gum-elastic bougie (diameter 3 mm.) was passed with difficulty, and smaller sizes passed readily beyond the stricture and on to the stomach. No bleeding resulted from the passage of the bougies. Examination of the chest revealed no abnormality, nor any explanation of the recurrent laryngeal paralysis, and no swelling in the neck could be detected.

The condition was looked upon as probably syphilitic, and

iodide, combined with the bromide of potassium, was prescribed, and the regular passage of bougies recommended. The patient attended irregularly, and towards the end of November, by which time deglutition appeared to have become somewhat less difficult, she ceased to attend. Towards the end of May, 1899, she again presented herself. Deglutition then was well-nigh impossible, and the stricture had so increased that no bougie could be passed. She was then urged to become an in-patient without delay.

She was admitted to Dr. Patterson's wards on June 6th, 1899. As already stated, she was able to swallow liquid food only with considerable difficulty in small quantity and after prolonged efforts, and all attempts to pass an cesophageal bougie failed. Although the patient had experienced so much difficulty in swallowing over so prolonged a period of time, yet her condition was still fairly good, and she seemed to be a very favourable case for the operation of gastrostomy. Her weight after ten days' rest and careful feeding in the wards was 7 st. 2 lbs. On June 22nd Dr. Kennedy performed gastrostomy by Frank's method. The abdomen was opened by a small longitudinal incision through the upper part of the rectus muscle. The peritoneum was then attached by suture to the edges of the external layer of the sheath of the rectus. The forefinger and thumb were then introduced into the abdomen and a suitable portion of the stomach wall seized and pulled out

sufficiently far to allow the apex of the cone to reach nearly to the costal margin. The base of this cone of stomach was then attached by a circle of Lembert sutures to the peritoneum and muscular portion of the abdominal wall. A second cutaneous incision, about three-quarters of an inch in length, was then made near the costal margin above and to the outside of the first cutaneous incision, and the subcutaneous tissue separated from the deep aponeurosis between the two incisions. The apex of the cone was then drawn through and attached to the margins of the second incision by a circle of fine silk sutures. The longitudinal incision over the rectus was closed with silkworm-gut sutures, and finally the wounds were covered with collodion, leaving only a small area of the stomach wall exposed through the small incision at the costal margin. Although the patient had been fed with so much difficulty for so long a period of time, the stomach was not found greatly contracted, admitting the procedure of pulling out the cone of stomach without any difficulty. There was comparatively little shock, and after the operation there was very little pain, and none at all after the first two days. After the operation the patient was fed entirely by means of nutrient enemata until the fourth day, when the stomach was opened by a small incision and by means of a No. 14 soft catheter, 10 ozs. of peptonised milk was introduced. This was repeated on two other occasions during the day. The catheter was withdrawn as soon as the liquid was introduced.

The amount of liquid food introduced by the tube was day by day increased, and the nutrient enemata proportionately decreased, until by the tenth day the patient was entirely fed through the tube. During her stay in hospital she was fed on milk, beef-tea, eggs, and arrowroot, and made no attempt to take food by the mouth. From the tenth day onwards she was taking in the twenty-four hours from $\frac{3}{4}$ to $\frac{3}{4}$ pints of liquid food, and frequently as much as $\frac{1}{2}$ pint was introduced through the tube at one time before the patient indicated that her hunger was appeased. There was at no time sickness or other trouble with the digestion. She was dismissed from hospital on July 15th, having learned to pass the stomach tube herself. At this time she weighed 7 st. 3 lbs. Since returning to her home the patient has had very little difficulty, and introduces all her food by means of the stomach-tube. Besides liquids, she introduces into the stomach finely divided solids, which she forces into the stomach by compressing the tube. Only on one occasion did she return to the wards on account of some difficulty in introducing the tube caused by narrowing of the opening in the stomach, and this was easily rectified by leaving a tube in place for several days. There has been no leakage from the stomach, except occasionally during severe fits of coughing, and there has been no irritation of the surrounding skin. The patient's nutrition has improved, and on November 30th she weighed 7 st. 13 lbs., having thus gained 13 lbs. since the date of her dismissal from hospital.

It is now about sixteen months since the operation was performed, and for some time the patient has worn a tube in position on account of the increasing difficulty of introducing it at meal times. It was also recently observed that there was a tendency—particularly on coughing—to the

Fig. 1.—Patient in act of feeding herself with porridge and milk. Photographed ten months after operation.

production of a ventral hernia of the stomach through the opening in the rectus, the diameter of the gap having considerably increased, its margins being felt as a firm ring. She is now absolutely unable to swallow anything, and a recent laryngoscopic examination made by Dr. Downie shows that there is bilateral abductor paralysis of the vocal cords, and that the cords are fixed close to the middle line. While there is no marked change in her voice, she becomes breathless on the slightest exertion.

The second case was that of an unmarried woman aged 31. She was seen by Dr. Walker Downie on the recommendation of her medical adviser on November 30th, 1899, at which time she complained of difficulty and pain on swallowing.

History.—Towards the end of January, 1899, she first experienced difficulty in swallowing. The difficulty varied from time to time, and was then unaccompanied by pain; but within a very few weeks of the onset of the difficulty every attempt at swallowing caused pain. For months she had to take food very slowly, masticate it well, and use considerable quantities of fluid to get it down. The difficulty slowly became more marked, till in August food frequently became lodged in the gullet, where its presence excited vomiting which expelled it. Occasionally at this time also while in the act of drinking, a portion of the fluid would return through the nose. She lived almost wholly on thin porridge, various milk preparations, and soups.

Since the beginning of October there had been a constant "roasting and jagging pain" in the neck immediately behind the lower border of the larynx on the left side. Later the pain affected both sides equally.

As a child of eight she had suppurating glands on each side of the neck, but apart from this she had, up till last January, enjoyed excellent health.

Condition in November, 1899.—The patient was of a ruddy complexion and healthy appearance. She was 5 feet 6 inches in height, and her weight was 9 st. 12 lbs. The line of scars in the neck behind and beneath each angle of the lower jaw altered the contour of the neck, and the resulting matting of the parts rendered examination by palpation somewhat unsatisfactory. There was, however, a small, hard, smooth swelling on the left side of, and behind the trachea, firmly adherent to it and to the surrounding structures, and apparently pushing the trachea slightly towards the right. No abnormality could be detected in the lungs or mediastinum by percussion or auscultation. Her fauces and pharynx were found to be healthy. Her larynx was in a condition of general hyperæmia, but the movements of both vocal cords were free and equal.

On examination of the gullet a medium-sized gum-elastic bougie (diameter 8 millimetres) encountered an obstruction in its passage at 7 inches from the upper incisor teeth, which corresponded to the level of the upper border of the first tracheal cartilage. With slight pressure this bougie passed through the obstruction and onwards to the stomach. The passage of the bougie caused considerable pain at the seat of obstruction, and its withdrawal was followed by some bleeding. There was here an extensive ulcer of the gullet accompanied by considerable swelling.

She was advised to become an in-patient of the infirmary and was admitted on December 15th, 1899. On admission her respirations were 18 per minute, and the respiratory murmur was in every respect satisfactory. There was no cough, her pulse was 66, her temperature on the evening of admission 99.2° F., and her weight 9 st. 10½ lbs. The swelling formerly observed on the left of the trachea had increased in size and there was a similar gland-like swelling on the right side below the sterno-mastoid muscle and about an inch and a-half above the sterno-clavicular articulation.

On December 20th her weight was 9 st. 8½ lbs., and her evening temperature 99.6° F. On December 26th there was observed an oedematous swelling of the left arytenoid and left ary-epiglottic fold. The left ventricular band was also swollen and interfered with a full view of the left vocal cord, but both vocal cords met in the middle line during phonation. Swallowing had become more difficult and more painful; and there was now considerable tenderness in the neck on each side of the trachea.

On December 27th her weight was 9 st. 6 lbs.

On January 5th, 1900, there was a further increase in the oedematous fulness of the left arytenoid and ary-epiglottic fold, and of a portion of the interarytenoid membrane; and there was in addition a fold of oedematous mucous membrane visible between the interarytenoid membrane and the posterior wall of the opening of the gullet.

By January 6th this oedematous swelling, which appeared as a reduplication of the mucous membrane immediately behind the larynx, had risen to the level of the right arytenoid body, and after careful examination this swelling was seen to be from the anterior wall of the gullet, and was in all probability the mucosa forming the upper border of the oesophageal ulcer. Laryngoscopic examination on this day revealed a further increase in the supraglottic oedema, and the left vocal cord was found to be fixed slightly outside the middle line. Her weight was now 8 st. 12½ lbs. There was increased swelling and tenderness over the left side of the neck, and while no fluctuation could be detected pus formation was suspected. The temperature was 102° F., two days later it was 103.4° F., and on the following day the swelling and tenderness suddenly disappeared, and the temperature subsided, and again resumed its former course. An abscess had apparently formed close to the gullet, and into which it burst and discharged. Only a very small quantity of pus came into the mouth, the bulk of it having in all probability passed into the stomach.

From this date until January 17th, on which day her weight was further reduced to 8 st. 8½ lbs. (that is, a loss of 17½ lbs. in five weeks). Deglutition had been becoming almost impossible, and each attempt was accompanied by very severe pain and a gurgling, churning noise in the throat. Dr. Downie had, earlier in the course of the disease, discussed the desirability of having gastrostomy performed, with the object of administering a sufficient supply of nourishment, of giving the gullet rest, and relieving the patient of the agonising pain which now accompanied each act of swallowing. It was put before the patient and her parents as a purely palliative operative measure, but they readily consented to its performance.

On January 20th Dr. Kennedy performed Witzel's operation as follows: The abdomen having been opened by a small incision through the upper part of the rectus muscle, a suitable portion of the stomach was pulled out. A small incision was made in the stomach wall down to the mucous membrane, sufficiently large to admit a tube about half an inch in

diameter. Before opening the mucous membrane a suture of catgut was run round the edges of the small incision in the wall of the stomach in the form of a purse-string suture. A small opening was then made in the mucous membrane, and about 4½ inches of the tube introduced into the stomach. The purse-string suture was then tied sufficiently firmly to slightly constrict the indiarubber tube, and thus prevent the escape of liquid from the stomach along the sides of the tube. An oblique passage in the stomach wall, about an inch and a-half in length, was next formed by suturing two folds of stomach wall round the tube. The area of stomach wall in which this oblique passage had been formed was then sutured to the abdominal wall, the stitches entering at the peritoneal layer, and passing through the entire thickness of the abdominal wall. These sutures were tied on the skin so as to be capable of being withdrawn. The abdominal wall was then sutured closely round the indiarubber tube. A hare-lip pin was then tied transversely to the side of the tube at the level of the skin. This acted as a support to the stomach, which was thus, quite independently of the sutures, held firmly to the abdominal wall by means of the tube which was immovably fixed between the purse-string suture and the hare-lip pin.

The patient had after this operation practically no shock. She was fed during the first day by nutrient enemata, but on the day after the operation feeding by the tube was commenced. This was gradually increased, and there was no trouble with the digestion. Her condition improved for some time, and the stitches were removed on February 10th, when the wound was found healed. There was no discomfort from the administration of food, which was freely and regularly given, and the great pain and distress in the gullet formerly experienced entirely disappeared. On January 28th there was for the first time some blood mixed with the mucus which collected at the lower part of the pharynx; and on January 31st the urine, which formerly had been of a healthy character, contained a large deposit of pus. Tubercle bacilli were found by Dr. A. R. Ferguson in the discharge from the gullet and in the pus in the urine. She was not permitted to leave her bed to get weighed, but her strength was improved, and the absence of pain in the throat allowed her to rest more comfortably. Her temperature remained within the limits of normal till February 9th, when it rose to 101° F., and on the following day to 103.8° F. This was accompanied by a return of the swelling, and tenderness over the left side of the neck, where, later, fluctuation was detected, and on February 16th the abscess was opened under chloroform. It contained gas, along with a quantity of foul-smelling pus, and on exploring the cavity with the finger it was found to communicate with the trachea at the level of the first ring. As the abscess healed symptoms of pulmonary abscess developed, and she died on March 3rd, exactly six weeks from the date on which the stomach was opened.

Fig. 2.—Larynx and gullet from Case 11, showing extensive oesophageal ulcer. Probe lies in sinus leading to necrosed tracheal cartilages.

At the post-mortem examination extensive ulceration of the gullet was found. The ulcer, beginning above at the level of the upper border of the cricoid cartilage, extended downwards for fully 3 inches. At the upper part it affected the whole circumference of the gullet, and becoming less extensive as it descended, it affected the anterior wall only at its lower border (see Fig. 2). In the photograph a probe is passed through an opening leading into an abscess cavity between the gullet and trachea, and to necrosed tracheal cartilage beyond. On microscopic examination the ulcer was found to be epitheliomatous.

Examination of the abdomen showed the stomach to be contracted to about one-half the average capacity. It was firmly adherent to the abdominal wall over an area about the size of a half-crown piece, and the opening into the stomach passed through the centre of this adherent area. The opening still retained a moderate degree of obliquity, and the abdominal wall immediately surrounding the opening was of normal thickness, including, as it did, the muscular layer. The peritoneum was normal.

REMARKS.

The oesophageal lesion in the first case was undoubtedly due to previous intra-oesophageal disease, beginning probably as an ulcerative lesion, and resulting, on healing, in the formation of cicatricial tissue. The inconvenience at first had been slight, but, as cicatrization progressed, the gullet became more and more narrowed, until at the present time the finest bougie cannot be passed, nor can the patient swallow anything whatever, not even her saliva. But the diseased process, whatever its nature, has not been confined to the interior of the oesophagus; for while the calibre of the gullet was being slowly encroached upon, there were evidences of implication of structures external to the gullet, and first (apparently early in 1897) the left recurrent laryngeal nerve was involved, causing left abductor paralysis with impairment of voice; and within the last two months, as the oesophageal stenosis was becoming complete, the right recurrent nerve became implicated, and the result is a bilateral abductor paralysis.

In considering the etiology of the lesion in this case, there was no history of injury to the throat at any time, nor was the patient addicted to the use of alcohol. No tumour, aneurysmal or of other nature, could be detected in the mediastinum or in the neck. The probability of malignancy appeared, after a careful consideration of the course and history of the case, to be negatived; and the length of time during which symptoms of constriction have been present is much too long to accord with the usual course of cancer of the oesophagus. There was no history, and there were no evidences, of a tuberculous tendency, and there was certainly no active ulcer in the oesophagus. The patient, her husband, and their surviving child were healthy, and there had been no symptoms indicative of syphilis. Yet by a process of exclusion the possibility of it being a late lesion, the result of inherited syphilis—more frequently met with in the larynx than in the gullet—appeared to be the most probable explanation of the nature of the affection; and, while the patient was able to swallow, antisyphilitic remedies were administered.

In the second case there was no firm stricture, but an ulcer accompanied by great swelling of the wall of the gullet around the ulcer. In the early weeks of her complaint the difficulty experienced in swallowing had been looked upon as being of a purely spasmodic nature, and had accordingly been treated lightly. But on her first visit to the infirmary there was no doubt as to the presence of the ulcer. There was no history of any injury, and there was no reason to suspect syphilis as being the cause. There also appeared to be good grounds for thinking that it was not cancerous. Nine months had elapsed since she had first experienced difficulty in swallowing, and during that time she had not lost weight appreciably. She was barely 31 years of age, had a florid complexion, and her pulse was 66. Then in the neck there were evidences of former extensive tuberculous disease, which had been active in early life; and, although there had been no acute mischief in this region during the past twenty-three years, and although there was no evidence of pulmonary tuberculosis, yet these various facts lead to the opinion that the ulcer was probably tuberculous, and that it was unconnected with disease of the vertebrae. This diagnosis was further supported by the discovery of tubercle bacilli in pus expectorated at a later period (January 31st). Notwithstanding these facts, a microscopic examination of the ulcer after death showed, as has already been stated, that the disease was epithelioma.

In the first case the patient's condition was one which would have proved fatal simply from the difficulty of introducing food into the stomach, while in the second case, in addition to this, there was a condition which had a probability of a fatal termination at no distant date, a termination, however, which was being rapidly hastened by the irritation of the affected parts and pain caused by attempts to swallow food. The operation was therefore in the first case undertaken with the view of giving a permanent result, but in the second case only of giving relief from pain, and with the hope

that general improvement would result from the rest given to the oesophagus by means of the operation. Although in the second case the patient lived only for six weeks, her life by the operation was probably prolonged by several weeks and made fairly comfortable. The probability of the relief being permanent, or at least prolonged, in the first case led to the choice of Frank's operation, while in the second case, the probability being that the opening in the stomach would be required only for a short period of time, led to the choice of Witzel's operation. This choice was made in the belief that the opening in Frank's operation, being lined by mucous membrane, does not readily close, requiring it is said a plastic operation for its closure, while in Witzel's operation, the opening being lined by the serous coat of the stomach in its inner, and by granulation or cicatricial tissue in its outer half, undergoes contraction very readily, and left without the tube for some days is said to completely close spontaneously. In Frank's operation, therefore, the tube could safely be left out between meals, while in Witzel's the tube had to be constantly kept in position in order to keep the opening patent.

The opening formed in Frank's operation is, however, not quite devoid of the tendency to contract in course of time, as shown in the case reported, where the patient was ultimately after many months obliged to wear the tube constantly on account of the increasing difficulty of introducing it at meal times.

With regard to the valvular character of the opening which prevents leakage, this depends in Witzel's operation on the obliquity of the opening formed in the stomach wall, and also and especially on the length of the passage. The stomach is not attached to the skin, but to the peritoneum, and the entire thickness of the abdominal wall is closely sutured round the tube. In Frank's operation, however, the valvular character depends entirely on the portion of stomach which is fixed between the layers of the abdominal wall, and the apex of the cone of stomach is attached to the skin. There is, then, the possibility that if dilatation of the opening in the rectus muscle occurs, the valvular character of the passage will be lost and the stomach left attached directly to the skin, with a result no better as far as a valve action is concerned than was obtained by the old operation. The case described shows that this danger is not at any rate an inevitable one, as at sixteen months after the operation there is still no leakage from the opening, and in this case the dilatation of the opening in the rectus muscle, which might be supposed to give rise to such a condition has actually occurred, yet without destroying the function of the valve.

A remote disadvantage of Frank's operation is one which is illustrated in the patient whose case has been described, namely, the tendency to the production of a ventral hernia. The opening which is left in the muscular layer of the abdominal wall for the accommodation of the base of the cone is so large that this result would seem to be a not unexpected one to happen in the majority of those patients who live long enough for the dilatation to take place. In Witzel's operation, the abdominal wound being entirely closed except where the tube passes, allows very little chance for the occurrence of a hernia no matter how long the patient should live.

Although we have not seen a case in which there was contraction of the stomach sufficiently marked to resist the formation of a cone of stomach sufficient for Frank's operation, yet this is clearly a possibility, and under such circumstances Witzel's operation, or a modification of it, would require to be performed. The mode of making the opening in Witzel's operation demands that the stomach be opened during the operation, while in Frank's the opening need not be made for several days after the operation, when all chance of sepsis resulting from escape of the stomach contents has passed. When a purse-string suture is run round the opening in the stomach and tightly tied round the tube in Witzel's operation, the danger of sepsis resulting from escape of liquid is no doubt reduced almost to the vanishing point; but even with this it cannot be considered as absolutely safe as the procedure of waiting for a day or two before opening the stomach. Both operations have thus advantages and disadvantages, but Frank's is perhaps to be preferred in the

majority of cases as it can be more rapidly performed, it presents perfect security against sepsis by escape of the contents of the stomach, provided that the opening of the stomach is delayed for a day or two, and it is possible to dispense with the use of buried sutures, which in Witzel's operation cannot be avoided.

SUCCESSFUL REMOVAL OF AN ENLARGED AND DISPLACED SPLEEN.

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A WIDOW lady, aged 43, mother of two children, the youngest being 25, consulted my friend, Dr. W. S. A. Griffith, for an abdominal tumour which was thought to be ovarian. Examination showed that the uterus and its appendages were normal, and the patient then came under my care.

History.—Three and a half years previously she struck her left side just over the lower ribs whilst she was moving a piece of furniture, and she dates the beginning of her abdominal discomfort very definitely from the time of the blow, though it was not until two years later that she noticed the lower part of her abdomen increasing in size. She has suffered much pain and inconvenience from the swelling during the last twelve months, and she has been losing flesh lately and has had attacks of indigestion and vomiting.

Anamnesis.—The patient was a healthy-looking woman with a florid complexion, who complained less of the inconvenience of the tumour than of the remarks to which it gave rise, for her abdomen was as large and prominent as it had been during the sixth and seventh months of her former pregnancies. Examination of the abdomen showed a large tumour filling the whole of the left side and extending to the right of the umbilicus. The surface was smooth and there was a definite edge, notched at its lower part. It was freely movable from side to side, but any attempt to push it upwards caused pain, and it was tender at the upper part just beneath the ribs. The tumour was dull on percussion in the flank, but resonant in front where the intestines lay above it.

Operation.—I opened the abdomen at 3.30 P.M. on Wednesday, September 6th, 1899, in the presence of Mr. S. T. Huggins and his son, Dr. S. P. Huggins, making a 5-inch incision in the left linea semilunaris. The spleen was easily delivered from the abdominal cavity, and measured 8 inches in length. It was attached by so long a pedicle that it hung free by the side of the patient, and almost lay upon the operating table. The patient showed signs of collapse when the pedicle was stretched, but recovered as soon as the spleen was supported. The pedicle measured 4 inches across, and consisted of fatty connective tissue with many large veins; the tortuous splenic artery was easily seen lying in the centre. The connective tissue overlying the artery was first dissected away for about an inch, and a double silk ligature was passed beneath the vessel, which was tied in two places about half an inch apart and divided. The pedicle was afterwards ligatured in half-inch segments from below upwards and was divided. The cut end of the pedicle was carefully examined to ascertain whether any vessel had escaped ligature, and the operation was delayed for nearly ten minutes until I had satisfied myself that it was absolutely free from oozing. When everything appeared secure the stump of the pedicle was returned to the abdomen. The suspensory ligament was only represented by a little loose connective tissue, and gave no trouble, as it was secured by a single ligature of silk. The wound was closed by a continuous suture of fine silk through the peritoneum, three interrupted sutures of sterile catgut through the abdominal muscles and aponeurosis of the external oblique, and a continuous suture of silkworm gut through the skin. There was very little hæmorrhage during the operation, but the spleen contained a good deal of blood, which ran out and clotted after the organ had been removed. The operation lasted an hour and a-half from the beginning of the anæsthetic—gas and ether being administered during the first three-quarters of an hour, chloroform afterwards—to the application of the dressing, some part of the time being occupied in making the skin aseptic.

After-History.—The patient bore the operation excellently, her pulse being 96 and of good volume after she had been put to bed. She passed a fairly good night, and on the following day was only complaining of a little flatulence, which soon passed off. From the time of the operation until the fifth day the patient presented evidence of sympathetic irritation in a curiously agonised expression, of which she was quite unaware, reminding me of those who suffer from abdominal cancer or commencing tetanus. It seemed to be due to a slight tonic contraction of the platysma and its connections, but in no other way was there any indication of sympathetic disturbance, and the patient was quite cheerful. She remained comfortable for many days with a normal temperature and a pulse of 64. The stitches were removed on the seventh day, when the wound was healed except for a slight stitch abscess at the lower part, which had disappeared on the ninth day. I then went away for my summer holiday, and on my return found that she had progressed satisfactorily until September 28th—the twenty-second day after the operation—when her temperature began to rise. Two days later she was suddenly seized with intense pain in her left side, whilst the action of the heart and diaphragm was impeded, and she was thought to be dying. The symptoms, which were evidently very alarming for a short time, passed off spontaneously, and were succeeded by a similar attack two days later. Mr. Walsham then kindly saw the patient in my absence, and opened a localised subdiaphragmatic abscess by an incision carried parallel to the scar of the former wound, and about 2 inches to the outer side. There was free bleeding for several days, apparently from a small artery at the bottom of the abscess cavity, pus was discharged by the bowel, and a small fecal fistula formed. The fistula soon closed, leaving only a small sinus through which

a silk ligature came away from time to time. The general condition of the patient remained good; she increased in weight; her temperature again became normal; and she went home on October 18th, the forty-second day after the operation. I have since seen her on two or three occasions, the last time being in September, 1900, and except for the sinus and some occasional colicky pains on the left side, she appears to be well, and is meditating a return to her former profession. Physiologically, she has sustained no inconvenience from the loss of her spleen.

Description of Spleen Removed.—The spleen was estimated to weigh about 2½ lbs. immediately after the operation, and whilst it was full of blood. It weighed between 17 and 18 ozs. after it had been kept in spirit for six months. The enlargement was due to simple hypertrophy.

Blood Examination.—Dr. J. H. Drysdale, who kindly examined the blood of the patient on September 14th, 1899, the eighth day after the operation, reports: "Hæmoglobin, 69 per cent.; red cells, 4,230,000; number of leucocytes, 17,000; lymphocytes, 18.75 per cent.; large mononuclear, 12.5 per cent.; polymorphonuclear, 65.5 per cent.; eosinophile, 3.5 per cent. There were no myelocytes or atypical cells. The blood was taken before the midday meal, the patient having had a boiled egg, toast, and coffee for breakfast, with lamb, vegetables, and a fried sole on the previous day. *Remarks.*—Leucocytosis, the large lymphocytes (mononuclear), relatively as well as positively increased."

The case bears out the conclusion that the splenectomy is a successful operation in cases of enlarged and displaced spleens when the enlargement is not leucocythæmic. Some credit may be given to the patient's statement that the whole mischief started from an injury over the region of the spleen, as she was a healthy woman who had not been pregnant for many years, but had not approached the menopause, and consequently there had been no disturbance of the relations of her abdominal contents. The operation showed that some absorption of the suspensory ligament had enabled the spleen to weigh anchor and sail away into the depths of the peritoneal cavity, whilst it also proved that the shock attending manipulation of the enlarged organ is due chiefly to impulses communicated through the pedicle, and not, as some have suggested, to interference with the diaphragm through the suspensory ligament. The gradual elongation of the pedicle led to alterations in the vascular supply causing chronic congestion of the spleen ending in hypertrophy. The etiology of the enlargement, therefore, is somewhat clearer than usual. I was somewhat surprised during the operation to find how little the spleen shrank when it was handled, due apparently to the fact that the muscular tissue had not increased proportionately to the other elements in its structure. The formation of an abscess near the pedicle was a most unfortunate occurrence, and marred what would have otherwise been a very successful result. It was due, apparently, to a contamination of one of the silk ligatures used in securing the pedicle. The organism, however, could not have been very virulent, as the patient seemed to be perfectly well for twenty-two days after its introduction. The sudden and alarming effects which the abscess produced when it reached the under surface of the diaphragm are well worthy of remembrance.

The interesting statistics collected by Dr. Vanverts¹ show that between 1876 and 1897 16 cases of movable, displaced, and enlarged spleen had been removed with a single death. All the cases occurred in women.

I owe my best thanks to Mr. S. T. Huggins for his kind and skilful attendance upon the patient during my absence, and to his son, Dr. S. P. Huggins, formerly my House-Surgeon at St. Bartholomew's Hospital, for taking careful notes of the case.

REFERENCE.

¹ *De la Splenotomie*, Paris: Steinheil, 1897.

ABDOMINAL TUMOUR (INCLUDED FŒTUS)

OCCURRING IN A CHILD AGED 3 MONTHS: LAPAROTOMY: DEATH.

BY

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[With a report on the Specimen by J. W. BALLANTYNE, M.D., F.R.C.P.E.; and drawings by W. E. FOTHERGILL, M.D.]

HISTORY (BY DR. WYLIE).

THE child was a female, aged 2 months when admitted to the Manchester Hospital for Sick Children on March 10th, 1899. The mother gave the following history: The child's abdomen had been swollen since birth, labour having been long and