hernia, and even for uniting fragments of bone, more especially fractured patella.

For operations on the stomach and intestines, I think it is advisable that an absorbable suture should be used next the lumen, as no one can foretell the ultimate fate of non-absorbable thread which is partially in contact with the digestive juices and partially embedded in the coats of the stomach or intestines. Unhardened catgut is unsuitable, as it is quickly dissolved, so that most surgeons employ either formalin or chromicized catgut. The formalin-iodine catgut is particularly suitable and reliable for the purpose. For the outer layer of intestinal suture, which soon becomes embedded in plastic lymph, it is customary to use a non-absorbable material, and it seems a matter of indifference whether silk, linen thread, or the celluloid-coated thread of Pagenstecher is selected.

Where a suture is required that will undergo slow absorption, chromicized catgut is usually recommended. For reasons that I have already explained, I would not feel safe in using a plain chromicized gut, and it has been shown by Mr. Charles H. Christal⁷ and others that catgut prepared with chromic acid, and even subsequently with sulphurous acid, is not necessarily sterile. This difficulty can be got over by its subsequent treatment with a solution of thymol in spirit, as suggested by Mr. Christal, or by treating sulpho-chromic catgut with iodine, as employed in the Leeds Infirmary, and probably many other places. I have had such complete satisfaction with the combined formalin-iodine catgut, that I have had no temptation to employ any form of chromicized gut since I commenced using the former. The sizes of catgut used may vary with the wish of the operator. For ordinary ligatures I use iodine catgut No. 0 for the smaller vessels, No. 1 for the larger, and No. 3 or 4 for pedicles. For suturing the abdominal parietes, I select No. 1 iodine-formalin gut for the inner or transperitoneal suture, and No. 3 for the aponeurotic or muscular layers. It is not necessary, as a rule, to use coarser sizes, and when additional strength is required a double suture will answer. To have too many sizes only leads to confusion.

GENERAL CONCLUSIONS.

1. The use of simple aseptic catgut is unsafe, no matter how it is prepared.
2. Iodine catgut may be safely used in all cases in which a quickly absorbable suture or ligature will answer.
3. The use of iodine-formalin catgut is indicated when slower absorption of the suture material is desired, and if prepared in the manner indicated it may be used in all those instances in which it has been customary to use chromicized or sulpho-chromic catgut.
4. The operating surgeon should be personally responsible for the manner in which any catgut he uses is prepared.

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THE

REMOVAL OF FOREIGN BODIES FROM THE OESOPHAGUS BY MEANS OF BRUNING'S DIRECT OESOPHAGOSCOPE.

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THE following two cases, which recently occurred in two consecutive weeks in the ear, nose, and throat department of the Great Northern Central Hospital, show the importance of direct oesophagoscopy both for the purposes of examination and the location and removal of foreign bodies in the oesophagus. This method is a perfectly simple one in the ordinary adult patient, and the various manipulations can be easily carried out after a little practice.

CASE I.

A woman, aged 42, came to the out-patient department on Tuesday, June 8th, 1909. She stated that three days previously she had swallowed a large piece of unmas-

icated mutton, and that it had "stuck in her chest." She came up to the hospital on the same evening and was seen by one of the house-surgeons, who passed an oesophageal bougie but could detect nothing abnormal. She had been able to swallow fluids only since her visit, and stated that the act of swallowing caused her considerable pain.

Unfortunately I did not have an x-ray photograph taken of the case, as I was under the impression that the dysphagia probably resulted from some slight abrasion produced by the passage of the oesophageal bougie, and also owing to the fact that the woman expressly stated that she was quite sure that the trouble was due to a piece of meat and not a bone. I decided to pass Bruning's oesophagoscope and make an examination. The patient's pharynx and epiglottis were anaesthetized with a ten per cent. solution of cocaine; she was placed on a low stool, the body being kept straight and the head thrown far back and steadied in this position by an assistant. Bruning's oesophagoscope was then passed down as far as it would go and the extension tube introduced. To my surprise I found at a distance of 34 cm. from the upper incisor teeth, in the region where the oesophagus is constricted in its passage through the diaphragm, a piece of bone fixed transversely. At the positions where the ends of the bone were embedded in the oesophagus, the walls looked sloughy and the whole of the surrounding area was markedly congested and oedematous. The bone was firmly fixed in this position, and I found that it would be impossible to remove it with forceps without doing extensive damage to the oesophageal mucous membrane. I therefore passed a sharp hook, manipulating it behind and under the bone, which was steadied against the end of the oesophagoscope tube, and cut it across; the pieces then came away quite easily from the wall.

The woman was kept in for a few days under observation and then discharged. She came up a fortnight afterwards, saying that she had experienced no further discomfort since the removal, and that she could now swallow her food normally.

CASE II.

A female child aged 1 year and 10 months was brought by her mother to the out-patient department on Tuesday, June 15th, 1909, with the following history: Four days

Fig. 1.—Radiograph taken from the front.

previously the child was left in the care of an elder brother, who gave her a button to play with, which she put into her mouth, when it "slipped down." The mother took her on the same evening to an infirmary, where an examination was made but nothing found. She was told to bring the child up again, should any untoward symptom arise. The mother states that she kept the infant as quiet as possible; but found that she was unable to swallow anything except a little fluid. On Monday evening, on finding that it was impossible to get any fluid down at all, the mother brought the child to the Great Northern Central Hospital, where she was seen by one of the house-surgeons, who examined her in the x-ray room with a screen. He found a definite shadow of the button in the intrathoracic portion of the oesophagus, and attempted to remove this

foreign body with a coin-catcher; but failed owing to the fact that he was unable to get the instrument past it.

I saw the child on the following day and decided to try and remove the button with a Bruning's oesophagoscope and forceps. Dr. Norman, anaesthetist to the hospital, administered chloroform; and whilst under the anaesthetic I examined the child with an x-ray screen, whilst Dr. Knox, medical officer in charge of the x-ray department, took the two radiographs here depicted. It will be seen in radiograph No. 1, taken from the front, that the button is lying in the oesophagus behind the sternal ends of the second and third ribs, with its flat surfaces looking antero-posteriorly; this is also well shown in radiograph No. 2, taken from the side. The child was then placed on

Fig. 2.—Radiograph taken from the side.

a table, lying in the dorsal position, with her head well over the edge and supported by an assistant. I experienced some slight difficulty in passing the oesophagoscope in a child so young; the neck was very short, and it was not at all easy to get the mouth, pharynx, and oesophagus into a straight line. This difficulty was, however, soon overcome, and I was enabled to get the smallest but one of Bruning's tubes down. At a distance of 15 cm. from the upper incisors I was able to get a view of the upper edge of the button, surrounded by inflamed and oedematous mucous membrane, which was gripping it tightly. I next passed through the oesophagoscope a Bruning's forceps, the nipping ends of which had backward serrations, and with a little manipulation was able to get a good grip of the button, which I then removed together with the tube. Photograph No. 3 shows the exact size of the button. The child subsequently did perfectly well.

Fig. 3.—Showing exact size of button removed from the child's oesophagus.

I think that it is probable that both these cases would have ended fatally had it not been for this direct method. In the case of the infant, the size of the button and the amount of oedema rendered any attempt at getting any instrument such as a coin-catcher past the obstructing body an impossibility.

THE Permanent Bureau of the International Medical Congress which was constituted at Budapest, and has, as already announced, chosen The Hague as its head quarters, has elected Professor Wenckebach, of Groningen, general secretary. It has recently been announced that the Dutch Government has stated that it is prepared to defray the expenses of the establishment of the bureau. Most nations have elected their representatives. Dr. Pavy is the president, the vice-presidents being Professors Waldeyer of Berlin, Müller of Budapest, Maragliano of Genoa, and Dr. Blondel of Paris. Professor Lucas-Championnière, President of the International Medical Press Association, is also a member of the bureau.

DISLOCATION OF A CERVICAL VERTEBRA : OPERATION : RECOVERY.

By FLEET SURGEON HILL, M.V.O.,

H.M.S. "DREADNOUGHT."

ON December 10th, 1907, W. H. W., a stoker from one of the cruisers, was brought to the Royal Naval Hospital, Malta, with a history of having received a severe injury to his neck when playing football that afternoon. As he was "heading" the ball he was charged, with the result that he turned a somersault and fell on his neck and shoulders. He did not lose consciousness.

On admission at 6 p.m. he was conscious but suffering from shock, and complained of severe pain in the back of his neck and inability to move his right leg. There was a large extravasation of blood over the lower cervical and upper dorsal vertebrae, with swelling, but no apparent deformity. The neck was held rigid, and any attempt to move it caused extreme pain. He could move his arms, but the grasp of the hands was very feeble, that of the right being scarcely perceptible. The right leg was completely paralysed. There was great loss of power in the left leg, but some slight movement. Breathing was entirely diaphragmatic; there was no expansion movement of chest wall. Sensation was present, but retarded. Priapism was present, and there was complete retention of urine, but no sense of distension, although a large quantity of urine was drawn off by catheter.

The next day, December 11th, his condition remained much the same. Breathing was entirely diaphragmatic; there was some twitching in the hands and complete loss of grasp in the right hand and diminished grasp in the left. There was very slight power of movement in the left leg and complete loss in the right. Priapism was constant; the urine was drawn off; the bowels were not open; the pain and tenderness in the neck were about the same.

On December 12th there was no marked change. Operation was suggested, but the patient was unwilling to undergo the risk. Next day the temperature was 97.4°, the pulse 68, and the respiration 20. A motion was passed unconsciously. Both legs were now completely paralysed.

On December 14th he passed two motions under him unconsciously; a necrotic bed sore was commencing over the sacrum in spite of his having been kept on a water bed and every precaution taken; the other conditions remained the same. He consented to an operation.

The diagnosis arrived at was fracture of a vertebra, with pressure on the cord by a fragment of bone and by blood. It was decided to cut down over the area of extravasated blood and explore.

Operation.

Owing to the paralysis of the chest wall, a general anaesthetic was looked on as an extra danger, and it was thought advisable to see how far local anaesthesia would carry us through the operation. The skin over the neck, shoulders, and back, having been thoroughly cleansed, Staff Surgeon Richards injected the tissues of the neck from the cervical to the second dorsal vertebra with a solution of eucaine and adrenalin in saline solution. The injection was made endermically, hypodermically, and into the muscles. After half an hour had elapsed the patient was taken to the operating room, and placed on the table in the semi-prone position on the right side. An incision was made over the spinous processes, from the second dorsal to the fifth cervical vertebra. It was found that there was a large extravasation of blood, and that the spine of the first dorsal vertebra was fractured at its base. The muscles were cleared from the spines and laminae of the seventh cervical and first and second dorsal vertebrae. By this time the patient complained so much of his cramped position, although he had experienced no pain from the operation, that Staff Surgeon Whiteside administered chloroform, which was well taken.

The spine of the seventh cervical and the stump of the first dorsal were removed and the laminae cut away. The membranes of the cord looked normal and were opened. Only clear serous fluid escaped, no blood. The cord was not pulsating. A probe passed down the cord met no obstruction, but when passed upwards was obstructed at a point 1½ in. higher up. On passing the finger deeply into the wound above the seventh cervical vertebra the sixth cervical was found dislocated forwards and firmly impacted. With some difficulty the tip of the finger was insinuated under the tip of the spinous process, and steady traction was made by an assistant with one hand under the chin and the other behind the occiput, when the displaced vertebra shot back into place with a sharp report. The cord was noticed to pulsate soon afterwards.

The opening in the membranes was closed by fine catgut sutures, the muscles brought together by stouter catgut, and the skin wound sutured with silkworm gut.

History of Recovery.

The patient's condition when returned to bed was satisfactory; he had borne the anaesthetic well, and on recovering from its effects stated he had lost the pain in his neck. The priapism had disappeared, and a few hours later he expressed a wish to have his urine drawn off, although up to then he had had no consciousness of his bladder being full or not.