X RAYS IN THE DIAGNOSIS OF CHRONIC APPENDICITIS.

BY

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THOSE who were present at the Section of Surgery at the Annual Meeting of the British Medical Association in 1927, or who read the report of its excellent discussion on chronic appendicitis, must have been struck by the small diagnostic value which attaches to any one sign.¹ Compared with the acute form, chronic appendicitis presents a vague clinical picture; the appendix, like the hand of a clock, may point in any direction, and it is not surprising that tenderness may appear in widely different areas. I pointed out, however, in a letter published in the same issue with the report, that at the discussion no one had mentioned the diagnostic value of x rays.² Yet radiology, taken in conjunction with clinical signs and symptoms, probably gives us more definite help in diagnosis than any other means. I cite the following case, referred to me by Dr. Mathieson of Harrow, in illustration.

Clinical History.

The patient, a woman aged 44, had severe abdominal pains, particularly in the left costal region. They were intermittent, lasting one to three days, with similar periods of intermission, and were much worse at the menstrual periods. The whole abdomen was tender, more so at some times than at others. Occasionally her complexion was sallow.

Radiographical Report.

The stomach was of the fish-hook type, normal in position. Its size was increased and peristalsis more rapid than usual. There were no tender points. It indented easily with pressure. The duodenal cap was normal.

Radiographic examination five days later: A round collection of barium was seen in the pelvis, and streaks of barium were present in the colon.

Cholecystogram: Sodium tetraiodophenolphthalein was given orally. The gall-bladder was not seen. An undissolved capsule and streaks of the drug were seen in the ascending colon.

Conclusion: "The presence of barium probably in the appendix five days after the meal is strongly suggestive of chronic appendicitis. The association of pain with the menstrual periods leads one to suppose that the appendix is involving the ovary or tube. The failure of the gall-bladder to fill suggests that this is diseased. The flatulence and occasional change in her complexion would be explained by cholecystitis."

Operation.

The operation was performed by Miss M. M. Chadburn, who was unaware of this report, and I am greatly indebted to her for the following account.

"The appendix was rather fibrosed and bound down to the caecum by adhesions containing dilated capillaries, indicative of chronic rather than acute inflammation. The extreme tip was swollen. The ovary on the right side, and to a less extent that of the left, was lightly adherent to the surrounding viscera. The condition suggested that infection had spread first to the right and then to the left ovary, the appendix being on the pelvic brim. Appendicectomy was performed. The gall-bladder appeared normal. The tissues were very friable, making stitching difficult."

After-History.

Six months later she reported that she had had three attacks of pain, but in the mildest possible form. Convalescence was slow, but she is very pleased with the result.

The failure to visualize the gall-bladder is due to hepatic or cystic disease; in this case the patient had an undissolved capsule in the colon, so did not get the full dose. The friability of the tissues is interesting; it may have resulted from prolonged sepsis.

Radiographical Examination of the Appendix.

It is only occasionally that the appendix can be seen with the barium meal in the ileum and ascending colon. The best time is after the third day, by which time the rest of the opaque meal has passed on. If the appendix is visible after this time it is probable that it is infected and its muscular power impaired. Failure to see the appendix may, however, be due to its lumen being obliterated by adhesions or concretions. If the appendix is visible the following appearances suggest disease:^{3 4 5}

1. An irregular lumen. While some parts are dilated, others are constricted. Especially important, according to Spriggs and Marxer, is a claw-shaped termination of the barium column.

2. Tenderness over the appendix. Here one can actually place a finger over the organ.

3. Concretions. These appear as mottled areas interrupting the barium column. If large and stationary over several days they must be looked on as evidence of defective musculature. (Occasionally they become impregnated with lime and cast a shadow mimicking a ureteral calculus.)

4. Spasm. This shows itself as one or more abrupt terminations in the opaque column. It is usually associated with ulceration.

5. Acute kinks. These may be congenital or the result of adhesions.

6. Spasmodic conditions of stomach, duodenum, and colon. These are commonly found in chronic appendicitis, but are also found in other abdominal conditions. (In the above case there was hyperperistalsis.)

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¹ Chronic Appendicitis, *British Medical Journal*, December 17th, 1927.

² A. P. Bertwistle: *Ibid.*

³ E. I. Spriggs and O. Marxer: *Duff House Papers*, 1922, pp. 12-40.

⁴ *Idem*: Contribution to *A. Descriptive Atlas of Visceral Radiograms*, by A. P. Bertwistle and W. H. Shenton.

⁵ A. P. Bertwistle: *Surgical Radiology*, 1929, p. 64.

RUPTURED SUBARACHNOID ANEURYSM.

A NOTE ON A PROBABLE CASE.

BY

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IN view of the interest that has recently been aroused in the ante-mortem diagnosis of rupture of subarachnoid aneurysm, the following case appears to be worth recording as a probable example.

A labourer, married, aged 33, was brought to hospital on May 23rd, about 5 o'clock in the afternoon. He had been perfectly well when he went to work that morning; but about 9 o'clock, when he was shovelling gravel, he was suddenly attacked by very severe occipital headache, and he vomited. He gradually became unconscious, and for three hours, before admission had been violent at intervals.

His previous history was limited to a gastric ulcer twelve years previously, pneumonia two years later, and a colliery accident about eight years ago. In this accident his left ankle had been injured, leaving some limitation of movements, and he had received a blow on the left side of the head. (A skiagram taken after admission showed no bony abnormality of the skull.) Otherwise he had been perfectly well for eight years, and he denied any risk of venereal disease.

On admission at 5 p.m. he was cyanosed, semi-conscious, incontinent, and resented interference. At intervals he was noisy and violent. His pupils were contracted, equal, and did not react to light. There was rigidity of the neck and Kernig's sign was present. His knee-jerks were increased on both sides, and any attempt to elicit plantar reflexes on either side resulted in a violent flexion of the whole limb. The arms were flaccid, the left perhaps a little more so than the right. The optic discs were difficult to see; but the retinae appeared to be normal.

Nothing abnormal could be found in the lungs or abdomen. The urine contained a substance which slightly reduced Fehling's solution.

The heart was not enlarged; but the second sound was accentuated in the pulmonary area. His pulse on admission was about 80, regular and strong.

Lumbar puncture was performed at once, and his pulse fell to 60, but rose to 70 in another hour. The cerebro-spinal fluid was under greatly increased pressure and contained about four-fifths blood. Examination of the fluid was difficult, but no abnormal cells were found, and the Wassermann reaction was negative. After the puncture the patient became much quieter and sufficiently conscious to complain of severe occipital headache. All his reflexes were present, but reduced, with the exception of the plantar response, which was still very strongly flexor.

The next day the patient's condition was much improved, and a fuller examination was possible. It was found that the left plantar reaction (the side of the old injury) was more violent than the right. Otherwise the central nervous system signs had not altered. Weakness of the left side of the face was doubtful. He still complained of severe occipital headache and also of pain between the shoulder-blades on moving his arms. The grip of

both hands was very weak, but the legs moved normally. No sensory abnormality to pin-prick or light touch could be found. His systolic blood pressure was 140 mm. of mercury. Morphine and hyoscine were given repeatedly for the pain and restlessness.

On the following day he had improved, but he had retention of urine for twenty-two hours; catheterization was not necessary.

From May 26th to 29th lumbar puncture was performed daily. The pressure and the proportion of blood were less on each occasion. On May 30th his reflexes were as before. The reaction of the pupils to light was sluggish, and the left disc appeared to be paler than the right. The next day lumbar puncture produced only a few drops of opalescent fluid. The patient still needed morphine.

Epistaxis occurred on June 1st, after which his blood pressure came down to 115. The reducing substance was by this time absent from the urine. From then until his discharge on July 4th recovery was steady with the exception of a relapse from

L.P.=Lumbar puncture.

June 9th to 11th. On these days his temperature rose to 102°-103°. The patient vomited and complained of severe headache. The pulse, which had previously been varying between 60 and 96, increased during the fever to as much as 123. The attack subsided without a lumbar puncture.

On discharge the central nervous system appeared to be normal, except for the increase of the left plantar reflex and the left pupil being larger than the right. Three weeks later the same signs persisted. Headaches were still present on exertion, but less severe.

Commentary.

Previous cases seen at necropsy or during operation have been found to have an aneurysm which has ruptured into the subarachnoid space at the termination of the internal carotid artery. The aneurysms have been considered to be congenital in origin.

Typically there is no evidence of syphilis, no history of trauma, the blood pressure is not necessarily high, and the patient is younger than the usual victim of a vascular intracranial lesion.

Features at the time of the attack to which Symonds draws attention are:

1. The sensation of something snapping at the base of the skull.
2. Brief initial loss of consciousness followed by a dazed "wandering" state.
3. Intense pain at the back of the neck associated with stiffness.

The case recorded in this note is that of a young healthy patient. The cerebro-spinal Wassermann reaction was negative. The highest blood pressure recorded was 140 mm. of mercury, but this was, of course, after the haemorrhage. The patient had a definite history of trauma; but this was eight years before and he had been perfectly well in the interval.

The attack began with sudden severe pain at the back of the neck and with sudden collapse. The period of unconsciousness was brief. Possibly this was due to early lumbar puncture. The patient subsequently complained of severe occipital headache and stiffness of the neck. The pain and stiffness of the neck were very marked; and his refusal to grip with his hands and the pain on movement of his shoulders are further evidence of irritation in the cervical region.

That the haemorrhage was not intracerebral is shown by the absence of localizing signs at the outset and the almost complete absence of residual lesions. The proportion of blood in the cerebro-spinal fluid leaves no doubt that the haemorrhage must have been extensive. Had it been intracerebral a haemorrhage of this size would almost certainly have left more definite residua. The only residual sign was the slight inequality of the pupils, which

may reasonably be attributed to organization of blood clot round the third nerve at the base of the brain.

It is interesting to note the rise in temperature during the relapse, and that it was associated with increased pulse rate, not with the slow pulse of increased intracranial pressure.

Summary.

1. A case is reported of extensive intradural haemorrhage with sudden onset accompanied by collapse and signs of increased intracranial tension and of irritation at the base of the brain.
2. The lesion occurred in a young and healthy man, and is not attributed to trauma, infection, or heart or kidney disease.
3. Recovery occurred without appreciable residual lesion.
4. The diagnosis made was rupture of an intracranial aneurysm into the subarachnoid space.

My thanks are due to Dr. J. V. C. Braithwaite for permission to record this case.

A RAPID METHOD OF TREATMENT IN PERFORATED DUODENAL ULCER.

BY

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SURGICAL intervention, in so grave an emergency as the perforation of a duodenal ulcer, demands a variety of operative technique which combines speed and simplicity so that the degree of shock already existing shall not be made more profound by prolonged manipulation or anaesthesia. At the same time it must be remembered that a crisis has been reached in the history of the ulcer, and that, successfully treated, it may now undergo a spontaneous cure, relieving the patient of all his previous symptoms. Bearing this fact in mind, it is important that the operation shall be carried out in such a manner as to cause a minimal degree of narrowing of the duodenum, so that the necessity for performing a gastro-jejunostomy, either immediately or at a later date, shall seldom arise.

The method adopted by most surgeons when closing a duodenal perforation consists in the application of a purse-string suture or of a number of Lembert's sutures in the vicinity of the crater with a view to infolding its margins completely. With this aim accomplished, the operation is concluded, commonly, by the application of an omental graft. If the lesion is of some chronicity, it is also necessary either to excise the friable margins of the ulcer or to insert the sutures at least one-half to three-quarters of an inch from the actual gap, so as to prevent the catgut, when it is tied, from cutting through.

The main criticism which attaches itself to the above procedure is the degree of constriction of the duodenum which it necessarily engenders, and which is a much more fertile cause of a permanent stenosis than the fibrosis and contraction of the ulcer. I have proved to my own satisfaction that a higher percentage of successful results is obtainable when constriction of the duodenal lumen is reduced to a minimum.

The method of operation about to be described has been employed on fifty-one occasions during a period of three and a half years. It can be performed with greater rapidity and has yielded uniformly satisfactory after-results, since in only one instance among forty-two successful cases has a subsequent gastro-jejunostomy been found necessary.

The abdomen is opened by an incision three to four inches in length, situated above the umbilicus and about one inch to the right of the middle line. The stomach is identified and grasped by a protected clamp, applied over a saline towel. The clamp provides an opportunity for gentle traction, which is usually capable of bringing even an awkwardly situated perforation into comparative proximity with the edges of the wound.

Varying with the size of the perforation, some four to six sutures (catgut size 000 on a 30 mm. half-circle Souttar needle) are now rapidly inserted. All coats of the gut are invariably penetrated, and at least two sutures traverse the