discharged to a convalescent home in March. Four weeks later a small abscess in the scar was opened in the casualty department.

He was readmitted in July with an abscess below Poupart's ligament, flexed hip, pain on walking, and a mass in the right iliac fossa. The diagnosis of actinomycosis was made, and confirmed by the recovery of the organism from the pus.

He was treated by x rays, large doses of potassium iodide, by vaccines (both stock and autogenous), and later by collosol iodine given by the mouth and injected into the sinuses. His progress was, however, steadily downward.

In December he was bedridden and apparently moribund. The whole peritoneum seemed to consist of one huge abscess, which extended down the thighs almost to the knees. No doubt a very mixed infection was present.

About this time our pharmacist, Mr. A. L. Taylor, expressed the opinion that collosol iodine contained little if any iodine in a colloidal state, and suggested that tincture of iodine freshly added to milk would give a more truly colloidal solution. The patient was therefore given this preparation by the mouth.

Within a week the sinuses had all closed, and he was out of bed greatly improved in his general condition. Unfortunately, in April a fresh abscess, containing staphylococci and other organisms, re-formed in the abdomen, and he died on April 29th, 1924.

The Four Successful Cases.

During the period of improvement in the case just recorded my colleague Mr. C. F. Walters showed me a similar case.

CASE I.

A boy, who also had been operated upon for appendicitis, subsequently presented intensely hard chronic inflammatory masses in the abdomen; they spread across to the left iliac fossa, and finally invaded the skin. In places small areas of softening were noted. At my suggestion this patient was given the same preparation of iodine and milk.

The effect was almost incredible, for in a few weeks the masses had melted away and not a trace of the disease remained. The boy has remained perfectly well ever since.

It will be observed that no opportunity arose of confirming the diagnosis microscopically, but clinically it was as definite a case of actinomycosis as one could possibly meet.

Mr. Rendle Short adopted the same line of treatment in the following case.

CASE II.

The patient was a girl who had suffered from actinomycosis of the jaw and face for five years. The organism had been recovered from the pus. She had undergone numerous operations, including removal of portions of the lower jaw and zygoma. In spite of very free removal the disease always recurred. In November, 1924, she too was put upon iodine and milk. Seeing that bone was invaded a rapid response could hardly have been expected in this case, and one further abscess did develop in January, 1925, but since then all sinuses have healed and she appears to be completely cured.

CASE III.

In December, 1924, a butcher was sent to me by Dr. Dix of Clifton. This man had a large left-sided abdominal tumour. It was palpable by the rectum, and extended to the lower border of the ribs. It was proved by incision and microscopic examination to be actinomycotic in nature.

The same treatment was carried out, and within three weeks no trace of the tumour could be detected. The patient has remained perfectly well ever since. Skin markings showed that the diameter of this mass, which felt like a lump of wood, sometimes diminished by fully an inch within twenty-four hours.

CASE IV.

The last case, a young woman, was also under the care of Mr. C. F. Walters. She had a hard inflammatory mass in the neck, attached to the lower jaw. Several small abscesses in connexion with this had been opened during the course of some six weeks. In March, 1925, another abscess was opened and typical sulphur granules were discovered in the pus.

After a fortnight's treatment on the same lines as the other cases all sinuses were soundly healed and no trace of the inflammatory mass remained.

There appears to be no necessity to push the dose of tincture of iodine; 5 to 10 minims in half a cup of milk taken three times a day have proved ample, though more can be given without any harmful results.

In looking through the literature bearing upon the subject of actinomycosis I have only been able to find one case in which treatment produced results at all comparable to those obtained in these cases. This was recorded by Bigland and Sergeant in the *BRITISH MEDICAL JOURNAL* of July 14th, 1923 (p. 61). The patient in this case was a man suffering from actinomycosis of the lung complicated by empyema; he recovered after having his empyema cavity washed out with collosol iodine, which drug was also administered intravenously. In addition he was given large doses of potassium iodide by the mouth. Possibly collosol iodine given intravenously,

although it contains little iodine in a colloidal form, may produce the same curative effect as does a truly colloidal solution when given orally.

I hope that this article may attract the notice of the veterinary profession, and that a trial may be given of this method of treatment in the case of animals.

In conclusion I must express my indebtedness to my colleagues Mr. C. F. Walters and Mr. Rendle Short for permission to make use of their cases in conjunction with my own; to Mr. A. L. Taylor for his happy suggestion as to the best way to make colloidal iodine; and to Professor McBain for his kindness in demonstrating the fact that when tincture of iodine is added to milk it does make a truly colloidal solution.

RUPTURE OF ANEURYSM ON BRANCH OF LEFT RENAL ARTERY, COMPLICATING PREGNANCY.

BY

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ON November 5th, 1924, a woman, aged 28, about seven months pregnant, was brought to the maternity department of the Dundee Royal Infirmary in a very collapsed condition. The pulse was rapid and weak, and the face was very blanched.

According to the history, treatment had been carried out for the past three months for cystitis with frequency of micturition. The patient had had a miscarriage about a year before. The present acute condition dated from the day prior to admission (November 4th). The statement made was to the effect that while walking she was suddenly seized with severe pain in the back and almost collapsed. She was seen by a doctor, but the medicine he gave was at once vomited.

The patient was admitted to hospital at about 11 a.m. Accidental haemorrhage was suspected, but there was no sign of blood externally. Examination of the abdomen did not tend to confirm the original provisional diagnosis, however. A very hard and acutely tender resistant area was felt in the left flank. It was considered wise to keep the patient under observation before intervening, and thus give her time to settle down in hospital, with the possibility of some improvement taking place. I saw her again at 4 p.m., when her condition was even worse than before, as vomiting had supervened, rather suggesting the possibility of intestinal obstruction. It was decided that an exploratory laparotomy must be done, in spite of the very critical condition of the patient. She was certain to die if left alone, and it seemed that operation would give her the only chance of recovery, although a very poor one.

Somewhat later, therefore, I opened the abdomen under ether anaesthesia, some 1/2 per cent. novocain being injected into the muscles. The incision was to the left of the mid-line, the rectus muscle being pulled outwards. A normal pregnant uterus was found, and the intestines were not unduly distended. On palpation the right kidney seemed to be very small. The explanation of this will be seen in the pathological report. A large hard retroperitoneal mass was present on the left side, and discoloured blood was seen between the layers of the mesentery of the pelvic colon and, to some extent, round the gut, in the region of the descending colon and pelvic colon. The mass turned out to be a very large blood clot.

I opened the posterior parietal peritoneum over the swelling, but very little blood came away, as clotting had already taken place to some extent. It would have been running an unjustifiable risk to begin clearing away the clot. A moment's uncontrollable bleeding would certainly have caused immediate death. A drain was inserted through a stab wound in the left flank to the region of the clot—although there was little chance of much drainage taking place—and the opening made in the posterior peritoneum was closed as far as possible. The abdomen was closed in layers. Shortly afterwards the patient died. This was expected, considering her condition.

Fortunately a *post-mortem* examination was allowed. The parts involved, including the gravid uterus, were removed *en bloc* and hardened before dissection. The following are some of the points in the immediate pathological report by Dr. F. M. Milne. Only the main points will be mentioned.

"There is some atheroma in segment between aortic and mitral valves."

"There is a large retroperitoneal haemorrhage extending from left pelvic brim upwards to behind the spleen. It lies particularly around the kidney in the form of a large coagulum, which compresses the kidney tissue. The kidney, with the mass of blood, weighs 4 lb. (approximately). The haemorrhage extends into the left broad ligament, and also within the mesentery of the descending colon; it was found even close to lower border of pancreas. The right kidney shows hydronephrosis. Spleen normal in size, pale in colour. Liver pale and fatty; no gall stones. Stomach and intestines normal. Suprarenals normal."

When palpated during the operation the hydronephrotic right kidney must have been fairly empty, and only the lower pole of kidney substance was left, thus suggesting a small kidney.

Later I did a careful dissection of the specimen. This was rather difficult, as the clot was so hard, and I had to be very careful to avoid cutting anatomical structures which might be involved in it. Eventually, however, a small aneurysm was found on a branch of the left

Left kidney from behind. A, aneurysm; B, left renal artery; C, aorta; D, inferior vena cava; E, left renal vein; F, left kidney—small on account of pressure.

renal artery. The sac of the aneurysm was about the size of a pea and had ruptured. There was no history of trauma to account for the rupture. The presence of an aneurysm at this site must be very rare, and it would be especially unexpected in a woman of the age of the patient under consideration.

Dr. Tudhope of the pathological department of University College, Dundee, examined a section of the aorta, but he

did not find anything microscopically to suggest a syphilitic endarteritis.

Dr. Christine Thomson examined the child. Even if syphilitic, it would have been impossible to find spirochaetes after the preserving of the specimen, and there had been no opportunity for having the Wassermann test done on the mother's blood.

The following are some points noted by Dr. Thomson.

"The baby is very suspicious of syphilis; *S. pallida* not found; autolysis of viscera.

"Spleen enlargement present, also definite adhesive peritonitis. Periportal fibrosis in liver, commencing to spread, but no definite monocellular cirrhosis. Very slight fibrosis of spleen. Spleen much enlarged. Chondro-epiphysitis of femur (indefinite). Placenta suspicious of syphilis."

Thus the presence of syphilitic infection of the child is only suspected, but the signs are inconclusive.

Rowlands¹ reported the case of a married woman, aged 47, who suffered from severe haematuria for three weeks. Blood was seen coming from the left ureter. The left kidney was removed. On examining the kidney a ruptured sacculated aneurysm, the size of a large pea, was found, partly on the surface of one of the lower renal papillae and arising from an intrarenal branch of the renal artery. There was no history of recent injury or illness. The aneurysm was seen after opening the pelvis of the kidney. The patient recovered. The site of this aneurysm would, in all probability, appear to be less dangerous than that of the one under review.

It would be inferred that aneurysm of the splenic artery, although rare, is of more frequent occurrence than that of the renal artery or one of its branches.

Fitzwilliams² reports a case in which there were three aneurysms of the splenic artery, one of them having ruptured. Operation was performed, but the patient was beyond help. She was a woman of 27, with no other sign of disease. Symptoms suggested rupture of a gastric ulcer or of an ectopic pregnancy.

Baumgartner and Thomas³ give an analysis of forty examples of aneurysm of the splenic artery collected from

literature. It would appear that certain diagnosis of the condition before rupture is practically impossible, although the condition may be suspected in rare cases. Such an aneurysm may be of considerable size, and yet it may be impossible to palpate it.

Garland⁴ reports an interesting case of rupture of a splenic artery aneurysm simultaneously with paracentesis of the abdominal cavity, when 1 litre of fluid was drawn off. The trocar did not wound the aneurysm. In all probability even such moderate relief of intra-abdominal tension may have been sufficient to determine rupture of the aneurysm.

It is stated that out of some 4,100 autopsies in Massachusetts General Hospital only three cases of aneurysm of the splenic artery were found.

I am indebted to Dr. R. C. Buist for permission to publish this case.

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¹ BRITISH MEDICAL JOURNAL, November 22nd, 1924, p. 939. ² Ibid., November 1st, 1924, p. 803. ³ Lancet, November 8th, 1924, p. 976; Surg., Gynecol. and Obstet., October, 1924. ⁴ Boston Med. and Surg. Journ., 1921, vol. 184, p. 385.

EXPERIMENTAL PASSAGE OF THE OOCYSTS OF FISH COCCIDIA THROUGH THE HUMAN INTESTINE.

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IN THE BRITISH MEDICAL JOURNAL of February 13th (p. 282) the authors pointed out that three coccidia described in man—*Eimeria wenyoni* Dobell, 1919, *Eimeria oxyspora* Dobell, 1919, and *Eimeria snijdersi* Dobell, 1921—were not true human parasites, but corresponded morphologically to the oöcysts of two species common in the liver and testis respectively of certain fish. *Eimeria sardinae* Thélohan, 1890 (of which *E. oxyspora* and *E. snijdersi* become synonyms), is present in the "soft roes" (testes) of about 100 per cent. of herrings, occurs in enormous numbers in the soft roes of sprats, and is somewhat less frequent in the testes of mackerel. It is interesting to note that, since the previous communication was published, this parasite has been found in tinned sardines (*Clupea pilchardus*) exported to this country from Portugal, and also in tinned soft roes of herrings from Norway. In spite of the high temperatures to which these articles of diet must have been subjected during the cooking processes at the factories, the oöcysts were in a remarkable state of preservation, and their contents were easily differentiated. *Eimeria clupearum* Thélohan, 1894 (synonym *E. wenyoni*), is confined to the livers of the same group of fish, and its oöcysts are especially numerous in the livers of herrings. These coccidia provide a striking example of two distinct, but closely allied, species selecting different organs of the same fish for their development. Wenyon (1915), in his original description of the oöcysts of this coccidian in the faeces of man, compared them with those of *Eimeria falciformis*, which is parasitic in the intestine of the mouse, and he obviously suspected that man derived the infection from some animal source. Brug (1922) mentioned in the literature that these *Eimeria* might simply be ingested with the food, basing his suggestion on the fact that natives frequently eat insects and also the intestines of animals. Brug also suspected that the distorted forms of an *Eimeria* seen by Snijders (*E. snijdersi* Dobell, 1921) in a case in Sumatra might be the result of cooking.

It will be noted that up to the present no one suspected fish as the source of these *Eimeria*, and, further, that until the authors undertook this investigation and actually found the oöcysts in herrings, there was no mention or suggestion in the published literature of the possibility of fish being incriminated. The salient fact is that the discoveries of Thélohan made over thirty years ago have remained more or less buried in the literature, and it is almost inexplicable