physical signs so much resembled those of an enlarged and infected gall bladder that the diagnosis of liver abscess was only confirmed on the operating table. A liver abscess in the posterior part of the right lobe may simulate a perinephritic abscess, especially as this latter condition is frequently seen in connexion with dysentery. An examination of the urine and signs of psoas irritation help to clear the diagnosis. Other cases of subdiaphragmatic suppuration—for example, those of gastric or intestinal origin—can usually be traced to their primary lesion.

Treatment.

The presence of pus is confirmed by the exploring needle; the exploration should always be conducted in the theatre, so that, if successful, the complete operation can be proceeded with. It is important to use a wide-bore needle, as the pus is usually thick and contains clots of lymph liable to block the needle. In one case in which the presence of pus was a moral certainty eight punctures were made before the abscess was discovered, and thick pus aspirated; probably the needle had on one or more occasions tapped the abscess, but the pus did not flow.

In this hospital it is the practice to leave the needle in the abscess cavity and excise a sufficiency of the ribs immediately below the needle. Well formed adhesions may be found between the parietal pleura and the diaphragm; it is, however, safer not to trust to them to protect the pleural cavity, but to insert a few points of suture between the parietal pleura and diaphragm. The diaphragm is then incised, and, using the needle as a guide, liver tissue is gently broken down until the abscess cavity is reached, when a drainage tube wrapped in gauze is inserted. The sinus usually heals readily, and in some cases syringing with weak quinine solution or eusol expedites closure. A course of emetine, 1 grain daily for twelve days, is usually given. I have seen cases in which the abscess was aspirated and a solution of quinine bichloride (30 grains in 10 oz. of water) injected into the cavity; the patients apparently were convalescing satisfactorily, the evacuated pus doubtless being sterile. However, in one case which was drained in the usual manner the convalescence was retarded until a second abscess discharged itself into the existing sinus. This abscess was unsuspected.

When the abscess is in the lower part of the liver, or has already ruptured into the general peritoneal cavity, the abdomen is opened with the usual precautions for the protection of the peritoneum, and drainage carried out in the usual way.

Prognosis and Summary.

The prognosis of liver abscesses in Mesopotamia is unfavourable, the chief reason being that although one abscess may be satisfactorily drained others are present which may be undiscovered or undiagnosed. In one case in addition to one abscess drained, five others were found *post mortem*; live amoebae were found in the pus.

Another factor which increases the severity of the disease is the acuteness of the course and the consequent grave toxæmic symptoms. Coupled with this is the fact that the patient is often already debilitated from trying conditions in a climate which taxes the resources of the most robust, and consequently has little resistance to any infection.

I append a summary of twenty cases upon which these notes are based:

Apparently cured and patient evacuated*	8
One or more abscesses drained at operation, but further abscesses found <i>post mortem</i> ...	8
Abscess suspected, undiscovered on needling, found <i>post mortem</i> to be in the Spigelian lobe ...	1
Two abscesses, one of which ruptured into the inferior vena cava; death from hæmorrhage ...	1
Death due to post-operative shock (no other abscesses) ...	1
Single abscess drained, but patient did not respond and died seventeen days later from asthenia ...	1
Apparently cured ...	7
Minimum mortality, 65 per cent.	

* One of these cases subsequently died at another hospital from a second abscess.

It will thus be seen that liver abscess contributes substantially to the mortality and disablement among troops

in this campaign, and during the last hot season in this hospital more cases of liver abscess found their way to the *post-mortem* room than cases of actual dysentery. Owing to the numbers of men who will return to England infected with *Entamoeba histolytica* there is every possibility that this disease will manifest itself among them. Practically every one who has been resident in Mesopotamia for a few months is a carrier of *E. histolytica*, besides many another protozoon, and until we know more about the amoebic group it is difficult to trace their connexion with suppurative processes.

We are told by Knowles and Cole¹ that the "different species" of amoebae "are all one and the same organism... *Entamoeba coli communis*." Probably the *E. histolytica* is on the same pathological basis as the *B. coli*, and decreased resistance of the tissues or some stimulus applied to the organism causes it to become pathogenic, in which case the majority of the Mesopotamian Expeditionary Force are potential cases of liver abscess.

The most striking features of the condition as seen in Mesopotamia are the severity of the disease, often the acuteness of the onset and rapid course, and frequently the multiple nature of the abscess (in contradiction to the old name of "solitary abscess").

I am indebted to Lieut.-Colonel Davis, R.A.M.C., for permission to publish these notes, and to Captain J. Maitland Downie, R.A.M.C.(S.R.), for his assistance in collecting them.

REFERENCE.

¹ *Ind. Journ. Med. Research*, vol. iv, No. 3, 1917.

ACUTE INTESTINAL OBSTRUCTION BY TAPEWORMS (*T. SAGINATA*):

MECHANICAL BLOCKING OF ILEO-CAECAL VALVE, NECESSITATING LAPAROTOMY.

BY

J. B. CHRISTOPHERSON, M.A., M.D. CANTAB.,
F.R.C.P. LOND., F.R.C.S. ENG.

AND

MUSTAFA IZZEDIN, M.D.,
KHARTOUM CIVIL HOSPITAL.

AMONGST the causes of intestinal obstruction due to the impaction of foreign bodies in the lumen of the bowel, accumulation of faeces, gall stones, intestinal calculi, and articles swallowed, such as teaspoons, are perhaps the best known.

The occurrence of intestinal worms causing acute obstruction is so infrequent in those countries where surgical textbooks are compiled, that authors as a rule do not even mention them as a possible cause. Nevertheless intestinal parasites are a very real source of danger in tropical countries, and they should be borne in mind as a possibility when exploratory operations are undertaken for acute intestinal obstruction.

Perret and Simon¹ summarize the histories of eleven cases of intestinal obstruction all due to *Ascaris lumbricoides*, all recorded since 1887. Most of these cases were diagnosed at the necropsy or during operation. They themselves record in the same paper another case. De Mello² and Masters³ have each recorded one case of intestinal obstruction due to *Ascaris lumbricoides*; in none of the three last was laparotomy resorted to.

No doubt *Ascaris lumbricoides* is the principal offender amongst intestinal worms, but the following case proves that laparotomy may have to be done for acute intestinal obstruction due to tapeworms (*Taenia saginata*).

O. H., male, Sudanese, aged 40, working as a gardener in the Palace Gardens at Khartoum, was admitted into Khartoum Civil Hospital with a very much distended belly and total suppression of faeces and flatus for sixteen hours. The attack seemed to come on suddenly but without pain at 5 p.m. He vomited twice during the night and the belly became more and more distended.

On admission to hospital the following morning the belly was much distended and tense, and the coils of intestines were very evident; peristalsis was plainly seen, and considerable discomfort was experienced owing to the distension, but there was no obvious pain; the pulse was 84, full and regular. He could pass neither faeces nor flatus; rectal examination revealed only an empty rectum. Two or three enemata were given without

effect. Vomiting of intestinal contents occurred twice after admission, and exploratory operation was decided on.

Operation.

Chloroform was given, and a median incision from the xiphoid cartilage to the symphysis pubis was made. The small intestines were explored from duodenum to ileo-caecal valve; they were very much distended. The large intestines were collapsed from the caecum onwards. No cause for the obstruction being found, it was thought to be a "kink" or some equally unsatisfactory thing.

The small intestines were taken from above downwards and passed through the gloved hands, segment by segment, to squeeze onwards the flatus. This was not satisfactory and the imprisoned air was evacuated by puncturing the bowel wall in at least six places with a medium sized trocar and allowing the air to escape. When the small intestines were thus relieved and collapsed they were replaced inside the peritoneal cavity—the whole of the distended small intestines (ileum) having been lying in a towel outside the abdomen whilst the abdominal cavity was searched—the wound was sewn up in one of the usual ways and the patient sent back to bed with the distension altogether relieved.

After-History.

No flatus or faeces were passed on the day of the operation, and next morning the abdomen was a little distended again, but during the morning flatus was passed and he felt more comfortable; two enemata (turpentine) were given.

On the third day after the operation a long tube was passed by the rectum and a dose of 1½ oz. of castor oil administered by the mouth; a large mass of tapeworms was passed. The patient passed bits of tapeworms on several occasions during the next three days.

Owing to a little leakage from one of the trocar punctures in a coil situated in the pelvis an abscess formed. This was localized, however, and although it became infected with *B. coli* and was very foul, recovery was retarded not more than two or three weeks.

Undoubtedly the mass of tapeworms (there were probably four or five separate ones), which measured when freed from intestinal debris two or three pints, had become blocked against the ileo-caecal valve, causing mechanical obstruction; and if this had not been relieved by manipulation of the intestines and evacuating the flatus, the patient would probably have died.

The principal points about the case appear to be the following: Absence of pain even at onset, or afterwards, although the obstruction was acute. There was discomfort certainly due to over-distension. There was very little, if any, collapse. The pulse was fairly good and, sixteen hours after symptoms commenced, was only 84. There was, however, fairly frequent vomiting of intestinal contents (in the cases recorded of obstruction due to *Ascaris lumbricoides* the worm was frequently vomited), but absence of acute pain and very little collapse, together with acute obstruction symptoms, may be taken, we think, as a characteristic of obstruction due to intestinal parasites.

In the case here described there was no question of delaying the operation, such a course was contraindicated by the vomiting, distension and peristalsis and total suppression of flatus and faeces. The obstruction was complete.

The diagnosis of the cause of intestinal obstruction is such an important subject that we do not think any apology is necessary for recording this case. Operations for intestinal obstruction are amongst the most fatal in surgery. Statistics place the mortality at 60 to 70 per cent., doubtless due to the fact that most cases are operated on when too late; but it is also due to the fact that diagnosis remains so often uncertain until after the abdomen has been opened, and to the fact that, even if a correct diagnosis is established before the abdominal incision is made, the condition of the parts involved is a matter of speculation, and is usually worse than is apparent from the symptom. Cases occur—as, for example, that here reported—in which the distension of the intestines is relieved (and presumably the cause of the obstruction), the intestines replaced, and still it is impossible to say what has been the cause, and we have to fall back on an unsatisfactory speculation—such as a "kink," for want of better knowledge. Let us have in mind that a mass of intestinal parasites may, especially in tropical countries, be the cause of acute intestinal obstruction.

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- ² de Mello: A case of intestinal obstruction due to ascarides (600), *Bol. Gen. Med. e Farmacia Nova Gba: Tropical Diseases Bulletin*, vol. xi, 1918, No. 2.
- ³ W. E. Masters: Intestinal obstruction due to *Ascaris lumbricoides*, *Journ. Trop. Med. and Hyg.*, October 1st, 1917, vol. xx, No. 19; *Tropical Diseases Bulletin*, vol. xi, 1918, No. 2.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

INTESTINAL OBSTRUCTION DUE TO DIAPHRAGMATIC HERNIA.

J. B. was admitted to hospital on March 17th, 1918, in a collapsed condition. He complained of severe abdominal pains, with vomiting, and gave a history of several previous attacks of a similar nature. The abdomen was slightly distended, but no rigidity was present, and no acute tenderness on palpation. When first examined there was some tenderness over the descending colon, and on a second examination, a little later, tenderness was located in the middle line, between the umbilicus and pubes. The temperature on admission was 95° F., and remained sub-normal. The radial pulse was imperceptible. The heart was displaced to the right side, the left border being about half an inch to the left of the sternum; the sounds were feeble and the action rapid. Breathing was slightly laboured, but the respiratory sounds showed no sign of lung trouble. Over the lower half of the chest, on the left side, intestinal rumblings were heard mingling with breath sounds. The tongue was dry and slightly furred. The bowels had not moved for three days. A soap and water enema was given, but was returned, showing slight trace of blood and no faeces.

As pain still continued severe, morphine (2 grains) was given, and the general condition was treated by administration of brandy in small doses and hot-water bottles. No improvement resulted, though the pain was considerably eased. He got gradually weaker, and died on March 18th, 1918.

At the *post-mortem* examination the stomach was found to be greatly distended, extending to midway between the umbilicus and pubes. The caecum and large intestine were normal; the appendix was bound by adhesions to the caecum. There was at first sight no sign of small intestine in the abdominal cavity, but the ileo-caecal junction was found, and the ileum, when traced back, was found to disappear through the oesophageal opening of the diaphragm. Practically the whole of the small intestine was lying in the chest cavity on the left side, displacing the heart and left lung. Both the ascending and the descending portions of the loop of intestine passed through the oesophageal opening of the diaphragm along with the oesophagus. The stomach was full of faecal fluid under considerable tension. Two ulcers were found on the stomach wall, one near the pylorus and the other on the greater curvature. The part of the duodenum between the stomach and diaphragmatic opening was similarly distended and full of faecal fluid. The coils of intestine inside the chest cavity were slightly distended. The portion of ileum in the abdominal cavity was empty and contracted. The caecum and large intestine were normal and contained only a very small quantity of faeces. All the other organs in the abdomen were normal.

L. S. DICKIE.

Reviews.

TREATMENT OF VENEREAL DISEASES.

The Diagnosis and Treatment of Venereal Diseases in General Practice,¹ by Colonel L. W. HARRISON, D.S.O., R.A.M.C., is a book addressed by a specialist to general practitioners, and, in spite of some faults of arrangement, will be found remarkably complete in its discussion of syphilis, and highly practical in its directions for treating both that disease and gonorrhoea. Most readers will turn to the section in which Colonel Harrison summarizes his experience of the treatment of syphilis. He would at present choose one of the organic arsenical compounds, either salvarsan or one of its chemical equivalents—arsenobillon, kharsivan, or diarsenol—which are given intravenously, or one of the "neo" compounds given intramuscularly. He advises the simultaneous use of

¹ *The Diagnosis and Treatment of Venereal Diseases in General Practice*. By L. W. Harrison, D.S.O., Lieut.-Colonel R.A.M.C. London: H. Frowde, and Hodder and Stoughton. 1918. (Demy 8vo, pp. xvii + 482; 16 plates; 84 figures. 21s. net.)