

the Kashmir strain of relapsing fever spirochæte, in vast majority of the cases, is not resistant to arsenic. Anti-syphilitic treatment of Indian troops with trivalent organic arsenical compounds caused a high incidence of arsenical encephalopathy. This fatal complication was noticed after the second or third injection specially in the Madrassies and the Maharattas. Poor nutrition and an attack of malaria played a significant rôle in its causation. Although up-till now we have not encountered this complication in the treatment of cases of relapsing fever with arsenic, yet in view of our past experience with this chemotherapeutic agent during the last war, a safe substitute for reduction of this hazard will be of great help. Moreover, in the above series, two cases that did not respond to arsenic were cured with streptomycin. Therefore, the drug will have its definite usefulness for the treatment of arsenic resistant cases, or where arsenic is contra-indicated due to any reason.

#### Summary

Eighteen cases of tick-borne relapsing fever of Kashmir were treated successfully with streptomycin.

#### REFERENCE

LEVADITI, C., and VAIS-MAN, A. (1947). *Compt. Rend. Acad. Sci.*, **225**, 769.

#### BIBLIOGRAPHY

DUFOUR, R. (1948) .. Abstracted in 'Excerpta Medica', 1949, Sect. II, **2**, 680.  
 KRAINER *et al.* (1943-45). *GHQ (India) Report on Investigation on Arsenical Encephalopathy in Indian Troops.*

## ECHINOCOCCAL CYST OF BROAD LIGAMENT

By H. N. RAY, M.B., F.R.C.O.G. (Lond.)

Professor in Charge of Midwifery, National Medical Institute, and Senior Obstetrician and Gynaecologist, Chittaranjan Hospital

HYDATID disease of the broad ligament is a rare disease, and still more rare it must be when it is a case of primary infection. Only four such reports are available from the literature of recent years. Below are the interesting details of another case, and I have called it primary, because I did not find any lesion in the liver or elsewhere in the body nor was there a history of rupture of a cyst anywhere.

#### Case record

A married female, age 17, multipara, was admitted to hospital with the following complaints:—

1. Swelling of the lower abdomen for four months.
2. Slight pain in the lower abdomen, increasing during menstruation for 2 years.
3. Occasional retention of urine during last 2½ months.
4. Dyspareunia for about four months.

*Onset.*—For the past two years she had been suffering from a gargling sound in the abdomen with acidity, indigestion, anorexia and giddiness off and on. Nausea with alternate constipation and diarrhoea had been present during the last 3 to 4 years. In last July she felt definitely some heaviness in the lower abdomen and thereafter occasionally dysuria and retention of urine. She consulted some local doctor, and retention of urine was relieved by catheterization. On his advice she came and sought admission into the hospital.

*Past illness.*—She had suffered from kala-azar during childhood.

*Family history.*—Parents are enjoying good health though there is history of chronic amoebiasis in the family. No history of echinococcal infection either on the parental or husband's side. She was very fond of dogs and kept in close association with them.

*Habits.*—Besides looking after the dogs her daily work consisted in performing ordinary household duties and agricultural work. Menstruation normal but the flow was scanty and of serosanguineous type with offensive smell. There was intense dysmenorrhœa of the spasmodic type for the first two days.

*Present condition.*—General health below par, thinly built and slightly anæmic. Weight 78 lb. Secondary sex characteristics fairly developed. Liver and spleen not palpable nor tender. There was slight thickening and tenderness of the descending colon. A tense cystic swelling rather uniform and globular occupied the lower abdomen and extended nearly up to the umbilicus. It arose from the pelvic cavity, occupying the right iliac, hypogastric and a portion of the umbilical regions. The mass was slightly tender on palpation with limited mobility but free from the anterior abdominal wall. Percussion wave was present. Fœtal parts or movements were not felt.

*P.V.*—Cervix small in size with mobility restricted to the left. It was felt lying in front of a mass and slightly deviated to the left. A rounded, tense, elastic, cystic bulging could be felt in the posterior fornix, extending to the right side. There was no tenderness. This mass was continuous with the one felt externally. It occupied the pelvic cavity and pouch of Douglas and displaced the uterus to the left and slightly in front but was separate from it.

*Blood.*—Hb. 55 per cent, R.B.C. 3,970,000 and W.B.C. 6,800 per c.mm., poly 68 per cent,

lymphocytes 25 per cent, mono 4 per cent and eosinophile 3 per cent.

Blood sedimentation rate was normal. Coagulation time was 3 minutes 10 seconds. Obviously the patient was suffering from chronic anæmia of the hypochromic microcytic type which must have been due to the effect of the cyst as her blood picture quickly improved after its removal and the hæmoglobin rose to 80 per cent in the short post-operative period.

*Urine.*—Normal. Kidney function test was also found to be normal.

*Blood pressure.*—I have found in a series of cases among Bengali women in this hospital, the normal blood pressure between 110 and 115 systolic and 65 to 80 diastolic. In this particular case it was found to be 130/90 which is rather on the high side. There was no history of rise of blood pressure in her family and this was verified by me in the case of individual members. The rise of blood pressure in this particular case might have been due to toxic absorption from the cyst. In fact, after removal of the cyst and when the patient regained her health from post-operative malady, the blood pressure came down to 110.

*Operation.*—Laparotomy was done on 31st July, 1948. A shiny mass, globular in appearance and cystic in feeling, was found arising from the pelvis. It grew between the layers of right broad ligament, displacing the uterus to the left and in front and the ovary to the right and posteriorly. Uterus, fallopian tube and ovary were free. There was no adhesion to adjacent structures. The mass had deeply burrowed down into pelvis and could not be lifted out. No blood vessel could be seen or felt as opposed to the observation on a case reported by James Oliver (*Lancet*, May 1912) where he mentions that 'It was well supplied with blood vessels which had to be tied and cysts were scraped out piecemeal'. The pelvic cavity was otherwise clean and there was no other secondary implantation. Taking proper precautions around the field for the prevention of surgical transplantation of the contents of the cyst, a small incision was made on the wall of the cyst, resulting immediately in expulsion of a small round cyst. The incision was then extended exposing a large number of cysts, which later on were counted and found to be about 300. They were picked out. Particular care at this stage was taken to avoid any cyst falling and disappearing in the pelvis. After opening the pericyst and removing the entire endo- and ectocyst, the cavity was cleansed and swabbed with tincture iodine. A good portion, *i.e.* about half of the whole sac (pericyst), was cut and removed. Then the margins were inverted and sutured together and the cavity was closed. Fallopian tube, ovary and uterus remained absolutely free. Beckwith Whitehouse in his book mentions troublesome hæmorrhage

but fortunately in this case bleeding or oozing of blood from the cyst wall was almost nil. Before closing the abdomen, the other structures specially the liver were examined and found to be normal. The post-operative condition of the patient was highly satisfactory. There was no reaction in the form of urticaria or high temperature due to toxin of hydatid cyst. The patient improved in health and was discharged in a short time.

*Characters of the cyst.*—Macroscopically cysts were spherical in shape and of different sizes, diameter varying from 1 mm. to 90 mm. The wall of the cyst was thin, soft, of gelatinous consistency, and translucent white in character resembling the white of half-boiled egg. They were present in a whitish opalescent fluid (figure 1, plate XIV). The cyst walls were readily coiled inwards when broken. There were brood capsules set free in the cystic fluid of the mother cyst. There were in addition a few pieces of fragmented thick-walled opaque white gelatinous membranous structures in roll formations suggesting wall of the mother cyst. Fluid was slightly alkaline in reaction, non-albuminous, had a specific gravity of 1.010 and contained chloride of sodium. The above cyst contained a thin transparent colourless fluid with a few crystals and a fairly large number of spherical and very thin-walled daughter cysts. These daughter cysts contained within a variable number of scolices which were mostly invaginated with crown of numerous hooklets and two pairs of suckers clearly seen (figures 2 and 3, plate XV). The infection is derived from food or water contaminated with fæces of dogs and occurs in men from close contact with them. The embryo which has six hooklets is freed from the egg by the digestive process and may reach any part of the body by burrowing through gut wall. Sixty per cent reach the liver by portal vein. After reaching the destination, the hooklets disappear and the growing embryo is converted into a cyst with an outer adventitious capsule, *i.e.* pericyst provided by the host and produced by the inflammatory reaction. The parasitic part of the cyst is composed of two layers, ectocyst and endocyst. The endocyst or germinal layer represents the most active tissue of the parasite: from it grow scolices bearing hooklets. From the parent cyst, daughter cyst and grand-daughter cysts are formed until a colony of cysts is produced.

The pathogenesis of hydatid disease of the pelvis has not been explained properly. Commonly it is believed that implantation in pelvis is due to transplantation from ruptured cyst of the liver. But the case that I have reported here seems to be a primary affection of the broad ligament. It is believed that the embryos after piercing the intestine reach the connective tissue beneath the peritoneum or they can be carried to this place by the blood or lymph. Affections of uterus, fallopian tube and ovary have also been reported.

*Interaction between the host and parasite.*—Three types of reactions are mentioned in the literature—(1) Immunity reaction: This provides a scientific test for the diagnosis of hydatid disease within certain limits. In this case this test was not done. (2) Leucoblastic reaction: There is as a rule increase of eosinophil leucocytes which is regarded as a strong presumptive evidence of hydatid invasion, but in this case, I am surprised, the count has never showed rise in eosinophils more than the average even on repeated examinations. (3) The toxic reaction: (a) Urticaria. (b) Local inflammatory processes from direct contact with hydatid fluid (peritonitis). Both (a) and (b) were absent in this case. (c) Chronic toxic effects, e.g. wasting and anæmia. These were prominent here. (d) Rise in blood pressure. This is not mentioned in the literature and is suggested by me.

#### Summary

1. A case of primary echinococccic cyst of broad ligament is reported.
2. Anæmia and rise of blood pressure were associated with the cyst.

## PNEUMOPERITONEUM IN THE STUDY OF HEPATIC ABSCESS

By H. B. LAL

LIEUTENANT-COLONEL, I.A.M.C.

J. D. S. CAMERON and N. A. LAWLER have given aspiration with air replacement a place of very great importance in the treatment of liver abscess. Introduction of air into the abscess cavity was to assist in the study of the progress made by the latter in the process of healing, by radiological means. Although Cameron during his tenure as a physician consultant to AHQ(I) spared no efforts to popularize aspiration with air replacement as a method of treatment, it is felt that the medical profession has not taken to it with any great enthusiasm, there being certain objections to the procedure recommended by him:—

(a) It is not outside the experience of most physicians in the tropics that emetine in combination with organic compounds of arsenic and of iodine would resolve a very large proportion of hepatic abscesses, and that aspiration has to be resorted to only in exceptional cases in whom the abscess has reached a size when spontaneous absorption, after destruction of the amœbæ and the secondary organisms, is not physically possible, or when an abscess originally amœbic has been converted into a pyogenic one by the secondary invader taking on a more prominent rôle.

(b) It has been demonstrated by McCallum that amœbæ are found only in the margins of the living and not in the necrotic tissues of the abscess, unless the abscess has been opened to the air. He points out that this is because of their need for oxygen. An amœbic abscess presents very few amœbæ even in the walls in a closed state, but their number greatly increases both in the walls and in the pus after being opened to the air. Air replacement after aspiration of the necrotic material can only give a further stimulus to the amœbæ in the walls to increase in number and also to flourish in the remnant pus, and thus render the task of amœbicidal drug all the more difficult in dealing with them in the necrotic contents of the abscess cavity.

(c) Injection of air into a cavity, the volumetric size of which is not known, is not altogether free from risk. Injection of too great a volume of air might by increase in tension force the pus further into the healthy tissues or might cause a tear of the latter. Further, it is quite logical that absorption of air by inflamed abscess walls could not be efficient and the continued presence of air might delay the contraction of the cavity and its ultimate healing.

Cameron in common with most authors has recommended the site of election for aspiration to be the 8th to 10th interspace in the midaxillary line. But it is common experience that, more often than not, the abscess cavity proves to be very evasive, necessitating puncture of the liver in various directions before the pus can be struck, and then it cannot be definitely ascertained if the needle has entered the main abscess cavity or merely a subsidiary one.

To overcome all these difficulties, the author is anxious to introduce his method of the study of hepatic abscess by radiological examinations after induction of pneumoperitoneum. The author further feels that the treatment of every case of hepatic amœbiasis should be controlled by this method, whether the treatment is purely medical or aspiration has become necessary.

After insertion of air into the peritoneal cavity, an antero-posterior skiagram of the lower chest shows up the outline of the liver with great clarity along all its borders. The shadow of the superior margin of the liver becomes distinct from that of the diaphragm, separated by a narrow line of radiotranslucency between the two, with a break where the bare area of the liver is directly attached to the diaphragm. The lateral view shows up the break caused by the bare area even better. In the pathological lesions of the liver, study of the lateral views requires a clear knowledge of the appearances, as the picture is composite of both the halves of the diaphragm, and the variations from the normal have to be read mostly in relation to the shadow of the right half of the diaphragm.

PLATE XIV

ECHINOCOCCAL CYST OF BROAD LIGAMENT : H. N. RAY. (O. A.) PAGE 88



Fig. 1.

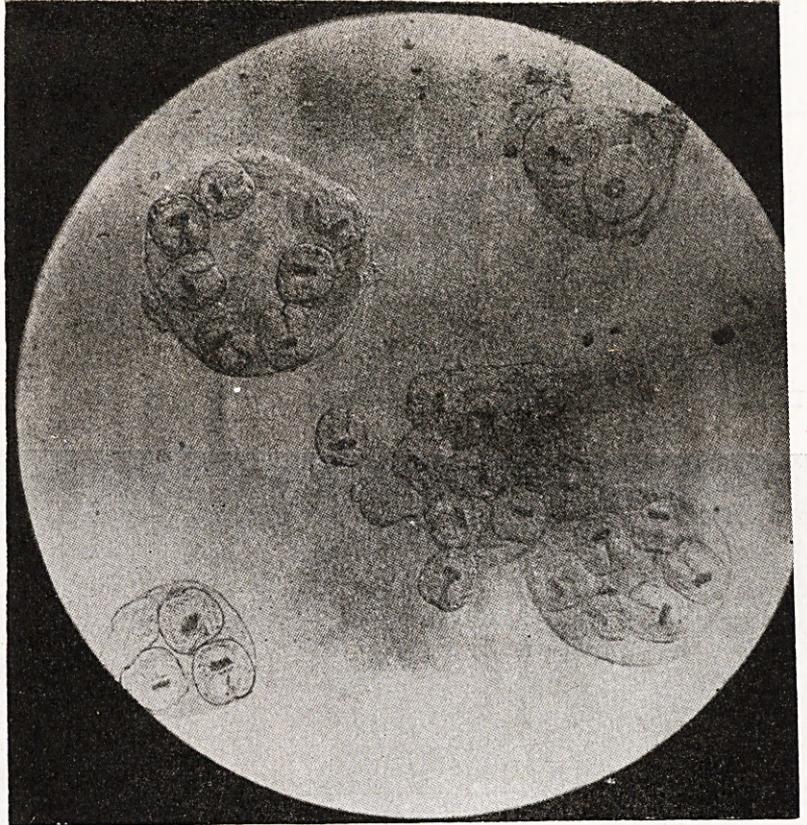


Fig. 2.

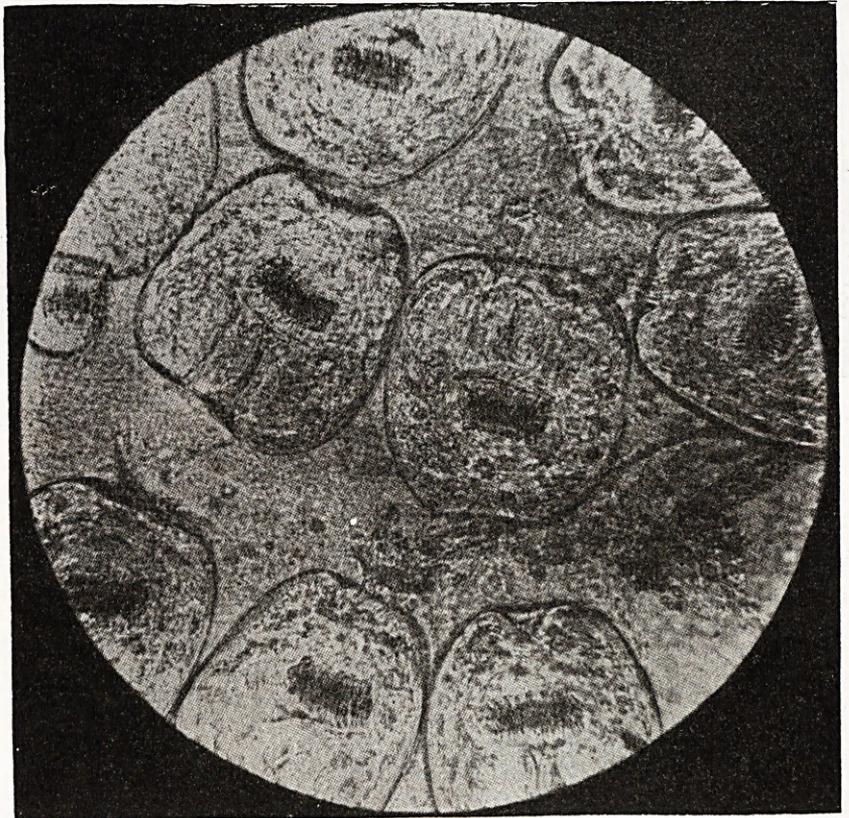


Fig. 3.