alteration of the general mode of life throughout. According to Koch, we were now "entitled to assume that no fresh or progressive tuberculosis was present which required specific treatment."

After an interval of just over seven months the tests were again repeated, and were again both completely negative.

CHART VIII (A).

CHART IX (B).

There was no restriction of activity during any of the reported tests, so that the influence of exercise upon these temperature records is not excluded.

A few words may be added concerning the findings at the sites of injection. There was in general distinct evidence in the reactor, during the reactive period, of the incidence of the Koch phenomenon—increased inflammatory reaction at the injection site—in striking contrast with

the entirely negative, or quite trifling, effect in the case of B; but it is of interest to note that even after A's temperature test record had become entirely negative there was still a distinctly greater degree of local sensitiveness in her case than in the case of B. This is believed to be due to a corresponding inherited difference in the quality of the tissues, A's skin being soft and fair and easily reddened by the sun, while B's skin is firmer, darker, and less sensitive. It should be noted, however, that there was a relative diminution in sensitiveness in the case of the reactor, as, during the phase of positive general reactivity, her injection site reactivity was also distinctly greater than it became subsequently, at the time of the two negative general tests.

These results are a source of legitimate satisfaction, as both individuals can now be placed in the tuberculin-tested negative group, and guaranteed, so far, free from tuberculosis. The details of the testing process have been completely mastered by the patients themselves, and entail no inconvenience and no trouble beyond the taking of the temperature record. It is purposed to repeat this test annually in future, at all events for a time.

Can this be taken as an example? I believe it can to some extent; for it is the actual accomplishment of a result which was deliberately aimed at beforehand, and which, on theoretical grounds, has much to support it. The subcutaneous tuberculin reaction is generally accepted as definite proof of infection, and there has now accumulated a large body of evidence in support of the curative efficacy of tuberculin treatment. If this be accepted the conclusion is clear. We have here a method of elimination worthy of close attention and elaboration. In a search for other preparations and other procedures have we not strayed from the path clearly pointed out by Koch so many years ago?

FORTY CASES OF HYDATID DISEASE.

BY

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HYDATID disease in Europe is sufficiently uncommon to warrant occasional reports on series of cases, with special reference to treatment and results. The etiology of the disease is too well known to require special comment here. Suffice it to say that in primitive agricultural countries where sheep and dogs abound and proper slaughterhouses are rare the echinococcus finds its ideal home.

Propagation is effected either by direct contact with dogs or by the use of contaminated feeding utensils. There appear to be no special symptoms characteristic of hydatid disease, those produced originating from the presence of a tumour causing pressure upon, or destruction of, adjacent structures. These secondary symptoms vary considerably, depending upon the site of the cyst and its size; typical examples are jaundice, pruritus, ascites, haemoptysis, etc.

Rupture is uncommon, though one of my patients (No. 35) was admitted as suffering from a perforated gastric ulcer of which he showed many classical signs. Laparotomy, however, revealed rupture of a hydatid cyst close to the portal fissure. Suppuration occurs occasionally, and may give rise to all the symptoms of an acute cholecystitis (No. 40). Gall-stones and chronic cholecystitis have been noted in two patients (Nos. 16 and 20), both of whom were subjected to cholecystectomy.

From Table I it will be seen that in this series the incidence of the disease among males and females is equal, and that the majority of cases have been of the liver. The exact figures are: cysts of the liver 31, other sites 9. As ascertained up to June 30th, 1930, the results of treatment were as follows: cured 29, relieved 6, died 5. Considering the poor physique of many of the patients, a number of whom were also suffering from chronic malaria, these results may be regarded as quite satisfactory. The period covered by the series is from September, 1926, to April, 1930; the cases in Table I, which are in chronological order, show a remarkable sequence of male and female patients.

TABLE I.

No.	Sex and Age.	Site.	Treat-ment.	Result.	No.	Sex and Age.	Site.	Treat-ment.	Result.
1	F., 53	Liver	Exsection	C	21	M., 30	Liver	Drainage & obliteration	R
2	F., 50	Liver	Drainage	C	22	F., 50	Liver	Exsection	C
3	M., 25	Liver	Exsection	C	23	M., 46	Liver	Drainage	R
4	F., 30	Thigh	Drainage	C	24	M., 18	Ischio-rectal	Drainage	C
5	M., 61	Liver	Exsection	C	25	F., 38	Omentum	Removal	C
6	M., 12	Lung	Resection & drainage	C	26	F., 25	Liver	Drainage	R
7	F., 16	Liver	Drainage & obliteration	C	27	F., 25	Liver	Exsection	C
8	F., 24	Omentum	Removed	C	28	F., 12	Liver	Drainage	D
9	M., 40	Liver	Drainage	D	29	M., 30	Liver	Drainage	R
10	M., 43	Lung	Paracentesis	R	30	F., 55	Uterus	Curettage	D
11	F., 55	Liver	Drainage	C	31	F., 21	Liver	Exsection	C
12	M., 26	Omentum	Removed	C	32	F., 20	Liver	Drainage	C
13	F., 45	Liver	Drainage	R	33	F., 40	Liver	Drainage	C
14	M., 40	Liver	Drainage	D	34	M., 64	Liver	Exsection	C
15	M., 25	Liver	Exsection	C	35	M., 3	Liver	Exsection	C
16	F., 34	Liver	Drainage	C	36	M., 31	Liver	Drainage	C
17	F., 25	Liver	Drainage & obliteration	C	37	M., 10	Liver	Drainage	D
18	M., 20	Liver	Drainage	R	38	F., 30	Liver	Drainage	R
19	F., 40	Liver	Drainage	C	39	M., 47	Lung	Resection & drainage	C
20	F., 70	Liver	Exsection	C	40	M., 25	Liver	Drainage	C

Notes.—In Case No. 5 an operation was recently performed for another cyst; Nos. 16 and 18 were associated with gall-stones; No. 36 ruptured into peritoneal cavity; and No. 40 had acute suppuration. C=cured; R=relieved; D=died.

OPERATIVE TREATMENT.

Cysts of the Liver.

The methods adopted in the case of liver cysts are three in number: (1) drainage; (2) drainage with partial obliteration of the cavity; (3) complete removal. In the present series 18 cases were treated by drainage, 3 by partial obliteration, and 10 by complete removal.

Drainage consists in exposure of the cyst, evacuation of the contents, removal of the endocyst, and fixation of the tube. Where possible in these cases I usually suture the parietal peritoneum around the proposed site of drainage as a protection against leakage, but in large or multiple cysts this is not feasible. Preliminary sterilization of the contents by injection of formalin is practised in all methods. The duration of post-operative drainage varies with the size and nature of the cyst. The wound is generally healed in three weeks; in some cases, however, discharge may continue for many weeks, and is often bile-stained; occasionally a troublesome sinus persists, which may require radical treatment.

This is a simple and satisfactory method of dealing with the majority of cysts.

Drainage with Partial Obliteration.—The essential difference between this method and that of simple drainage is that an attempt is made to diminish the size of the ectocyst by approximating its walls. In the three cases thus treated this has been effected by means of superimposed layers of continuous catgut sutures after excision of as much of the membrane as possible. The cavity has not been completely closed, a small rubber drain being left in its upper portion for three days. For large cysts with soft walls, and where the endocyst has been removed *in toto*, I consider that this is a sound method of treatment.

Complete Removal (Exsection).—Cysts of moderate size, especially those near the free border of the liver, may be completely removed by a wedge-shaped exsection which includes a portion of the liver substance. Haemorrhage, as a rule, is not serious, and can be controlled by finger pressure, clamps, or gauze. The resulting wound in the liver is closed by a series of deep mattress sutures and by a superficial running suture. The results of this operation are extremely satisfactory in suitable cases. No drainage is required, and patients make a rapid and uneventful recovery.

Note.—The adventitia should be separated from the liver as far as possible by blunt dissection or gauze, thus reducing the actual incision to the smallest possible dimensions.

TABLE II.

	Cured.	Relieved.	Died.	Total.
Drainage	10	4	4	18
Obliteration	2	1	—	3
Exsection	10	—	—	10
Total	22	5	4	31

From a study of the above table the results of treatment may be easily seen. All cases treated are included. Cases are reported as cured where the wound is soundly healed and where there is no return of symptoms, and relieved where, although the general condition of the patient is good, a sinus persists. These latter have all been large calcareous cysts with suppuration of contents. Of the four deaths, three occurred some months after operation among patients with enormous cysts involving practically the whole liver, and were due to hepatic insufficiency. The fourth died of post-operative shock.

Extrahepatic Cysts.

These, which numbered 9, were situated as follows: rectus femoris 1, ischio-rectal fossa 1, lung 3, omentum 3, uterus 1. The cysts in the rectus and ischio-rectal fossa presented the appearance of chronic abscesses, and were recognized only at operation, which consisted of evacuation, swabbing with formalin (2 per cent.), and packing with bipp.

The uterine case was sent in with severe haemorrhage. This patient was aged 55 and a nullipara. On examination, the uterus was found to be enlarged and soft; the os was patulous and admitted two fingers. The vagina contained several small cysts and others were expressed from the uterus. The condition of the patient was very poor and precluded hysterectomy. The uterus was evacu-

ated with a flushing curette, and a number of small hydatids and a large piece of endocyst removed. Haemorrhage was free, and the cavity was packed with flanne gauze. The patient improved and left hospital, having refused further treatment. She died one month later from what was stated to be a severe haemorrhage.

Of the three lung cases, one patient refused operation; the other two were treated by resection of ribs, suture of pleura, drainage, and removal of endocyst. The operations were done under local anaesthesia, and the wounds healed rapidly. Two of the omental cysts were lying in the pelvis and bound down by adhesions. The third was situated in the epigastrium and was freely movable. They were excised intact together with a portion of omentum.

TABLE III.

Site.	Cured.	Unchanged.	Died.	Total.
Rectus femoris	1	—	—	1
Ischio-rectal fossa	1	—	—	1
Uterus	—	—	1	1
Omentum	3	—	—	3
Lung	2	1	—	3
Total	7	1	1	9

DIAGNOSIS.

In a hydatid country the possibility of a cyst is always in the surgeon's mind, and in the case of the liver there is seldom difficulty in making a correct diagnosis. In other sites the difficulties are greater and the symptoms and signs less definite. Diagnosis is occasionally rendered easy by the presence of portions of hydatid material in the faeces, urine, or sputum. X-ray examinations and laboratory tests are of considerable help in doubtful cases. The three lung cases referred to were all well demonstrated by radiography; all gave a positive Weinberg reaction (complement fixation); two a positive endermic test (Cassoni). Eosinophilia occurs in about 50 per cent. of cases, but the blood film is not of great value, especially when chronic malaria is a concomitant condition.

I have to thank Dr. M. Gosden, bacteriologist, for undertaking the laboratory investigations, and Dr. E. J. Blackaby, district medical officer, for permission to include Case No. 18.

FOREIGN BODIES IN THE UPPER CONJUNCTIVAL FORNIX.

BY

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The following two cases were recalled to my mind by a report of a somewhat similar case published in the March number of the *British Journal of Ophthalmology* by Mr. Sawhney. These cases are of particular interest, since it is quite possible for the presence of such foreign bodies to be overlooked, when abscess formation would undoubtedly follow. Once a case of this type has been recognized there should be no difficulty in making a diagnosis or suspecting the condition in subsequent cases.

First Case.—In November, 1929, a man attended my out-patients' clinic with a muco-purulent discharge from the right eye; he stated that while threshing a week previously something had entered this eye. The appearance was typical of muco-purulent conjunctivitis, the lashes being stuck together with inspissated discharge; the upper lid, however, was somewhat more thickened than one would have expected. On separating the lids the bulbar conjunctiva and that of the lower fornix were relatively clear except for slight injection; eversion of the upper lid showed the conjunctiva to be somewhat injected, but not to the extent that the external appearance suggested. The discharge appeared to come from the inner end of the upper fornix, but even when this area was prolapsed, by pressure on the globe with the upper lid everted, no foreign body could be detected. This part of the conjunctiva was intensely injected and somewhat thickened. The cornea and the eye itself were normal throughout.