

ABDOMINAL HYDATIDOSIS IN PONDICHERRY, INDIA

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Abstract. A study during the period 1980–1987 revealed 71 surgically confirmed cases of abdominal hydatid disease. The majority of the patients were in 3rd, 4th and 5th decades (64.5%) with approximately equal incidence in both males and females. The commonest site of lesion was liver (56.4%), followed by peritoneal cavity (16.9%) and spleen (10.2%). Indirect hemagglutination serology test was found to be more sensitive (95.2%) than the traditional Casoni skin test in the diagnosis of abdominal hydatid disease. Ultrasonography was also found to be a useful procedure in the diagnosis of the condition. This study shows that there is a significant rise in the number of patients suffering from abdominal hydatid disease in this part of India.

INTRODUCTION

Although hydatid disease is worldwide in distribution, it is most commonly found in those countries where sheep and cattle rearing constitutes an important industry, as in Central Europe, South America, and Eastern Australia (Lewis *et al*, 1975). Even though India is not primarily a sheep rearing country, the number of sheep raised is still not low: about 40,000,000 (Roy *et al*, 1970). In India, hydatid disease is reported prevalent in Patna, Madras, Vellore, Guntur, Kurnool, Ahmedbad, Delhi, Amritsar and Jamoagar. It has also been reported from certain areas of Assam, West Bengal, Orissa, Himachal Pradesh and areas in and around Pondicherry (Parija *et al*, 1983).

This communication reports the incidence of abdominal hydatidosis in Pondicherry, which has been found to increase in recent years.

MATERIALS AND METHODS

The study consisted of two groups of cases, a retrospective group from September 1980 to August 1987 and a prospective group from September 1987 to March 1989. The former included 50 cases, during a period of 7 years and the latter included 21 cases during a period of one and half years making the total number of cases 71 in a total period of eight and half years.

The diagnosis of hydatid disease was based on: (1) demonstration of daughter hydatid cysts

in the cyst during surgery, (2) observation of the hydatids in the aspirated fluid or (3) histological demonstration of a non-nuclear membrane. Based on these criteria, 50 cases of surgically confirmed abdominal hydatid disease admitted in Jipmer Hospital, Pondicherry during 1980 to 1987, were analyzed and relevant data were recorded in the retrospective study. These cases were analyzed in detail with reference to their age, sex, occupation, history of contact with dog, clinical findings and the laboratory investigations. The same information also collected from 21 cases of surgically confirmed abdominal hydatid disease admitted in the hospital and analyzed in the prospective study from September 1987 to March 1989.

RESULTS

From August 1980 to March 1989 a total of 71 cases of abdominal hydatid disease were admitted to Jipmer Hospital. The yearly admission of the cases varied from 6 to 11 cases. During the same period, a total of 150 cases of surgically confirmed hydatid disease were admitted to the hospital and total number of surgical admissions were 32,054. The cases of generalized hydatid disease and abdominal hydatid disease constituted 0.46% and 0.22% of the total surgical admissions respectively.

Geographical distribution of cases

Majority of the cases were from Salem

(50.7%) and South Arcot (28.2%) districts of Tamil Nadu and from Pondicherry (8.5%).

Age and sex

There were 31 males and 40 females: the male female ratio was 1:1.3. The majority of the patients were in the age group of 30-39 years (25.4%). The youngest patient in this study was a 4 year old female and the eldest patient was 70 years old male (Table 1).

History of contact

A history of contact with dogs could be ascertained directly in 29 cases (40.8%).

Site of lesions

Majority of the cysts were located in the liver (86.4%), peritoneum (16.9) and retroperitoneum (6.8%), spleen (10.2%) and other sites (Table 2). Of a total of 59 cases of operative hydatid cysts, 44 (74.6%) were single cysts. In 4 (6.8%) cases, two cysts were present and in 11 (18.6%) cases multiple cysts were present.

The hydatid fluid aspirated from the cysts at surgery were clear in 42 (71.2%) cases, and bilious in 6 (10.2%) cases. Dark colored pus was present in 11 (10.6%) infected hydatid cysts.

Table 1

Age and sex distribution of hydatid disease.

Age group	Male	Female	Total	Percentage
0 - 9	1	4	5	7
10 - 19	4	8	12	16.9
20 - 29	5	9	14	19.7
30 - 39	9	9	18	25.4
40 - 49	7	7	14	19.7
50 - 59	1	1	2	2.8
60 - 69	3	1	4	5.6
70 - 79	1	1	2	2.8

Table 2

Location of abdominal hydatid cysts.

Site	Number of cases	Percentage
Liver - right lobe	32	54.2
- left lobe	19	32.2
Peritoneum	10	16.9
Retroperitoneum	4	6.8
Spleen	6	10.2
Anterior abdominal wall	2	3.4
Lung	2	3.4
Kidney	1	1.7
Diaphragm	1	1.7

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Biopsy of the cyst wall was available in 46 out of 59 cases of operated hydatid cysts. All of them showed cellular germinal epithelium and laminated membrane.

The clinical signs and symptoms of abdominal hydatid disease are summarized in the Table 3. Mass in the abdomen was the common symptom, which was observed in 57 (80.3%) cases. Duration of the symptoms varied from a few days even up to 7 years. However a majority, 37 (52.4%), of the cases presented symptoms of less than 3 months duration.

On physical examination, palpable abdominal mass, single or multiple was found in 60

(84.5%) cases. Tender right hypochondrial mass with intercostal tenderness was present in 6 (8.5%) cases. Diffuse abdominal tenderness and guarding/rigidity of abdominal wall was demonstrated in 4 (5.6%) cases. Jaundice and hydatid thrill was noted in 4 (5.6%) and 12 (16.9%) cases, respectively.

Laboratory investigations

Investigations including Casoni's intradermal skin test, indirect hemagglutination (IHA) test, liver function tests, plain x-ray of chest and abdominal ultrasonography, liver scan and peripheral blood count were performed whenever possible (Table 4).

Table 3

Symptomatology abdominal hydatid disease.

Symptoms	Number of cases	Percentage
Abdominal mass	57	80.3
Abdominal pain	46	64.8
Fever	19	26.8
Lose of appetite	16	22.5
Acutc abdomen-like presentation	10	14.1
Jaundice	4	5.6
History of anaphylaxis	1	1.4

Table 4

Laboratory investigations in the study of abdominal hydatid disease.

Investigation	Number of cases	Number of positive cases	Percentage
Casoni's test	48	26	54.2
IHA	21	20	95.2
Ultrasound	39	39	100.0
Increased alkaline phosphatase	61	32	52.5
Increased bilirubinuria	61	11	18.0
Eosinophilia	63	30	47.6

Casoni's skin test was performed in 48 patients and the reading was recorded according to the method described by us elsewhere (Parija and Rao, 1987). The test was reactive in 27 (54.2%) cases. The IHA test was performed in 21 sera for the detection of hydatid antibodies according to the method described by us elsewhere (Parija *et al*, 1985). At a cut off titer of 1/128 and above, the test detected diagnostic antibody titers in 20 (95.2%) out of 21 cases of hydatid disease.

Liver function tests was carried out in 48 cases. Raised bilirubin level was noted in 11 (18%) cases. Serum alkaline phosphatase was raised in 32 (52.5%) cases.

Plain x-ray of chest and abdomen showed calcification of hydatid cyst in the liver in one case and of soft mass with calcification in right lumbar region in the kidney in another patient. Elevation of the right dome of the diaphragm was noted in 12 case of hydatid cyst of the liver. Ultrasonography of abdomen was done in 39 patients and in all these patients it was suggestive of hydatid disease showing an accuracy rate of 100%. The liver scan was performed in 10 cases which showed the presence of space occupying lesions in the liver.

Peripheral blood counts were done in 63 patients. Eosinophilia was found in 30 (47.6%) cases.

DISCUSSION

Although India is not primarily a sheep raising country, a large number of cases of hydatid disease have been reported from different parts of the country (Roy *et al*, 1970). In Pondicherry, 45 cases of surgically confirmed hydatid disease had been reported by us, during a study period of 1971-1979 (Parija *et al*, 1983). A serological survey of hydatid disease by IHA carried out in this part of India, showed a diagnostic antibody titer of 1:128 or higher in 6 sera of 1,325 apparently normal sera and in 27 sera of 109 clinically suspected hydatid cases. A high antibody titer of 1:64, although not diagnostic was present in 62 (8.17%) sera from apparently normal populations residing in the area endemic for the disease (Parija *et al*, 1987). In the present study, a total of 150

cases of hydatid disease were confirmed at surgery. The majority of the cases (50.7%) were from Salem district of Tamil Nadu located in the foot hills of the western ghats. This could be attributed to the cattle and sheep rearing profession of the people residing in this area.

In this present study, the largest number of cases (25.4%) of abdominal hydatidosis were recorded in the age group between 30-39 years, the incidence being noted to be rare in the extreme of age groups. This observation is inconsistent with the observations of other reports (Parija *et al*, 1983; Papadimitriou and Mandrekas, 1970), and is supported by the fact that infection is generally acquired in childhood due to their close association with dogs, which manifests itself in adults after many years of infection (Roy *et al*, 1970).

In this study, the liver was the commonest site (86.4%) followed by the peritoneum and other sites (Table 2). The spleen was involved in 10.2% of the cases. This is in accordance with other published observations (Reddy *et al*, 1974; Sibal and Singh, 1974; Upadhaya *et al*, 1974), which show that virtually each and every organ in the human body can be affected by hydatid disease. This is supported further by animal experimental studies which show that some embryos can travel directly to the lung via the thoracic duct and mediastinal lymph nodes (Roy *et al*, 1970). A majority of the abdominal cysts (71.26%) in this study contained clear sterile fluid. In 10.2% cases, the fluid was bilious and in 18.6% of cysts it was dark due to the presence of pus. This could be explained by the occurrence of cysto-biliary communication as seen in 5 to 25% of the operated cases. The incidence of intra-cystic infection was noted to be 12% in Barros, (1978) series of 212 cases and 8% in Papadimitriou and Mandrekas' (1970) study of 227 cases. However, Kune (1985) is of the opinion that infection of the hepatic hydatid cyst is rare in the absence of cysto-biliary communication. In the present study, even though the contents of the cyst were purulent in 11 (18.6%) cases, aerobic bacterial culture was positive in only one case.

Errors in the clinical diagnosis of hydatid disease are frequent due to lack of a constant

clinical presentation of the disease. The variations in the signs and symptoms of the disease in part may be attributed to the location of cysts in different sites. A mass in the abdomen was the commonest symptom (80.3%) in this study, which is in agreement with a majority of other studies (Reddy *et al*, 1974; Sibal and Singh, 1974; Upadhaya *et al*, 1974; Kune, 1985). Nevertheless, in a few other reports (Barros, 1976; Pitt *et al*, 1986) abdominal pain was noted as the commonest clinical presentation. In hepatic hydatidosis, upper abdominal pain usually results from stretching of the liver capsule. In the present series, 64.8% of the cases had dull aching abdominal pain. Lumpy abdomen was the predominant sign (84.5%) in our study. Tender right hypochondrial mass with intercostal tenderness in 8.5% of cases, diffuse abdominal tenderness with guarding and jaundice (5.6%) were other important clinical signs. Uncomplicated cysts usually remain asymptomatic and complications if any may precede the diagnosis. Intrahepatic rupture is the most common complication of hepatic hydatidosis with an incidence rate of 5-25% (Papadimitriou and Mandrekas, 1970; Barros, 1978). In the present study, 26.8% of complicated cases presented with fever, 14.1% with acute abdomen and 5-6% with jaundice.

The history of close association with dogs was noted in 40.8% of the cases. The remaining persons, from whom the history of close contact with dogs could not be elicited, would have acquired the disease either by transitory handling of dogs or by eating raw vegetables contaminated with the excreta of infected dogs (Parija *et al*, 1983).

The Casoni intradermal skin test, though limited by its high false positive and negative results, is still used in the developing countries, because of its simplicity and quick interpretation after 30 minutes of performing the test (Parija and Rao, 1987). In the present study, the skin test was reactive in 26 (54.2%) cases. The sensitivity of Casoni's test, among various reports, ranged from 50 to 95%. Although no single test provides 100 percent sensitivity and specificity in the diagnosis of hydatid disease (Parija and Rao, 1986), the IHA by virtue of its simplicity and specificity is being increasingly used by many workers in the field

(Parija and Ananthkrishnan, 1985). In this study the test could detect 95.2% of a total 21 cases of hydatid disease. This is in accordance with other published observations (Parija *et al*, 1986; Psarija and Rao, 1986; Chemtai *et al*, 1981). Abdominal ultrasonography was performed in 39 cases and in all 39 cases it was suggestive of hydatid disease. This is due to the presence of daughter cysts in the hydatid cyst which give an unmistakable, pathognomic appearance. Other studies have shown an accuracy rate of 90% by using ultrasonography in the diagnosis of hydatid disease (Pitt *et al*, 1986).

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