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### Original article

# Clinico epidemiological profile of hydatid diseases in central india, a retrospective & prospective study

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#### ARTICLE INFO

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#### ABSTRACT

Introduction; The hydatid is endemic zoonotic disease where livestock is raised in association with dogs. Aims and objectives; To define the epidemiological and clinical profile and treatment protocols for hydatid diseases among the patients reporting to a rural tertiary teaching hospital. Material and methods; Retrospective & prospective study was carried out on a total of (n=117) patients admitted in the Department of Surgery at Mahatma Gandhi Institute of Medical Sciences, Sevagram between 1st April 1996 to 31st March 2006. Descriptive statistics, including range and percentage, were used in analyzing the patient characteristics and laboratory parameters. Observation; The maximum numbers of patients were in the age group of 21 -30 years (31 pts, 26.49%). The main presenting symptom of the study population was pain in abdomen (85 patients, 89.47%) followed by lump in abdomen (81 patients, 85.26%). Maximum 106 patients (90.59%) had single organ involvement. The most commonly performed surgery in our series was partial pericystectomy with external drainage 80 patients (68.37%). Conclusion; Hydatid disease can affect any organ. Proper education, creating awareness and implementing strict rules regarding the disposal of the remains of slaughtered animals can help eradicate this disease. Partial pericystectomy with external drainage is no doubt a better option in any rural set-up.

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### 1. Introduction

Hydatid disease is a zoonosis caused by the tapeworm of *Echinococcus* spp. The hydatid disease is prevalent where livestock is raised in association with dogs. The incidence of hydatid disease varies among different geographical areas with the high incidence in Australia, Latin America, Eastern Europe, the middle East and Africa [1-5]. The disease is endemic in central India [6]. Due to its varied morphological presentations and involvement of various sites in the body it gives rise to varying clinical symptomatology. In this study we have defined various epidemiological, clinical factors and treatment protocols for hydatid diseases attending to our hospital during the period 1996-2006.

### 2. Material and Methods

After obtaining Institutional Ethics Committee approval, retrospective & prospective study was carried out on a total (n=117) of patients admitted in the Department of Surgery at Mahatma Gandhi Institute of Medical Sciences, Sevagram between 1st April 1996 to 31st March 2006. The patients admitted between 1st April 1996 to 31st March 2004 were included in retrospective group-A (n=91) while the patients admitted between 1st April 2004 to 31st March 2006 were included in prospective group-B (n=26). Patient willing (written informed consent taken) were included. The data regarding registration like: age, sex, residence, level of education, occupation, marital status, socio-economic status were obtained. Clinical assessment was done in the form of general condition, clinical manifestation, diagnosis, treatment, and discharge status. For assessment of hydatid disease x-ray, USG & C.T.Scan where required was used. The diagnosis of hydatid was confirmed histopathologically [7]. Patients were operated by different surgical methods. Descriptive statistics were used in analyzing the patient characteristics and laboratory parameters.

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### 3. Results

The total numbers of admissions in the hospital during the study period were 2, 92,847 out of these, 49,835 patients were admitted in surgical wards. Thus these 117 patients constituted 0.04% of the total admissions and 0.23% of the total surgical admissions. Out of the total study population of 117 patients, the mean age of presentation was 36.52 + 17.13 yrs. The youngest patient was 5 years of age, whereas the oldest patient was 75 years of age similar to Baveja et. al [8]. The maximum numbers of patients were in the age group of 21 -30 years (31 pts, 26.49%) similar to Parija et.al [9]. Of the total population of 117 patients, 71 (60.68%) were female and 46 (39.32%) were males. The male to female ratio is 1: 1.5. Maximum patients were housewives (46 cases, 39.32%) followed by farmers (31 cases, 26.49%), daily wage workers (21 cases, 17.95%), students (15 cases, 12.82%). Four patients (3.42%) had other occupations. Parija et.al reported max. Patients were labourers [9].

#### Omit 3. Results

**Table I: Age and pathological site wise distribution of study population**

Age (yrs)	Abdominal hydatid	Lung hydatid	Hydatid at other sites	Total (%)
1-10	3	3	0	6(5.13)
11-20	12	2	1	15(12.82)
21-30	26	3	2	31(26.49)
31-40	16	3	2	21(17.95)
41-50	13	3	0	16(13.67)
51-60	14	3	0	17(14.52)
61-70	10	0	0	10(8.55)
71-80	1	0	0	1(0.85)
Total	95	17	5	117(100)

Abdominal hydatid was seen more often in females (64 cases) than males. On the other hand hydatid of the lung was more common in males.

**Table II: Duration of symptoms**

Duration of symptoms	Abdominal hydatid		Pulmonary hydatid		Others	
	Total	Per-centage	Total	Per-centage	Total	Per-centage
< 1 month	7	7.36	6	35.29	0	0
1 - 6 months	56	58.94	5	29.41	1	20
6 months – 1 year	9	9.47	3	17.64	1	20
> 1 year	23	24.21	3	17.64	3	60
Total	95	100	17	100	5	100

The main presenting symptom of the study population was pain in abdomen (85 patients, 89.47%) followed by lump in abdomen (81 patients, 85.26%). Mean duration of presentation of lump in abdomen was 6.58 + 13.75 months. Mean duration of presentation of pain in abdomen was 3.1 + 7.57 months. Though the patients had a lump in the abdomen, most had presented to the hospital only after the onset of pain. Twenty

five (26.31%) patients had fever on presentation. Vomiting was the next common presenting complaint, which was seen in 17 patients (17.89%). Six patients (6.31%) presented with jaundice. Maximum number of patients with lung hydatid presented with cough (14 patients, 82.35%). Two patients had presented with productive cough containing cyst wall. Twelve patients (70.58%) of lung hydatid had presented with chest pain. Hemoptysis was seen in 2 patients (11.75%). Fever was seen in 8 patients (47.05%).

Among the patients with abdominal hydatid, maximum had a lump in the abdomen (92 patients, 78.63%); tenderness in the abdomen was demonstrated in 65 patients (55.56%). Hepatomegaly was seen in 78 patients (66.67%) and splenomegaly was seen in 4 patients (3.42%). Six patients had distention of abdomen. Seventy five patients (64.10%) had pallor and six had icterus (5.13%). The classical "Hydatid thrill", could be demonstrated in only 3 patients (2.56%). Four patients with hydatid of muscle had swelling.

Among the investigations done, maximum of the patients had eosinophilia of varying degree (87 patients, 74.36%). Serum bilirubin above 2 mg/dl was seen in 8 patients (6.84%). Casoni's test was not done in any of the patients. Absolute eosinophil count of above 1000 cells/cmm was seen in 5 patients (5.75%). AEC between 501 – 1000 cells/cmm was seen in 35 patients (40.23%).

According to Beckett et al., common sites involved according to incidence are: Liver - 75%, Lungs-15%, Muscles - 04%, Kidneys - 02%, Spleen-02%, Bone-01%, Others 01% (e.g. Brain, Breast, Heart orbit, etc.) [10]. In this series out of the total study population of 117 patients, 106 (90.59%) had single organ involvement and 11 patients (9.40%) had more than one organ involved. Only liver was involved in 81 patients (69.32%). Only lung was involved in 12 patients (10.25%). Both liver and lung were involved in four patients (3.41%). Liver was involved in 88 patients (75.21%) either solitary or in association with other organs. Lung involvement was seen in 17 patients (14.53%) either solitary or in association with other organs. Solitary involvement of spleen and muscle was seen in four patients each. Solitary involvement of kidney and omentum was seen in two patients each (1.71%). Liver was involved along with peritoneum in two cases (1.71%) and with omentum in a single case (0.85%). Lung along with muscles was involved in a single case and one patient had a presacral hydatid. One patient had multiple cysts involving ovary, peritoneum, intestinal serosa and falciform ligament. Of the total number of patients 88 had liver involvement. The right lobe of the liver was found to be involved in 55 patients (62.5%) and the left lobe of the liver was involved in 23 patients (26.13%). Both lobes of the liver were involved in 10 patients (11.36%). It was seen that the right lung was involved more frequently (12 cases, 70.58%) than the left lung. The lower lobes were involved more frequently. The lower lobe of the right lung (8 patients, 47.05%) was involved more frequently than the left lobe.

**Table III: Incidence of Complications in the study population**

Organs	Uncomplicated		Infected		Rupture		Total
	Total	Per-centage	Total	Per-centage	Total	Per-centage	
Abdominal	67	70.52	23	24.21	5	5.26	95
Lung	14	82.35	0	0	3	17.64	17
Others	5	100	0	0	0	0	5
Total	86		23		8		117

Treatment options for cystic hydatid disease are surgery, drug therapy and percutaneous drainage. Disseminated echinococcus is an absolute indication for antihelminthic drug therapy. Various modalities of operative procedures have been mentioned in Table-IV.

**Table IV: Type of surgical intervention in the study population**

Type of surgical intervention	Total	Procedures done	Percentages
Partial Pericystectomy with external drainage	80		68.37
Partial Pericystectomy with omentoplasty	12		10.25
Thoracotomy with enucleation and ICD	15		12.82
Splenectomy	3		2.56
Excision of cyst(muscles)	4		3.41
Thoracotomy, enucleation and ICD with excision of intercostal hydatid	1		0.85
Rib resection and drainage	1		0.85
Sigmoidoscopy and drainage	1		0.85
Total	117		100

The most common post operative complication that we encountered was wound infection which was seen in 22 patients (18.80%). Intra abdominal collection was seen in 8 patients (6.84%). Residual cavity was seen in 4 patients (3.42%). These patients had to be discharged on drainage. Bile leak was seen in 2 patients (1.71%). The fistula in both the cases healed gradually without any further intervention. There was a single patient with burst abdomen, who was managed by tension suturing. Three patients who were operated for lung hydatid had prolonged IC drainage due to fistula, which healed eventually in all the cases. There was no mortality in our series, where as Yadav et al. reported 0.5-4% [11].

#### 4. Discussion

Hydatid disease is one of the world's most well known geographically widespread parasitic zoonoses, with transmission occurring in tropical, temperate and arctic biomes [1- 5]. Most human infections are due to *E. granulosus* transmitted between domestic dogs and livestock while the other species with significant zoonotic potential is *E. multilocularis* that occurs naturally in fox definitive hosts and small mammal intermediate hosts [5]. These two species cause human cystic or alveolar echinococcosis respectively, which may be considered serious public health problems in several regions including developed countries in the endemic area [5]. The most common presentation in the study was pain abdomen. This is primarily because most of the study population consists of rural patients who were poor. It is because of their ignorance that they usually tend to neglect an asymptomatic lump in the abdomen which causes no problem in their daily routine activities. It is only when this lump gets symptomatic that they tend to seek medical advice.

Another interesting observation was that 35.25% of patients with lung hydatid presented to the hospital within one month of appearance of their symptoms as compared to only 7.36% of patients with abdominal hydatid and 58.94% of patients with abdominal hydatid presented to the hospital within 6 months of appearance of the symptoms when compared to 29.41% of patients with lung hydatid. Overall 66.3% of patients with abdominal hydatid and 64.7% of patients with lung hydatid presented to the hospital with in 6 months of appearance of their symptoms. Thus

maximum number of patients in the study presented to the hospital within 6 months of appearance of their symptoms. No similar study in the literature has compared the presentation to the hospital and appearance of symptoms in pulmonary and hepatic hydatid. Patients with pulmonary hydatid presented early as compared to hepatic hydatid.

Although other modalities of treatment of hydatid disease like PAIR[12], PEVAC[13], VATS[14]and laparoscopy[15] have been in vogue and have produced good results in the circumstances where they are indicated, we have treated all our patients by conventional surgery. The most commonly performed surgery in our series was partial partial-pericystectomy with external drainage. Although this approach has not been in favour with a lot of authors, there are certain distinct advantages with this technique which have also been highlighted by Abdulla Ali Al – Hureibi [16]. The advantages are -It provides an exit for any unevacuated live scolices or their remnants, any bilious discharge & any infected material, It enables the cavity to be flushed after surgery with saline in uncomplicated cases and with saline and hydrogen peroxide (1:1000) in cases of infection. Opaque material can be injected through it to follow the course of obliteration of the residual cysts in the first week after operation. The most common post operative complication in this series was wound infection.

#### 5. Conclusion

This disease is common among house wives who have the practice of rearing sheep and goat. As with other zoonotic diseases, prevention plays an important in the overall management of this disease. Proper education, creating awareness and implementing strict rules regarding the disposable of the remains of slaughtered animals can help eradicate this disease.

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