

ORIGINAL ARTICLE

EVALUATION OF HISTORY OF CONTACTS, MODES OF PRESENTATION AND MANAGEMENT PROTOCOL OF ABDOMINAL HYDATID DISEASE

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ABSTRACT: Hydatid disease continues to be a common surgical condition in many rural parts of India, carrying a significant morbidity and mortality. Hydatid liver disease affects all age groups, both sexes equally, and no predisposing pathologic conditions are associated with infection. Echinococcosis, is a zoonosis that occurs primarily in sheep-grazing areas of the world Humans contract the disease from dogs, and there is no human-to-human transmission it is limited geographically to areas where close and continuous contact exists between domesticated carnivores such as the dog and ungulates such as cattle and sheep. **AIM:** This study aims to evaluate the incidence of important risk factors of contact history in the patients presented with abdominal hydatid disease and also treatment modalities followed. **MATERIAL AND METHODS:** It is a prospective & analytic study was conducted by selection of patients admitted in the wards of the department of general surgery of a tertiary care hospital. Over a period of 1 year from January 2013 to January 2014 and followed for a period of 1 year. The data in the study was collected by the use of a pretested proforma to collect relevant information from individual patient, by a meticulous clinical examination and specific investigations of 12 cases for hydatid disease were studied. Majority of liver hydatid were treated by partial pericystectomy & enucleation with external tube drainage which is an optimum treatment in our institute, and a follow up for a minimum of 1 year was conducted after the treatment during the study period. **RESULTS:** In our study we had patients in all age groups, history of contact with dog or sheep was present in 33.33% of patients which is comparable with a majority of our patients(66.66%) as well as patients in the above compared study had the disease without contact with animals. Liver was the most common. The commonest symptom of hydatid cyst of liver was mass per abdomen, 7 Patients (62.36%) followed by pain abdomen 3 patients. **CONCLUSIONS:** Absence of history of contact with pets doesn't rule out the possibility of disease. Majority of liver hydatid were treated by partial pericystectomy & enucleation with external tube drainage which is an optimum treatment in our institute.

KEYWORDS: Liver, Hydatid Disease, Echinococcus Granulosus, Pericystectomy.

INTRODUCTION: Echinococcosis is a disease that has been recognized by ancient scholars such as Hippocrates, Aretaeus, Galen and Rhazes. In 1766, Pierre Simon Pallas predicted that these hydatid cysts found in infected humans were actually larval stages of tapeworms.⁽¹⁾

"Echinococcosis" (hydatid disease) is a "zoonosis" [disease of animals transmitted to man], caused by the larval stage of Echinococcus granulosus (also known as Taenia echinococcus). Humans are accidental intermediate Hosts,⁽²⁾ whereas animals can be both

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intermediate hosts and definitive hosts. The two main types of hydatid disease are caused by *E. granulosus* and *E. multilocularis*.

Most common organ to be involved is the liver followed by the lungs, peritoneum, bone, spleen, muscle, omentum etc. It has slow pace of growth in man but in the end either the parasite or the host must die. Humans are an end stage to the parasite and it can occur in any age group.

It still continues to be a common surgical condition in many rural parts of India, carrying a significant morbidity and mortality. Most of the patients present with complications of hydatid disease requiring a major surgical procedure. Early diagnosis is required to reduce the morbidity and mortality.⁽³⁾ Diagnosis is possible by serological and radiological investigations even at an early stage of disease. The treatment options for the disease vary from medical line of management to various surgical procedures, which stand as challenge to surgeon and sometimes complicated by life threatening outcomes.⁽⁴⁾

Hydatid liver disease affects all age groups, both sexes equally, and no predisposing pathologic conditions are associated with infection. Washing hands after contact with canines, eliminating the consumption of vegetables grown at ground level from the diet, and stopping the practice of feeding entrails of slaughtered animals to dogs have all aided in decreasing the incidence of the disease.⁽⁵⁾

Echinococcosis, is a zoonosis that occurs primarily in sheep-grazing areas of the world, but is common worldwide because the dog is a definitive host. Echinococcosis is endemic in Mediterranean countries, the Middle East, the Far East, South America, Australia, New Zealand, and East Africa.

Humans contract the disease from dogs, and there is no human-to-human transmission.⁽⁶⁾ Occurrence of the disease in man appears to be limited geographically to areas where close and continuous contact exists between domesticated carnivores such as the dog and ungulates such as cattle and sheep.

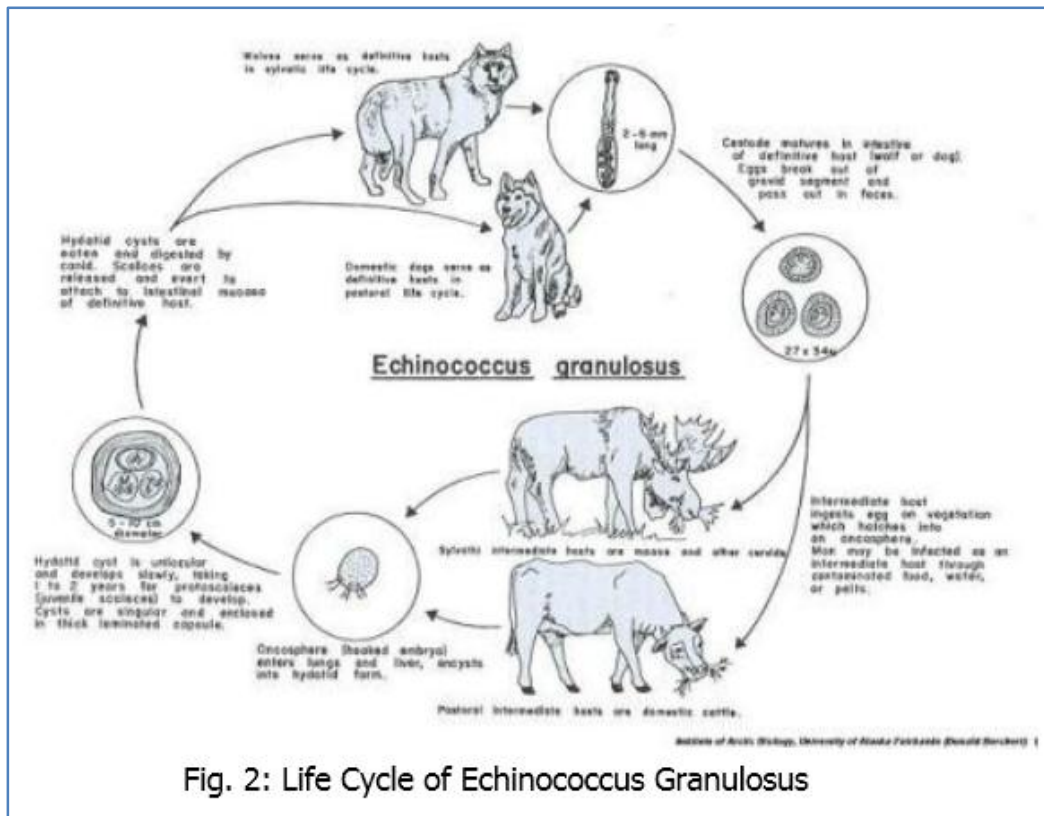
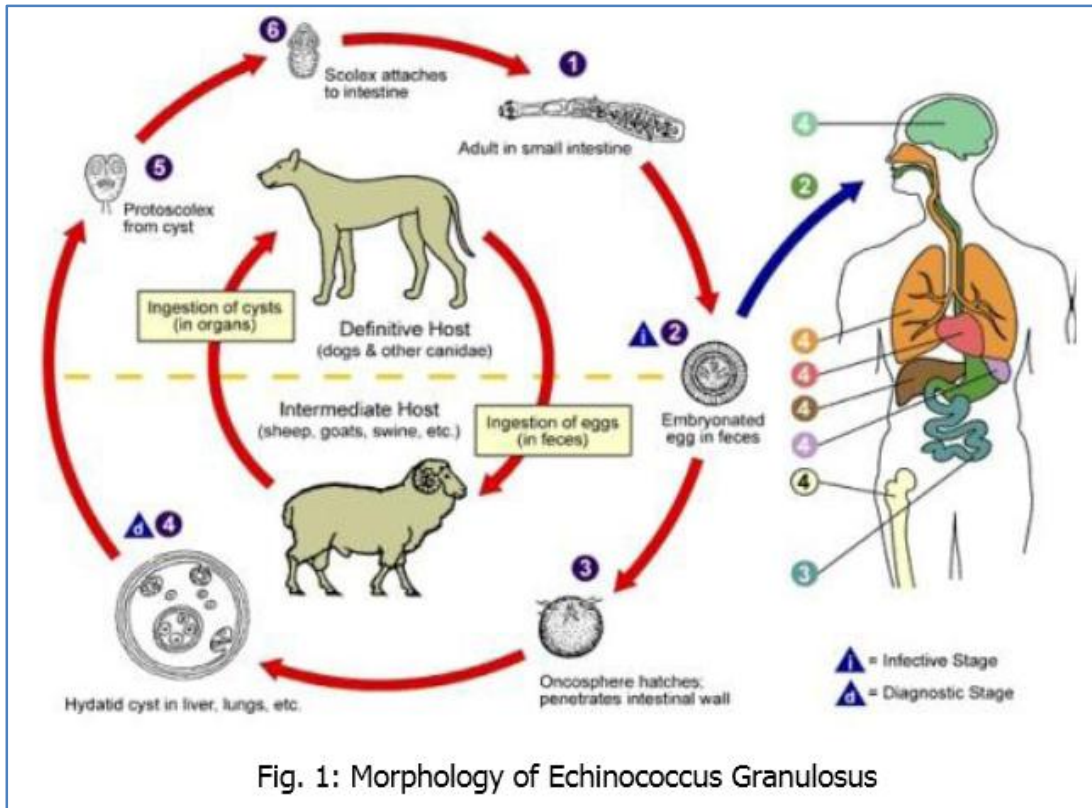
The raising of livestock keeping of sheep, nomadic tribal life and in general, access of dogs to the entrails of slaughtered sheep and cattle readily perpetuate the life cycle of the parasite. Man is an accidental intermediate host.

This study aims to evaluate the incidence of important risk factors of contact history in the patients presented with abdominal hydatid disease and also treatment modalities followed.

LIFE CYCLE:

- Definitive host: Dog, wolf, fox and jackal.
- Optimum definitive host: Dog.
- Habitat: The adult worm lives in the small intestine of these animals that discharge a large number of eggs in their faeces.
- Intermediate host: Sheep, pig, cattle, horse, goat and man.
- Accidental intermediate host: Man.

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CLINICAL MANIFESTATIONS: General Clinical features:

1. Never pathognomonic.
2. Variable.
3. Symptoms depend on.
 - a) Organ involved.
 - b) Size of the cyst.
 - c) Site of the cyst.
 - d) Interaction between the cyst and the surrounding structure.
 - e) Complications due to cyst rupture spread of protoscolices secondary bacterial infection.
4. Systemic response; mostly immunological viz: asthma, urticarial, anaphylaxis or membranous nephropathy.⁽⁷⁾

CLINICAL FEATURES OF HYDATID CYST OF ABDOMEN:

1. Abdominal pain due to increase in size and stretching of capsule, in case of liver otherwise pain is usually dull in nature. Biliary colic indicates intra biliary rupture. Pain is also due to infection.
2. Mass: Hydatid cyst of liver manifest as mass in the epigastric and right hypochondriac region which is huge and painless for some time.
3. Jaundice: Due to blockage of CBD with hydatid debris, daughter cyst, external compression by a cyst.
4. Nausea, vomiting, discomfort after food.
5. Dyspnoea: Due to diaphragmatic embarrassment.
6. Generalized pruritus, urticaria, anaphylactic reactions, and tenderness.

INVESTIGATIONS:

- I. **Blood:** Differential count; it indicates generalized eosinophilia, which varies from 6 - 52 % of the differential count. Generalized eosinophilia is not reliable, as some of these patients live in areas endemic to many other parasites.
 - Less than half of the patients have eosinophilia.

II. Serology:

- I. Serology detects specific antibody or circulating antigen by immune-diagnostic methods.
- II. Antibody detection by serology is of much help, although sensitivity is lower than for other infections, reaching 80 - 85%.
- III. Serological tests may give false positive results.

III. Ultra-sound abdomen[USG]: Preoperative USG.⁽⁸⁾

1. A hyperechoic contour with cone shaped shadow. Multivesicular cysts manifest as well defined fluid collections in a honeycomb pattern. Daughter cysts appear as cyst within cyst. The matrix represents hydatid fluid containing membranes of daughter vesicles scolices and hydatid sand. Membranes may appear within the matrix as serpentine linear structures a finding highly specific for hydatid disease. (Water lilly sign.)

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2. It can detect abdominal cysts along with their number.
 - Site.
 - Dimensions [cysts >1 cm.].
 - Whether they are of hydatid nature or not.
 - And their relationship to other organs.

3. US should be performed immediately as it is readily available, less expensive, fast, safe, non-invasive with high diagnostic accuracy especially in the hands of skilled and experienced hands.

CT SCAN: Advantages of CT-scan:

- a) Better localization of daughter cysts and calcification.
- b) Better identification of presence of extra-hepatic cysts in the peritoneal cavity.
- c) Exogenous cysts nicely demonstrated.⁽⁹⁾
- d) Assessment of distribution within the liver parenchyma of the cysts.
- e) Estimation of density of contents. Which indicates the viability of the cyst.

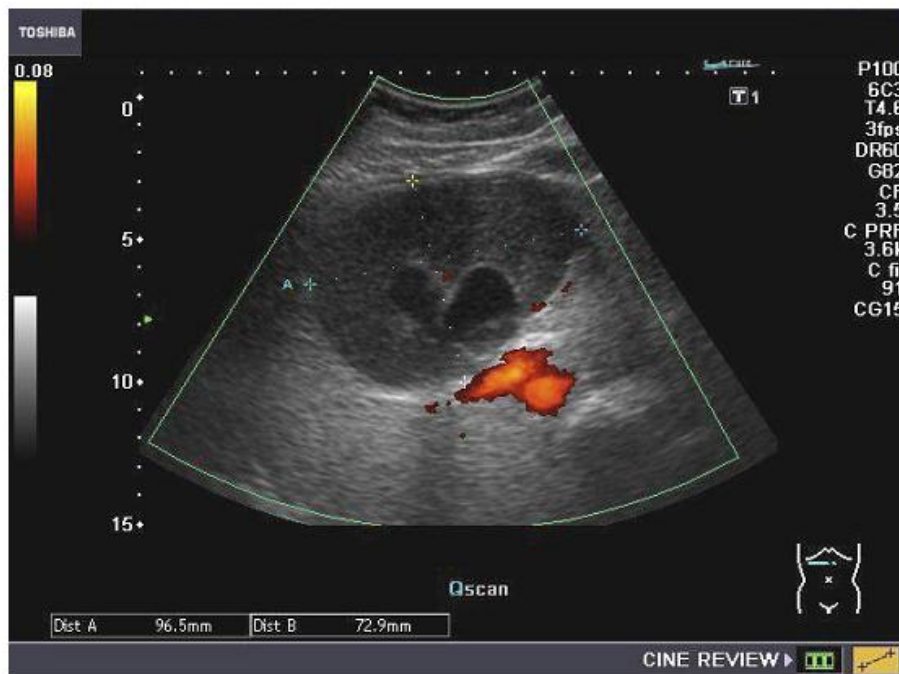


Fig. 3: Ultra sound of abdominal hydatid

MANAGEMENT:

1. Surgical treatment remains the main stay and is the treatment of choice.
2. Medical treatment compliments surgical management.

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Medical management of hydatid Drugs used:

- 1) **Albendazole:** Drug dosage; 10-15mg/kg/day for 21 days with one week gap, three such cycles are given.
- 2) **Mebendazole:** Dosage; 40- 50 mg/kg/day in 3 divided doses. Maximum; 60mg/kg/day.

Preoperative Preparation:

1. Albendazole:

- Decreases recurrence.
- Cyst sterilization.
- Decreases viability of proto-scolices.

2. **WHO recommendation:** Preoperative minimum 4 days of albendazole followed by post-operative 1 month of albendazole or 3 months of mebendazole.

3. **Protocol:** 4 weeks of pre-operative and 8 weeks of post-operative albendazole.

SCOLICIDAL AGENTS: The basic idea behind the use of scolicidal agents is to kill all scolices before they can be spilled into the operative field.

Ideal scolicidal agents should have:

1. High potency at low concentration.
2. No tissue toxicity.
3. Low viscosity.
4. Ease of preparation and low cost.
5. Formalin 4-10%.
6. Silver nitrate.
7. 0.1 - 0.5% cetrimide solution.
8. 1 -10 % povidone iodine Immobilizes.

Problems with scolicidal agents:

1. Volume of scolicidal agents to sterilize a cyst is not known.
2. Povidone iodine 3 - 10% concentrations dis-colours the operative area and makes cysto biliary communication visualization difficult.

GENERAL SURGICAL LINE OF TREATMENT: The primary treatment of choice of all symptomatic hydatid cysts surgical. Anti-helminthic drugs in both pre and post - operative care but their clinical efficiency is not proven. Partial cystectomy with omentoplasty.

Deliberate rupture and entry into the pericyst space evacuation of the cyst contents [Drainage procedure] and obliteration of the cyst cavity.

(i) Marsupialization. (ii) Capitonage and (iii) Cyst evacuation and omentoplasty.

OPERATIVE TECHNIQUES: The principal objectives to be met by surgical manoeuvres are the same:

1. Total removal of all parasite elements.
2. Avoidance of spillage of cyst contents.
3. Management of the residual peri- cyst cavity.

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- I) SAFE DECOMPRESSION OF THE CYST: Principle:** To control un-controlled rapid decompression into the peritoneal cavity by;
- a) Green or blue diapers so that pale white cyst can be seen against a dark contrast background.
 - b) Packing of the rest of the peritoneal cavity with scolicidal agents.
 - c) Sump suction devices for cyst contents.
 - d) De-compression of the cyst before the injection of the scolicidal agents.

The skin wound is protected and the whole space around the mobilized liver is packed with drapes and packs soaked in 3% saline. The cyst has to be handled and decompressed carefully. A viable cyst will have contents under high pressure. The cyst is penetrated by a large-gauge needle connected by transparent plastic tubing to one of the drains. Usually less than 50 ml can be evacuated before the needle becomes occluded. This small volume is usually enough to lower the cyst pressure.⁽¹⁰⁾

When the cyst pressure is lowered it is possible to place three stay sutures close to the needle without spillage of the cyst contents. The cyst is incised between the sutures by electrocautery, and the large gauge sump drain inserted and suction continued. Warm hypertonic saline solution is injected into the cavity intermittently to keep the suction working and to evacuate hydatid sand. Sometimes the contents may be stained with bile. Bile staining implies a communication with the biliary tree and should warn against the injection of scolicidal agents. Bile duct communications should always be looked for. Once all the liquid has been drained, the laminated membrane collapses into the cavity and the cyst contents can be evacuated. The incision is enlarged once again, a small metal dish brought to the incision and evacuation of the daughter cysts begins. When all the visible daughter cysts have been evacuated, the cavity is rinsed with warm saline. The redundant portion of the cyst roof is excised.⁽¹¹⁾ The adventitia and thinned out liver are cut with electrocautery. The cut edges are oversewn with running mattress sutures using a resorbable suture material.

A careful search for exogenous daughter cyst is of paramount importance because preoperative imaging cannot exclude their existence, an identified exogenous cyst can be incised and evacuated.

- II) ENUCLEATION:** Delivery of the parasite in an intact form by opening the potential space between the laminated membrane and the pericyst well is theoretically possible for uni vesicular cyst but not for multivesicular cysts where laminated membrane is broken up.⁽¹²⁾

- III) CYSTOPERICYSTECTOMY:** The operation consists of removing the whole cyst area 'en block', including the adventitia, in the plane between the adventitia and the liver parenchyma. The plane can be developed, quite easily, but bleeding can be profuse and difficult to control. It is best applied to relatively small cysts that are contained within the periphery of the left lobe. There is no residual adventitia and scolicidal agents are unnecessary. Biliary 'fistula is common but recurrence rate is low.⁽¹³⁾

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Management of bile duct Communications:

1. Evacuation of the cyst removal, removal of germinal layer and dis-infection of the cyst cavity remain the preliminary procedure in the surgery of hydatid cyst with cysto-biliary communication.
2. The opening of the bile duct fistula is sometimes very easy to locate.
The direction of the bile duct can be determined by gentle exploration with a curved probe. Use interrupted 3-0 resorbable sutures (vicryl, Dexon, Maxon, PDS)
3. If cysto-biliary orifice seen and no cystic contents seen in a normal sized CBD, then suturing of the orifice is done. Video-laparoscopic suturing of the orifice is also done.
4. When cystic contents seen in a normal caliber CBD then choledochotomy with evacuation of cystic contents and debris from biliary tree and irrigation with 0.9% NaCl and T tube drainage of CBD kept.
5. If CBD is dilated with hydatid contents in it or in the gall- bladder, then cysto-duodenostomy is done with or without T- tube drainage.
6. Biliary stricture along with intra biliary cystic rupture then Roux –en –y hepaticojejunostomy is done.⁽¹⁴⁾
7. If intra-biliary rupture of the cyst is over-looked during surgery then biliary fistula can develop, it is treated with ERCP with nasobiliary drainage. Most commonly the biliary fistulae close down spontaneously in a few weeks.
8. Indications for biliary endo-prosthesis.
 - I. High output bile leak.
 - II. Intractable fistulae.
9. A Cyst localized close to the hilum can have a communication to a major duct that cannot be sutured without compromising biliary drainage.

In these patients, several options exist. A Roux -en-Y cystojejunostomy and resection are alternatives. A choledochotomy can be done and T tube drainage left in place till cessation of bile leak.⁽¹⁵⁾

Morbidity =19.44 -43.03%.

Mortality =1.8 -4.5%.

Morbidity high in patients under-going T –tube drainage and biliary enteric anastomosis.

The most common cause of death was sepsis and liver failure.

Management of the Residual Cavity: There are many ways of dealing with the residual cavity, depending on its size and site. Simple cyst closure, omentoplasty, capitonnage, marsupialization, drainage, Roux-en- Y cystojejunostomy are the most important options.

- 1. Simple cyst closure:** The simplest method of handling the cyst cavity after evacuating the parasite is to fill it with saline solution and to close the edges with running absorbable sutures. This procedure is applicable to Small non-calcified, uninfected cysts.⁽¹⁶⁾
- 2. Omentoplasty:** This will facilitate closure of communication with biliary tracts. The omentum is mobilized from the transverse colon, providing sufficient length to line and pack the cavity. If the omentum is short and the cavity is large and in the dome of the liver, it may be

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necessary to pedicle the omentum on one or the other gastroepiploic artery. The omentum is sutured into place and, if the cavity has a large volume, a drain is passed together with the pedicle into the lumen.

- 3. Capitonage:** This technique involves infolding redundant cyst wall into the depths of the cyst by successive layers of sutures starting from the deepest portion. It is not possible when the volume of the cyst is large and when the walls are calcified and rigid.⁽¹⁷⁾
- 4. Marsupialization:** Marsupialization (Lindemann's procedure) consists of suturing the adventitia to the parietes, thereby allowing free and direct drainage of the cavity to the exterior. The procedure is ideal for infected cysts.
- 5. Roux-en-Y cystojejunostomy:** Can also be tried an infected cyst should be treated like a liver abscess. External drainage has to be maintained until the cavity obliterates⁽¹⁸⁾

IV) LAPAROSCOPIC EXCISION⁽¹⁹⁾:

Introduction: It is an alternative to open surgery.

Principles:

1. Evacuation of cyst contents.
2. No spillage.
3. Sterilization of cyst cavity with scolicidal agents.
4. Cavity management.

Pre-requisite: Relationship of cyst with biliary tree is essential.

Material required: Wide bore suction cannula of size 18 mm with 2 co-axial suckers with enough safety against spillage of contents.

Indication:

1. Pedunculated cyst.
2. Peripherally located ehinococcal hydatid cyst.⁽²⁰⁾
3. Polycystic disease of liver and biliary cysts.

Procedures done:

1. Cystostomy with omentoplasty.
2. Partial cystectomy with omentoplasty.

Complications:

1. Haemoerrhage.
2. Infection.

Advantages:

1. Safe (Bickel A. et.36 1994).
2. Simple.

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- V) THE P.A.I.R. METHOD:** There have been good reported results of percutaneous USG treatment of hepatic hydatid cyst. The treatment involves puncture, aspiration, injection (of scolicalidal agents), and re-aspiration (PAIR) under usa or CT guidance ³⁸. In patients with cysts larger than 6cm in diameter, PAIR is followed by per cutaneous drainage.⁽²¹⁾



Fig. 4: Hydatid Fluid and Daughter cyst aspiration



Fig. 5: Hydatid Cyst of Left lobe of liver

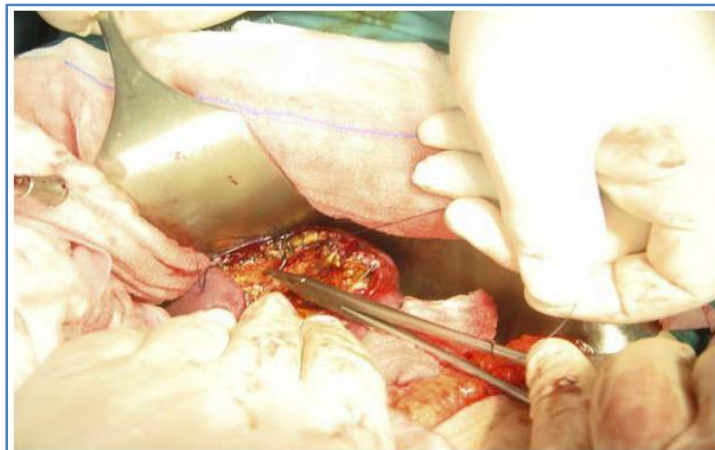
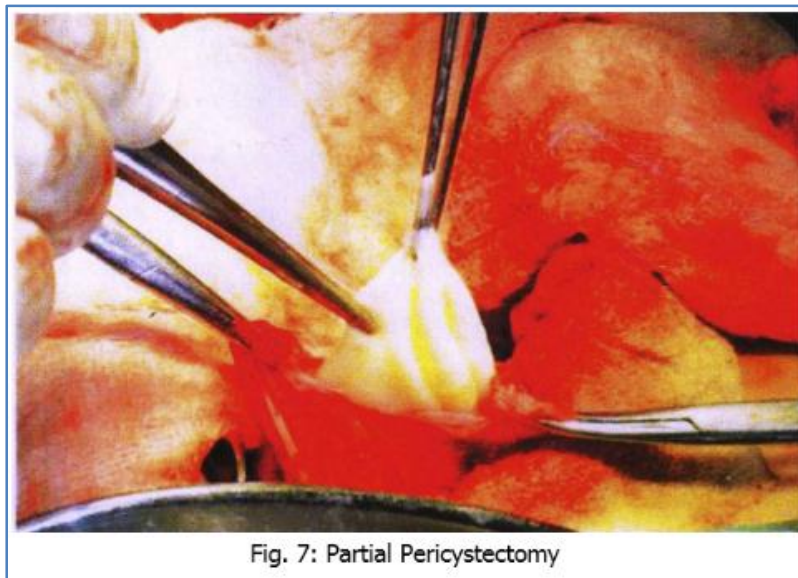


Fig. 6: Omentoplasty for residual hydatid cyst cavity

**MATERIAL AND METHODS:**

Source of Data: This study was conducted by selection of patients admitted in the wards of the department of general surgery of a tertiary care hospital.

Ethical Clearance: Obtained from the research and the dissertation Committee of this institution for the study.

Period of Study: Over a period of 1 year from January 2013 to January 2014.

Study Design: It is a prospective & analytic study.

Sample Size: Total No. of 12 patient included

Inclusion Criterion:

1. Age.>14 yrs to >60 yrs.
2. Sex; Both males and females.
3. Both pre and post operatively diagnosed hyatid disease.

Exclusion Criterion:

1. Age 0 to < 14 yrs.
2. Patients diagnosed to have hydatid disease by investigations but proved otherwise by surgery. Follow up Period: 1 year.

METHODOLOGY: This prospective analytic study was conducted by selection of 12 consecutive cases with hydatid disease in different parts of the abdomen from tertiary care hospital, during the period from 2013 to 2014.

After the obtain of clearance from ethical committee for research and dissertation. The data in the study was collected by the use of a pretested proforma to collect relevant information from individual patient, by a meticulous clinical examination and specific investigations of 12

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cases for hydatid disease were studied and a follow up for a minimum of 1 year was conducted after the treatment during the study period.

Inclusion & Exclusion Criteria were observed in all these cases, and a thorough clinical examination was carried out. Separate or specialized relevant Investigation for a particular case needed for diagnosis was carried out. Patients were then taken for surgery after the required pre-operative preparation and finally proved by operative removal of cysts and demonstration of hydatid fluid, daughter cysts. Specimen was sent for histopathological examination.

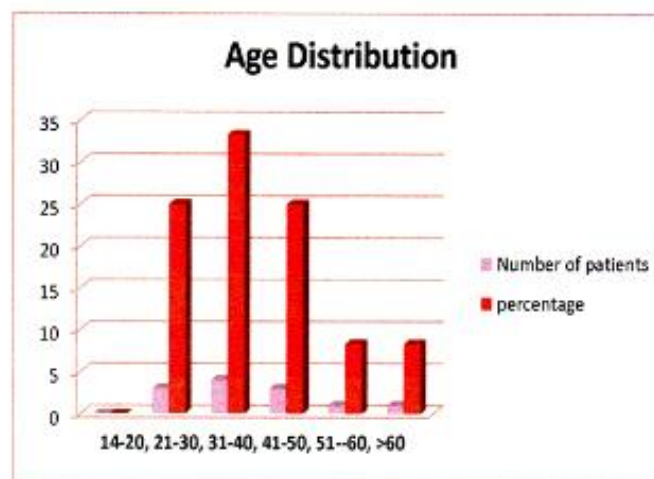
All the cases in the study group were analysed with reference to age, sex, occupation, contact with dogs and sheep, organ involved, clinical manifestation and treatment. All cases were discharged and advised to come for follow up for once in a month for a year.

OBSERVATIONS AND RESULTS: DESIGN: Our prospective study included 12 cases of hydatid disease treated at from tertiary care hospital during the period from 2013 to 2014.

Two cases of enucleation with external drainage developed infection of residual cavity (28.57%). Two cases of enucleation with external drainage (28.57%) and one case of enucleation with capitonnage (25%) developed biliary fistula. Complications occurred in total of 5 cases, all of which were managed conservatively.

Table 1: Age Distribution

Age in years	No. of patients	Percentage
14-20	0	0
21-30	3	25.00
31-40	4	33.33
41-50	3	25.00
51-60	1	8.33
>60	1	8.33



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Table2: Sex Distribution

Sex	No of Patients	Percentage
Male	4	33.33
Female	8	66.66

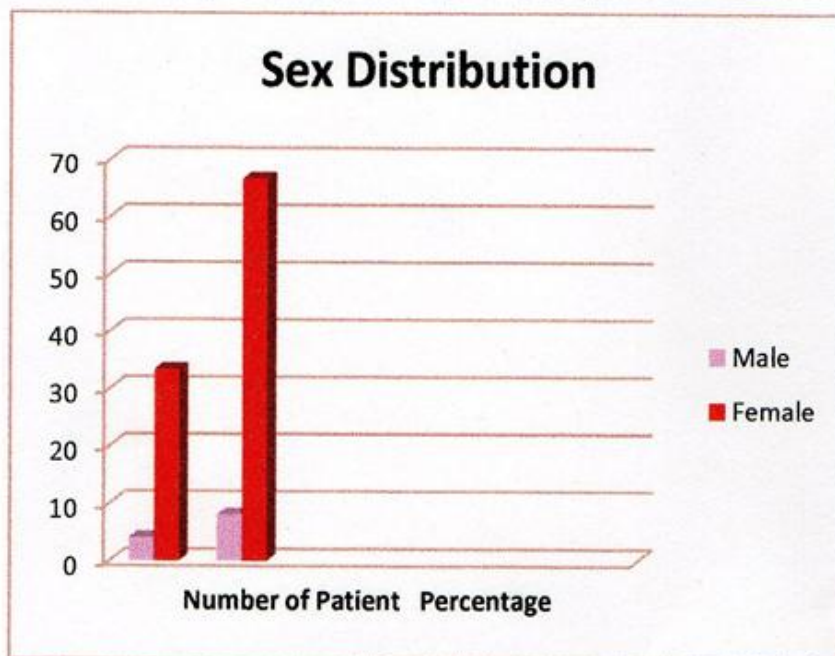


Table 3: Occupational Distribution:

Occupation	No of cases	Percentage
Labourers	3	25
House wives	2	16.66
Students	0	0
Agriculturist	5	41.66
Others	2	16.66

5 of the 12 patients were agriculturists, which makes up the largest group (41.66%) followed by labourers which included 3 patients (25%).

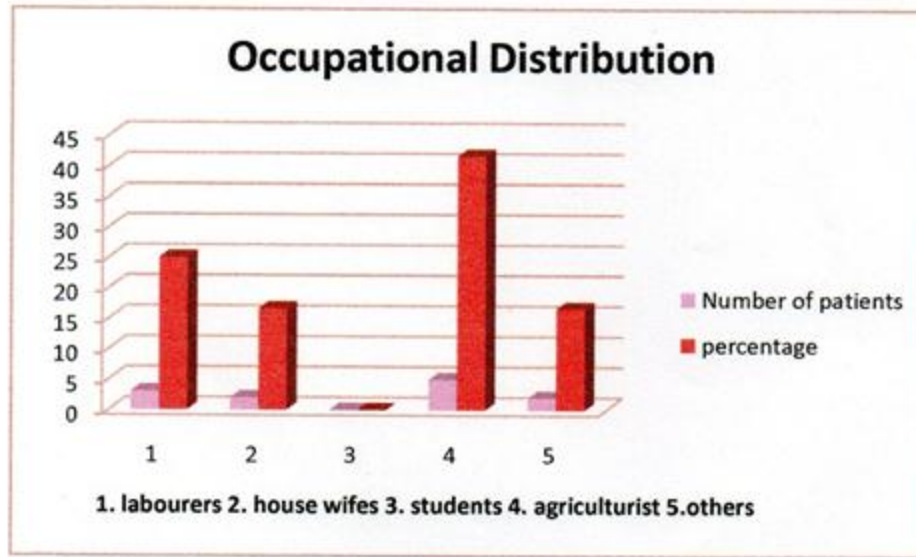
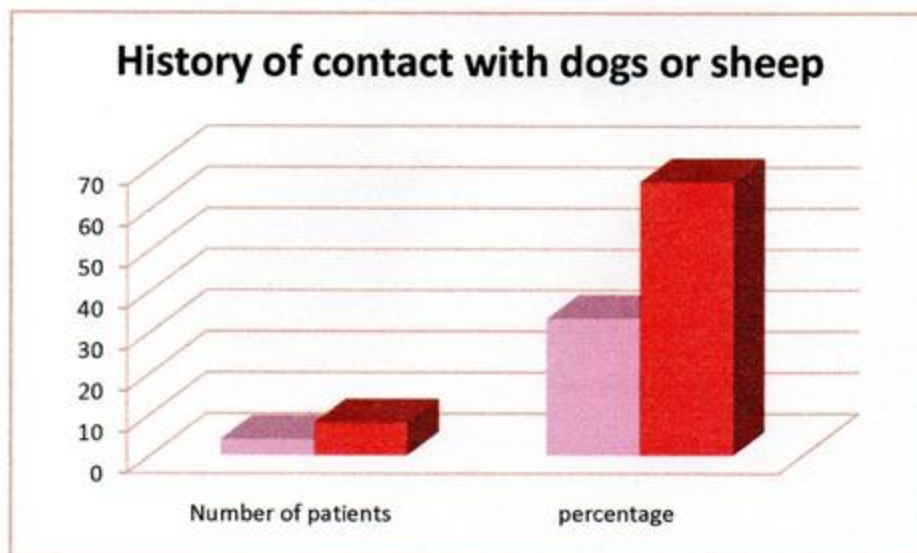


TABLE 4 : HISTORY OF CONTACT WITH DOGS OR SHEEP

Contact with dogs or sheep	No. of cases	Percentage
Present	4	33.33
Absent	8	66.66

History of contact with sheep or dogs was present in 4 patients (33.33%) and absent in 8 patients (66.66%).



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TABLE 5 : History of Hydatid cyst in different sites

Sites	No. of Cases	Percentage
Liver	11	91.66
Spleen	1	8.33
Peritoneum & Dorsic	0	0
Muscle and Soft tissue	0	0
Mesentery	0	0
Omentum	0	0

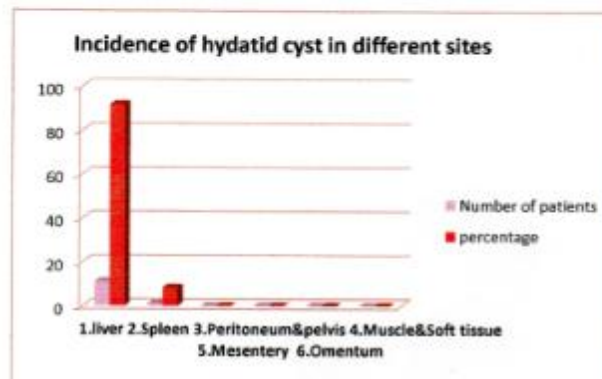
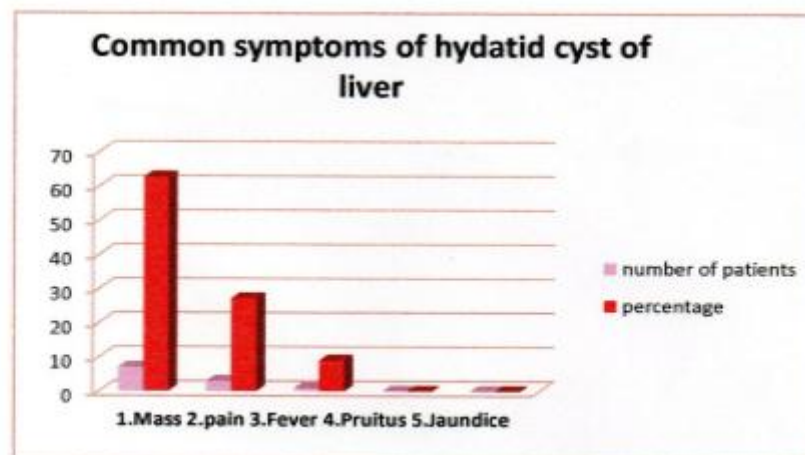


TABLE 6 : COMMON SYMPTOMS OF HYDATID CYST OF LIVER

Symptoms	No. of cases	Percentage
Mass	7	62.72
Pain	3	27.27
Fever	1	9.09
Pruitus	0	0
Jaundice	0	0



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Table 7: Treatment of Hydatid cyst of Liver (n=11)

Operation	No. of Cases	Percentage
Enucleation with a) Capitonnage	1	8.33
b) External drainage (T)	7	63.66
c) Omentoplasty	3	25.00

Most of our patients were treated by enucleation with external drainage 7

Patients i.e. 63.66%.

Omentoplasty was done in 3 cases (25%).

Capitonnage was done in 1 case (8.33%).

TREATMENT OF HYDATID CYST OF LIVER

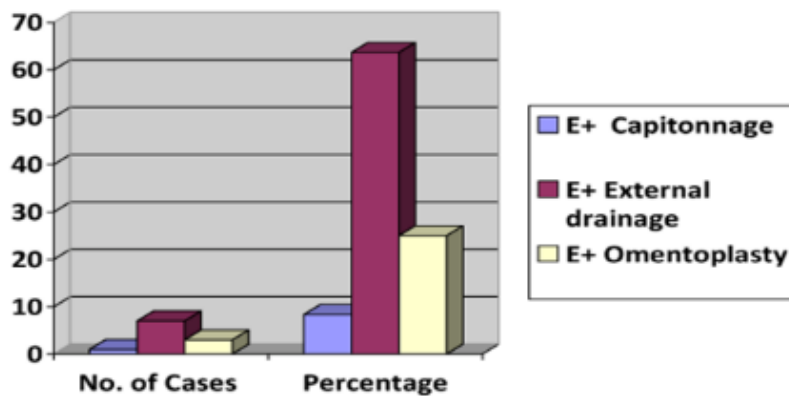
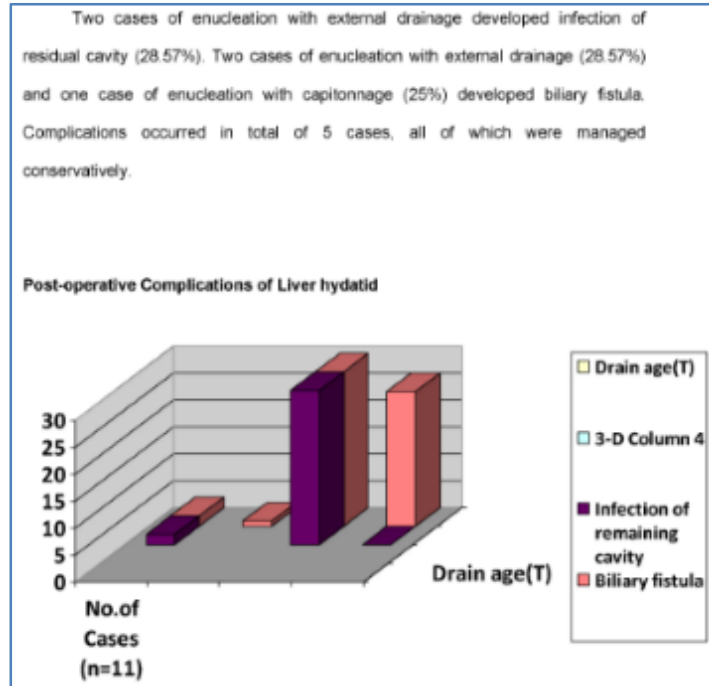


Table 8 : Post-operative Complications of Liver hydatid.

Computation	No. of Cases (n=11)		Percentage	
	External Drain age(T) (n=7)	Others (n=4)	External drainage	Others
Infection of remaining cavity	2		28.57	0
Biliary fistula	2	1	28.57	25

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DISCUSSION: In our study we had patients in all age groups, the youngest being 21 years and the oldest being 65 years. The distribution of disease between men and women was 33.33% and 66.66% respectively in our study.

In the present study, history of contact with dog or sheep was present in 33.33% of patients which is comparable with a majority of our patients(66.66%) as well as patients in the above compared study had the disease without contact with animals. This may be attributed to the small study group (12 cases) and short period (1year) of our study.

Liver was the most commonly involved organ. In our study 11 patients (91.66%) had liver hydatid and lung was not at all involved.

The commonest symptom of hydatid cyst of liver was mass per abdomen, 7 Patients (62.36%) followed by pain abdomen 3 patients. The presentation of cases with mass could be due to the fact that most patients neglected their aching pain or took on the counter analgesics and never consulted their doctors due to ignorance or low financial status.

Only one patient presented with fever, in which the cause of fever in two of the patients were infected hydatid cysts.

Table 9: Treatment of Liver Hydatid cyst.

Operation	Present study (%) (n=11)	Ahmed A et al ⁷⁴ (n=304)	R.V.S. Yadav et al (n=60) ⁷⁷
Enucleation with			
a. External drainage	63.66	40.1	36.7
b. Internal drainage	-	3.3	20
c. capitonnage/Capsulorrhaphy	8.33	32.9	6.6
d. Omentoplasty	27.70	13.2	1.7
Peri-cystectomy	-	7.2	31.7
Hepatectomy	-	3.3	3.3

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In our study, all patients with hydatid cysts in liver were treated by partial cystectomy followed by either external tube drainage (63.66%) in majority of cases or omentoplasty (27.72%) or capitonnage (9.09%). Cysts in other sites i.e., spleen was treated by splenectomy. Post operatively no complication was encountered in this group. Postoperatively all cases were put on albendazole 400mg b. d for 21 days. Total of 3 cycles with 1 week gap in between was given.

Table 9: Post Operative Complications of Liver Hydatid

Complication	Present study (n=11)		Ahmed A et al. ⁷⁴	
	ED(n=7)	Other(n=4)	EX (n=122)	Other (n=182)
Infection				
a) Remaining cavity	28.59		29.56 6.64.9	2.24 9.16
b) Cholangitis				
c) Septicemia				
Biliary fistula	9.09	9.09	8.2	-
Pulmonary complication	-	-	-	1.1

In our study, complications were only seen in 4 cases treated with enucleation and external tube drainage. Two patients had infection and two had external biliary fistula. One patient who underwent enucleation with capitonnage developed external biliary fistula. All patients improved with conservative treatment and there was no mortality.

All our patients were followed up every month after discharge for a minimum period of 6 months for persistent symptoms and/or other complications of disease or surgery. Follow up of patients was carried out using meticulous clinical examination and ultrasound for abdomen and x ray for chest and other relevant investigation. Now none of our patients had any complaints or recurrence during following up Period.

CONCLUSIONS: The disease affected adult more commonly in middle aged group with female predominance. Absence of history of contact with pets doesn't rule out the possibility of disease. Liver & spleen, in this descending order were the most commonly involved organs. Mass per abdomen was the most common presenting feature in liver hydatid.

Diagnostic modality for abdominal and Spleen hydatid were USG abdomen and CT scan.

Majority of liver hydatid were treated by enucleation with external tube drainage which is an optimum treatment in our institute. As far as splenic hydatid is concerned, it can be managed

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with splenectomy and tube drainage effectively. Infection and biliary fistula which are the common complications post operatively in liver hydatid was managed expectantly.

No recurrence was observed in the follow up of patients during a period of 1 year and no mortality was documented. Since the study population is small (12 cases) and the study period (1 year) is short, the study has its own limitation in accurate assessment.

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