ORIGINAL RESEARCH PAPER

General Surgery

A CASES STUDY ON MANAGEMENT OF HYDATID LIVER DISEASE

KEY WORDS:

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INTRODUCTION

- Human hydatid disease or cystic echinococcosis (CE) is parasitic disease of world-wide distribution and is endemic in sheep rearing areas including the Indian subcontinent
- Physicians and Surgeons may encounter the disease sporadically because of increased travel and immigration
- It is caused by the parasite Echinococcus granulosus parasite that lives in the small intestine of dogs and other canines
- Eggs are eliminated in the feces and when ingested, liberate their larvae in the duodenum of an intermediate host. The Intermediate host can be sheep
- Humans are accidental intermediate hosts
- The most common site of occurrence of hydatid cysts in humans is the liver (50%–93%)
- Liver hydatid cysts (LHCs), left untreated grow and follow one of several courses: develop fistulae with adjacent organs or the biliary system, rupture into the peritoneal cavity seeding daughter cysts

MATERIALS AND METHODS

- The Five patients described in this report were seen and evaluated for complain of abdominal pain & Gastro-intestinal manifestation
- Patients were interviewed and examined after which routine blood investigation done. Blood samples were assessed for hematological parameters
- A provisional diagnosis of hydatid disease was made based on the clinical manifestations, hematological and biochemical parameters, and serological tests. The diagnosis was confirmed by radiological imaging.
- Of the five patients, four were male and one was female. Three of the five cases had frequent contact with dogs and farm animals and live in agricultural sheep-grazing area which is in line with the general epidemiology of hydatid disease.
- All of them had intermittent colicky pain associated with nausea and vomiting
- In one of the case liver had a relatively large size with palpable lump over right hypochondrium region. Hematological studies revealed leukocytosis in all cases and eosinophilia in two cases.
- RBC count and Hb content were within normal range. Total serum bilirubin was elevated in one case and was within normal range in rest
- The biochemical serum level of ALT was significantly raised in one patient (case one) and the AST level was increased in cases one and two. Analysis of the liver enzyme ALK revealed abnormal increase in two cases and normal level in rest
- After completion of this evaluation process, medical and surgical management was done & assessed.
- All five patients were successfully managed with one patient developed pulmonary complications & later death occurred. Rest of all were asymptomatic at the 6-month follow-up
- Patients were divided into two groups, according to the surgical procedure that was performed, including unroofing procedure, hepatectomy and peri-cystectomy
- All patients with signs of an active cyst received Albendazole pre-operatively for 3 to 4 weeks (at a dose of 10 mg/kg) and subsequently for 4 weeks after the operation. Broad spectrum antibiotics were administered peri-operatively in all cases

Radiology Investigation					
X-ray (CXR & AXR)	NAD	Rt. dome of diaphragm elevated	NAD	Rt. dome of dia-phra-gm ele-vated	NAD
Ultra-sono-graphy	Mul-tiple cyst	Cyst with daughter cysts	Cyst with laminated membrane	Single cyst	Calci-fied cyst
CECT Abdomen	Active stage	Active stage	Active stage	Not done	Not done
Management					
Conser-vative	Alben dazole	Alben-dazole	Alben-dazole	Alben-dazole	Alben-dazole
Surgical	Open cyst evacua-tive	Open cyst evacuation	Peri cystectomy	NAD	NAD
Post-op comp-lications	NAD	Pulmonary	NAD	NAD	NAD
Follow up	6 month	DEATH	6 month	6 month	6 month

	CASE 1	CASE 2	CASE 3	CASE 4	CASE 5
Gender	Male	Female	Male	Male	Male
Age	52	40	30	55	48
Occupation	Farmer	Farmer	Animal handler	Shop owner	-
Religion	Hindu	Hindu	Muslim	Hindu	Hindu
Residence	Gujarat	Gujarat	Uttar Pradesh	Gujarat	Gujarat
Animal contact	YES	YES	YES	NO	NO
Symptoms	Epiga-stric pain	RHC Pain Vomiting	RHC pain RHC swelling	RHC Pain Vomiting Fever	RHC Pain
Physical exam. (Per Abdomen)	Soft & NT	Soft & NT	RHC Lump	Soft & NT	Soft &NT
Blood test					
Haemo-globin	11	10.5	11.2	12.8	9.4
WBCs	9600	14400	8200	11000	5400
Eosinophils	8	18	14	7	5
Bilirubin	0.9	1.38	1.2	0.7	0.8
ALT	58	34	22	41	24
AST	54	40	38	34	27
ALK	188	230	149	120	136

DISCUSSION

Treatment Modalities

A. Surgical Treatment

- Until three decades ago, surgery was the only treatment option available for LHCs, applicable over the entire spectrum of the disease
- Bickel et al initially advocated the use of a large transparent beveled cannula. Saglam described a perforator-grinder-aspirator apparatus designed specifically for the evacuation of hydatid cysts. Palanivelu developed the "Palanivelu Hydatid System" (PHS) consisting of a complex system of fenestrated trocar and cannulas to avoid peritoneal spillage. PHS not only prevents any spillage of hydatid fluid but also assists complete evacuation of the cyst content and allows intracystic magnified visualization for cyst-biliary communication
- These may be conservative or radical. Conservative procedures aim at sterilization and evacuation of cyst content, including the hydatid membrane (hydatidectomy), and partial removal of the cyst. The evacuation and hydatidectomy consist of puncture of cyst and aspiration of part of the content to permit introduction of scoliocidal agent and total aspiration thereafter.
- The risks are anaphylactic shock, chemical cholangitis, if the cyst communicates with the biliary tree, and spillage of the cyst contents and secondary hydatidosis. Relapse rates of up to 20% are reported after surgery
- Percutaneous treatment of LHCs introduced in the mid-1980s has become an attractive alternative to surgery and medical management.
- The Percutaneous Treatment used was to puncture the cyst, aspirate cyst fluid, inject a scoliocidal agent (e.g., hypertonic saline, 95% ethanol, albendazole or betadine), and re-aspirate the cyst content (PAIR)

Uncomplicated Patients

Percutaneous or Laparoscopic Evacuation	Open Evacuation or Resection
Gharbi type I or II	Gharbi type IV or V
Anterior cysts	Posterior cysts
Peripheral cysts	Central cysts
One to three cysts	More than three cysts
Small cysts	Large cysts
No or minimal calcification	Heavy calcification

Complicated Patients

Percutaneous or Laparoscopic Evacuation	Open Evacuation or Resection
Infected cysts meeting above criteria	Infected cysts meeting above criteria
Biliary communication—not indicated	Biliary communication—indicated
Pulmonary communication—not indicated	Pulmonary communication—indicated
Peritoneal rupture—not indicated	Peritoneal rupture—indicated

B. Medical Treatment:-

- The interest in investigating medical therapy was not only facilitated by the increasing availability of ultrasonography and a better understanding of imaging features reflecting involution, but also made evaluation more objective.
- Mebendazole was the initial agent but due its poor efficacy has largely been replaced by the better absorbed albendazole (10–15 mg/kg/day) in LHC. Although the standard regimen is using three cycles of 1 month with a break of 14 days between courses, duration of treatment of 3 month.

C. Watch and Wait:-

- A good proportion of cysts are consolidating and calcifying (become completely inactive) without any treatment
- Cysts that have arrived at this stage and behave quietly (i.e., do not compromise organ functions or cause discomfort) seem to remain like this or stabilize even further. This decision must, however, be accompanied and verified by long-term ultrasonographic follow-up

CONCLUSION

Liver hydatid disease is a complex disease with evolved phase when the cyst grow followed by involution process during which parasite is gradually dying leaving behind calcified cyst or scars.

Each active cystic stage carries its own risk for serious life threating complications. For complex disease no "one size fits all" approach is adopted and stage specific approach is necessary

REFERENCES

1. P. Ronan 0' Connell, Andrew Mccaskie, Robert D. Sayers in: Textbook of Bailey & Love's Short Practice of Surgery. 28th edition. The Liver. Chapter 69. 2022
2. Nikolaso A. Chatzizcharias, Kathleen K. Christians, Henry A. Pitt in: Maingot's Abdominal Operations. 13th edition. 2020. Hepatic Abscess and Cystic disease of liver. Chapter 56