

The Brief Case: Incidental Finding of Cystic Echinococcosis during Evaluation for Haematemesis

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Abstract:- Hydatidosis is a global parasitic zoonotic infection which affects virtually any organ system in body. It is caused by larval stage of cestode *Echinococcus granulosus*. Being endemic it is a cause of substantial morbidity and mortality in India. Here we report a case of a 74 year old female from rural area of Wardha, Maharashtra who presented with multiple episodes of haematemesis. On ultrasonography of abdomen, large well defined hypo-anechoic cystic lesions with multiple septations were noted involving the right lobe of the liver. Contrast Enhanced Computed Tomography (CECT) of the abdomen and pelvis revealed round well-defined peripherally enhancing cystic multiloculated lesion. The cyst related to porta hepatis led to the compression of blood vessels in and around the liver mainly multiple peri oesophageal and mesorectal collaterals. After excision of cyst, the hydatid fluid sample was sent for microbiological examination which confirmed the diagnosis.

Keywords:- Hydatidosis, *Echinococcus granulosus*, haematemesis, porta hepatis

I. INTRODUCTION

Hydatid disease causes an immense health problem in developing countries. Hydatid disease is endemic in India with annual incidence is varying, 1–200/100,000 population.¹ This zoonotic infection transmitted by dogs in livestock-raising areas is caused by the larval stage of cestode *Echinococcus granulosus*. It is characterised by cystic lesions in the liver in 70% of cases, the lungs in 25% of cases and at other sites such as the spleen, kidney, pancreas, brain, ovary, mesentery, vertebra and soft tissue of the neck.² In this article, a case of haematemesis with incidental finding of hydatid cyst in a 74-year old patient is presented.

II. CASE

A 74-year old female patient, resident of Bhojankheda; Taluka-Deoli; District Wardha, farmer by occupation presented with complaints of multiple episodes of haematemesis 4 episodes a day. It was associated with melaena 2-3 episodes a day. On general examination, the vitals were stable. On per abdomen examination, the abdomen was distended. She is a known case of hypertension since 4 years which is controlled on medication.

Laboratory investigations comprising renal function test, and liver function test were done and found within normal limits. Complete blood count revealed markedly reduced Haemoglobin (5.6 g/dl) and increased white blood cell count. Endoscopy revealed bleeding esophageal varicose veins.

On ultrasonography, large well defined hypo-anechoic cystic lesions with multiple septations noted involving the right lobe of the liver.

Contrast Enhanced Computed Tomography (CECT) of the abdomen and pelvis revealed round well-defined peripherally enhancing cystic multiloculated lesion of size 10.9×12.4×14.2 cm involving the segments V, VI, VIII of right lobe of liver. Multiple variable sized peripherally arranged rounded daughter cyst seen within with central non enhancing isodense content giving spoke wheel appearance. No foci of calcification were observed with approximate wall thickness measuring approximately 5 mm. Medially, the cyst is related to porta hepatis which led to the compression of the common hepatic and common bile duct with resultant dilatation of the left intra hepatic biliary radicals. The portal vein appeared tortuous at the porta with multiple dilated periportal and peri gall bladder collaterals of maximum diameter of 10.9 mm. Multiple peri oesophageal and mesorectal collaterals also seen. Posteriorly it caused a significant compression over IVC, right renal vessels.

For treating the patient, excision of cyst was done surgically under general anaesthesia. Patient was started on albendazole 600 Mg 12 hourly for 6 weeks

The excised cyst was sent for Microbiology and histopathology investigation. In Microbiology, on unstained wet mount examination of the hydatid fluid, multiple hooklets and protoscolices suggestive of *Echinococcus granulosus* were visible. The histological features of the cyst wall were consistent with the hydatid cyst.

III. DISCUSSION

Cystic echinococcosis also known as hydatid disease, is caused by *E. granulosus*. Majority of the *Echinococcus* cysts are seen in the liver (approximately 70%) followed by lungs (15–47%), Kidney (2–4%), bones, brain, heart, spleen, pancreas, and muscles are less likely to be involved.¹

➤ *Life cycle and pathogenesis:*^{3,4}

E. granulosus is a tapeworm (length of 2-7 mm) who morphologically has head which comprises of hooklets and suckers, neck and proglottids. The parasite life cycle involves carnivores such as dogs and other canids (coyotes, dingoes, red foxes) as definitive hosts and herbivores such as sheep, pigs, goats, horses as intermediate hosts.

Definitive hosts are infected by ingestion of infected animals containing hydatid cysts. Adult worms reside in the canine small bowel and their eggs or gravid proglottids are shed in the feces.

The intermediate hosts while grazing ingest these eggs. In small intestine, these eggs hatch and an oncosphere larva is released from the egg which penetrates the intestinal lamina propria, reaching the blood and lymph vessels which transport it to liver, lungs and other organs, where oncosphere larvae can develop into metacestodes (also known as hydatid cysts). Humans accidentally become “aberrant” intermediate hosts, after ingestion of *Echinococcus* eggs excreted by infected carnivores.

Hydatid cysts are spherical, fluid-filled, unilocular vesicles, consisting of an internal cellular layer (germinal layer) and an outer acellular, laminated layer. The cysts gradually expand and cause a granulomatous host reaction, followed by the development of a fibrous tissue layer (pericyst). The protoscolices bud from the germinal membrane; with time, internal septations and daughter cysts develop.

When definitive hosts ingest the cyst-containing organs of intermediate hosts, the protoscolices evaginate, attach to the intestinal mucosa and develop to adult stage in 30-80 days. Thus, the life cycle continues.

Humans are mostly asymptomatic for long period of time. In most cases, there is only one cyst, whereas in some cases, multiple cysts may be present (20–40%). Hydatid cyst of liver may present with signs and symptoms, such as hepatomegaly, right upper abdominal or epigastric pain, nausea, and vomiting.

Symptoms depend on the size and the number of cysts and possible compression of surrounding structures.

The neo-formation of venous collaterals around the occluded portal vein is caused by extra hepatic portal hypertension with the portal vein thrombosis. The cavernous transformation leading to secondary portal venous formation to convey the mesenteric blood to the liver.⁵ After the initial pathology affecting the hepatic hilum, the cavernous transformation occurs within 3 months.⁶

The compensatory neovascularization and fibrotic reactions creates some irreversible anatomic and physiological changing around the hilum of the liver leading to cirrhosis and diseases leading to thrombosis (infection or hypercoagulation).⁶

IV. DIAGNOSIS

Microbiological diagnosis is made by identifying the presence of Hydatid elements, especially hooklets on wet mount. Gram stain revealed blue coloured hooklets suggestive of *E. granulosus*. Histopathologically, fragments suggestive of a laminated membrane are present on smears, confirms the diagnosis of hydatid cyst.



Fig 1:-Wet mount of hydatid fluid showing Protoscolices with hooklet of *E. granulosus*

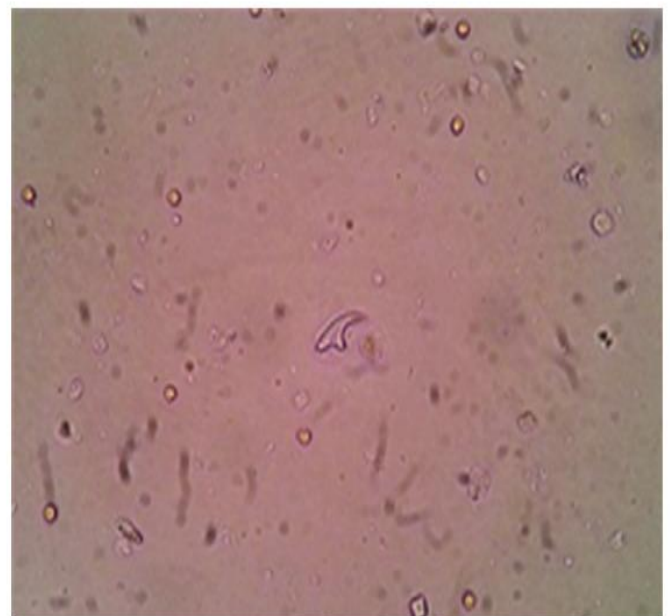


Fig 2:- Wet mount showing hooklet of *E. granulosus*

V. CONCLUSION

Hydatid cyst is a public health problem, in India. Most of the cases are from rural areas caused by eating raw vegetables and drinking water contaminated by infected dogs . It remains silent for years before causing its symptoms. Microbiological investigations plays a key role in confirming the diagnosis.

Surgical intervention along with oral mebendazole or albendazole, before and after surgery for uncomplicated hydatid liver cysts, is the preferred treatment of choice.

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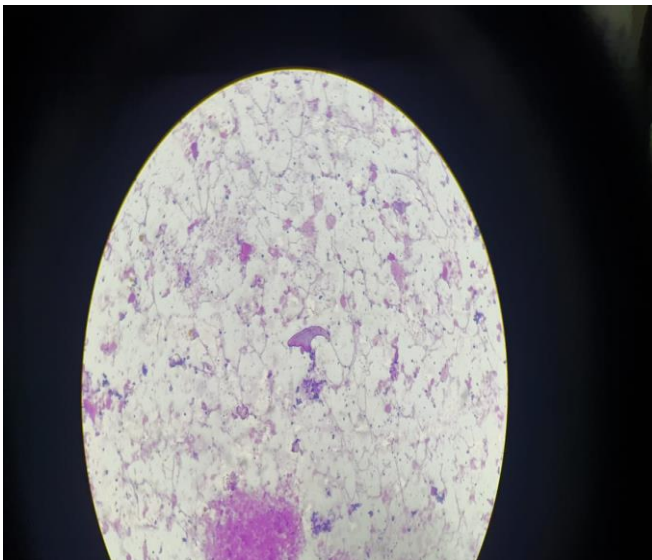


Fig 3:- Gram stain showing hooklet of E. granulosus



Fig 4:- Histopathological examination of Cyst demonstrating three layers of Hydatid cyst



Fig 5:- Excised Hydatid cyst