

RETROSPECTIVE STUDY OF HYDATID CYST – CASE STUDY OF 30 CASES

Pathology

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KEYWORDS

INTRODUCTION:

Hydatid cyst is zoonotic disease caused by larval stages of taeniid cestodes of the genus *Echinococcus*. Six species are recognized; out of which four species are public health concern. Most common *Echinococcus* species which cause human hydatid cyst is *Echinococcus granulosus*. It constitutes 95% of all hydatid cyst disease. [1-3]

Life cycle of *Echinococcus* comprising adult *Echinococcus granulosus* (3—6 mm long) resides in the small bowel of the definitive hosts, dogs or other canines. Gravid proglottids release eggs that are passed in the feces. After ingestion by a suitable intermediate host (under natural conditions: sheep, goat, swine, cattle, horses, camel), the egg hatches in the small bowel and releases an oncosphere that penetrates the intestinal wall and migrates through the circulatory system into various organs, especially the liver and lungs. In these organs, the oncosphere develops into a cyst that enlarges gradually, producing protoscolices and daughter cysts that fill the cyst interior. The definitive host becomes infected by ingesting the cyst-containing organs of the infected intermediate host after ingestion the protoscolices evaginate, attach to the intestinal mucosa, and develop into adult stages in 32 to 80 days [4]

The clinical manifestations of cystic echinococcosis are variable and are determined by site, size, and condition of cyst [6]. Most common site is liver, sign and symptoms include hepatomegaly, epigastric pain, nausea and vomiting, if it get ruptured it cause fatal anaphylaxis.

Hydatid cyst can be solitary or multiple, imaging technique is good diagnostic tool for hydatid cyst like X ray, USG, CT and MRI. Other diagnostics tools includes fluid cytology, FNAC Histopathology, Antibody test, immunoblot assay, ELISA, indirect hemagglutination test [5]

METHOD:

We present a case series of hydatid cyst in FNAC, Fluid Cytology and Histopathology, based diagnosis over a period of 5 year. All cystic swelling all over body, hydatid cyst is considered as differential diagnosis in FNA procedure.

FNAC was performed with 22/23 gauze needle and 5 ml syringe for the cases of thigh mass and salivary gland. Cases of liver and lung HD, CT guided FNA procedure was done. Wet mount smears are evaluated for hooklets of *Echinococcus*. Aspiration was air dried for Field stain and Leishman stain, wet fixed in 95% alcohol for Papanicolaou stain.

Total 30 cases were diagnosed over a period of 5 year. (March 2015 to March 2020)

Body fluids were first evaluated for wet smear study, later on fluid samples were centrifuged and smears are prepared and field stain on dry smear and Papanicolaou stains done on wet fixed smear.

Histopathological examination of all sample were screened for hydatid cyst disease.

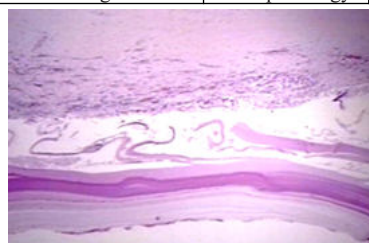
RESULT:

This study include 30 cases of hydatid cyst which included 05 cases on FNAC, 03 cases on body fluid analysis and 22 cases on Histopathological examination.

Respective frequencies of detection of hydatid cyst from different sites are shown in (Table 01).

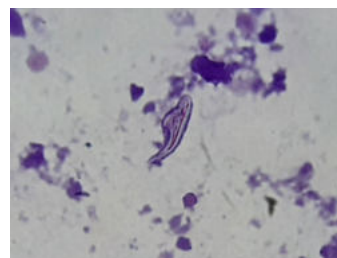
Table: 01. Frequency of Hydatid cyst

S. No.	Specimen	Technique	No. of Cases
1.	Thigh Mass	FNAC	01
2.	Liver Mass	FNAC	02
3.	Lung Mass	FNAC	01
4.	Salivary gland swelling	FNAC	01
5.	Pleural Fluid	Fluid Cytology	02
6.	Peritoneal Fluid	Fluid Cytology	01
7.	Spleen	Histopathology	01
8.	Ovary	Histopathology	01
9.	Peritoneum	Histopathology	01
10.	Breast	Histopathology	01
11.	Lesser Sac	Histopathology	01
12.	Broad Ligament	Histopathology	01
13.	Liver	Histopathology	10
14.	Lung	Histopathology	06



01. HPE:

Photomicrograph showing Cyst wall consists of three layers- outer pericyst consisting of mononuclear cells, eosinophils and giant cells surrounded by fibroblast. Ectocyst is intermediate layer composed of acellular, chitinous, laminated, hyaline membrane. Endocyst is the inner germinal layer bearing daughter cyst and scolices bearing row of hooklets.



02. Cytology:

Photomicrograph showing hooklets (Field Stain x400)

Table-2: Summary of clinical data and methods of findings of Hydatid cyst

Case no.	Type of specimen	Age/sex	Clinical presentation	Method
1	Thigh Mass	22 y/M	Lipoma	FNAC
2	Liver Mass	30 y/F	Abdominal Pain	FNAC
3	Liver Mass	17y/F	Abdominal Pain	FNAC
4	Lung Mass	46y/M	Dry cough and Mild fever	FNAC
5	Salivary gland swelling	22 y/M	Sialadenitis	FNAC
6	Pleural Fluid	50y/F	Chest pain	Fluid cytology
7	Pleural Fluid	48y/M	Dyspnea	Fluid Cytology
8	Peritoneal Fluid	18 y/F	Abdominal Pain	Fluid cytology
9	Spleen	23 y/M	Abdominal Mass	HPE
10	Ovary	28 y/F	Lower abdominal mass	HPE
11	Peritoneum	65y/F	Pain in left upper abdomen	HPE
12	Breast Mass	35y/F	Breast Mass	HPE
13	Lesser Sac of Abdomen	22y/F	Pain in abdomen	HPE
14	Broad ligament	65y/F	Pain in abdomen	HPE
15	Liver	25Y/M	Pain in abdomen	HPE
16	Liver	38y/F	Pain in abdomen	HPE
17	Lung	27y/M	Dyspnea	HPE
18	Liver	62y/F	Pain in abdomen	HPE
19	Liver	28y/M	Fullness of abdomen	HPE
20	Lung	32y/M	Dyspnea	HPE
21	Liver	24y/F	Pain in abdomen	HPE
22	Liver	18y/F	Pain in abdomen	HPE
23	Liver	40y/M	Nausea and vomiting	HPE
24	Lung	52y/M	Dyspnea	HPE
25	Lung	22y/M	Chronic cough, Dyspnea	HPE
26	Liver	26y/M	Pain in abdomen	HPE
27	Liver	43y/F	Nausea and vomiting	HPE
28	Lung	51y/F	Chronic cough, Chest Pain	HPE
29	Liver	44y/F	Pain in abdomen	HPE
30	Lung	38y/F	Chronic cough, Chest Pain	HPE

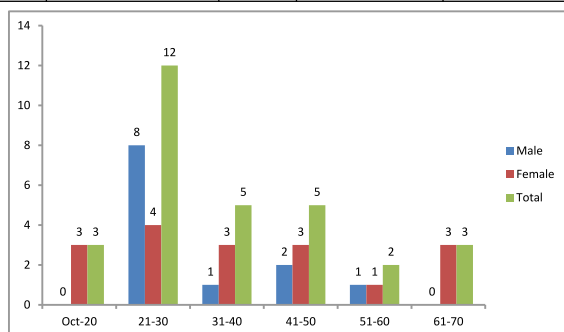


Fig. 03: Number of HD diagnosed case by sex and age group

Total numbers of 30 cases were diagnosed on FNAC, Fluid Cytology and HPE. On FNAC 5 cases, Fluid examination 03 cases and on Histopathological examination 22 cases were diagnosed. Out of total 30 cases, 17 cases were female and 13 cases were male. Male to female ratio was 0.76%. Most common site was liver comprising 12 cases out of 30, with 08 cases were female and 04 cases were male, showing female predominance. Second most common site was lung comprising

of 06 cases with 05 cases were male and 01 was female. Most common age preponderance was 20 to 30 year.

DISCUSSION:

Human Hydatid disease is a zoonotic infection caused by the tapeworm of the genus *Echinococcus*. It produces a significant impact in public health. WHO 2008-2015 include hydatid disease in strategic plan for control of neglected tropical disease (NTDs)[7]. Global incidence of hydatid disease is 1-200 per 100000 inhabitants [8]. The 2015 WHO food borne disease burden epidemiology reference group (FERG) estimated echinococcosis to be the cause of 19300 deaths and around 871000 disability adjusted life year (DALY) globally each other [9].

Most common site of hydatid disease is liver (55-70%), followed by lung (18-35%). Uncommon hydatid cyst locations include, the peritoneal cavity (10-16%), spleen (3%), brain (3%), musculoskeletal system (0.5-4%), and heart (2 %), kidney (1.5-4%), Breast, Salivary gland, retroperitoneum (1%), and supraclavicular region [10].

Majority of hydatid cyst were caught from liver and lung in our study. This finding consistent with global epidemiological data [11]. Out of total 30 cases, 17 cases were female and 13 cases were male, overall hydatid cyst is more prevalent in female compared to male. This finding is most likely due to life style of women, who may be more likely to be in direct contact with source of infection, such as vegetables and soil contaminated with egg of *E. Granulosus* Rao *et al.* 2012 [14]

Most common age of presentation in our study was 20 to 30 year, was similar to the study Papadimitriou *et al.* [15].

In our study liver was the most frequently affected organ, comprising 12 out of 30 cases, with 08 cases were female and 04 cases were male similar to the study Amr *et al.* 1994 [12]. Liver is most commonly affected most likely due to the role of liver as central to the system that provides initial filtering of ingested ova from blood McManus *et al.* 2003 [13]

Most common presentation was pain in abdomen, nausea and vomiting.

Second most common site was lung comprising 06 cases with 05 cases were male and 01 case of female. Most common presentation was Dyspnea, chronic cough and chest pain.

In our study 01 case was of thigh. In India hydatid disease is not an uncommon but incidence of HD in Thigh is quite uncommon. It clinically presented as Lipoma and was diagnosed on FNA as HD. One case of salivary gland HD which is quite uncommon, clinically presented as chronic Sialadenitis was diagnosed on FNA, One case of breast HD clinically presented as chronic breast mass was diagnosed on Histopathological examination.

Other unusual sites of HD we found in our study are lesser sac, broad ligament, ovary and peritoneum on histopathology specimen.

Most common age of presentation was 20-30 yr with female preponderance.

CONCLUSION:

Although hydatid disease is rare entity, however it should in mind when a cystic lesion is encountered in the body. Most common site is lung and liver however it can be occur in any part of the body. Most of the cases are asymptomatic because it is very slowly growing. If it is neglected it cause life threatening complication and has the tendency to recur.

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