



Case report

Rapid onsite evaluation in cytomorphology of Hydatidosis: A useful adjunct to diagnosis

Santosh Tummididi^{a,*}, Puneeta Puneeta^b

^a Department of Pathology & Lab Medicine, AIIMS, Kalyani, W.B., India

^b Department of Oral & Maxillofacial Pathology, MCDRC, Durg, C.G., India

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ABSTRACT

Background: Human echinococcosis (Hydatidosis or hydatid disease) is caused by the larval stages of cestodes (tapeworm) of the genus echinococcus. Rapid on-site evaluation (ROSE) can be used as an adjunct to the diagnosis of lesion which can help collection of further samples and taking adequate precautions.

Case report: A 45-year female presented with an incidental right hypogastric mass for 4 months. Wet mount and ROSE were performed on the sample collected and diagnosis of Hydatidosis liver was made.

Conclusion: Pre-operative diagnosis of cystic echinococcosis is mandatory to prevent anaphylaxis or local recurrence. Use of clinical, radiological findings can indicate the possibility of the parasitic infection. However, ROSE on the fresh sample can help in conformation of the diagnosis.

Background

Human echinococcosis (Hydatidosis or hydatid disease) is caused by the larval stages of cestodes (tapeworm) of the genus echinococcus. The larval form was first discovered by Goeze in 1782 [1]. The parasitic tapeworm can produce cysts almost in any organ of the body; however, lungs and liver are the most common targeted organs [2]. Fine needle aspiration and ROSE can be a cost-effective technique for early diagnosis and triage of sample [3,4]. We report a case of 45-year female with cystic lesion in liver, wherein ROSE was helpful in the diagnosis.

Case report

A 45-year female presented with an incidental right hypogastric mass for 4 months. Ultrasonogram of abdomen revealed mild hepatomegaly with a cystic lesion in right lobe of liver. Computerized tomography abdomen showed a large uninoculated cystic thin-walled lesion with watery density in segments VII and VI of the liver measuring 5.5 × 5.0 × 5.0 cm. Routine hematological investigations were done, Total leukocyte counts was 7800 mm³, eosinophil count of 5 %, hemoglobin counts of 9.5 g/dl. her viral markers were negative (Human immunodeficiency virus, Hepatitis C virus, Hepatitis B surface antigen).

We received the excised cyst along with 3 ml of the fluid in a test tube. On examination the fluid was granular turbid of approx. 4 ml

[Fig. 1]. Wet mount preparation of the fluid revealed mushroom like structures with hooklets and calcareous corpuscles. Lugol's iodine drop was poured on the wet mount also showed the oval to fetal like structures with numerous hooklets [Fig. 2a–d].

We also used 1 % aqueous toluidine blue in the wet mount for identification of the protoscolex and hooklets in a granular background. The confirmation was also done from the histopathology report of Hydatidosis of liver [Fig. 3a, b].

Discussion

Human echinococcosis is a zoonotic disease. The genus Echinococcus has four species that can cause infection in man. These are: *E. granulosus*, *E. multilocularis*, *E. vogeri* and *E. oligarthus*. *E. granulosus* is the most widespread and cosmopolitan in distribution [5]. The highest incidence is reported mainly from the sheep-rearing countries. Though India is not primarily a sheep-rearing country, a large number of cases have been reported from Andhra Pradesh and other states of India. Man is an accidental host and does not play a role in the biological cycle of the worm. The mode of infection is by the ingestion of food contaminated with dog feces and also by direct contact with dogs [6].

The use of wet mount preparation, lugol's iodine, and toluidine blue can be helpful in rapid screening of the disease. To the best of our knowledge, toluidine has been used as a diagnostic modality to the first

* Corresponding author.

E-mail addresses: born_vss@yahoo.co.in (S. Tummididi), puneeta.bds@gmail.com (P. Puneeta).



Fig. 1. 3 ml of the fluid aspirate from the cyst.

time in our case.

In symptomatic cases, the clinical manifestations are highly variable and depend on the following: (a) the organ involved; (b) size and site of the cyst; (c) interactions between expanding cysts and adjacent organs;

and (d) complications caused by rupture of the cyst [7].

Pre-operative diagnosis of cystic echinococcosis is mandatory to prevent anaphylaxis or local recurrence. Ultra-Sonogram should be the first imaging choice in abdominal hydatid cysts with sensitivity rates between 93 % and 97 % [6,8]. Computerized tomography should be performed in cases of uncommon locations of the disease. Routine tests like total leukocyte count and hemoglobin estimation should also be done. Moderate eosinophilia 6 % or more is usually present [1,6,8]. Our case report was to highlight the use of rapid and routine stains for effective use as a diagnostic tool.

Conclusion

ROSE with routine stains can help in diagnosis of parasitic conditions. Clinical and radiological guidance can be used in further diagnostic accuracy. Wet mount preparation with caution should be done to prevent contamination.

CRediT authorship contribution statement

TS carried out concepts & design, literature search, participated in clinical study & manuscript preparation will stand as guarantor also. NP carried out concepts & design, literature search. All the authors have read & approved the final manuscript.

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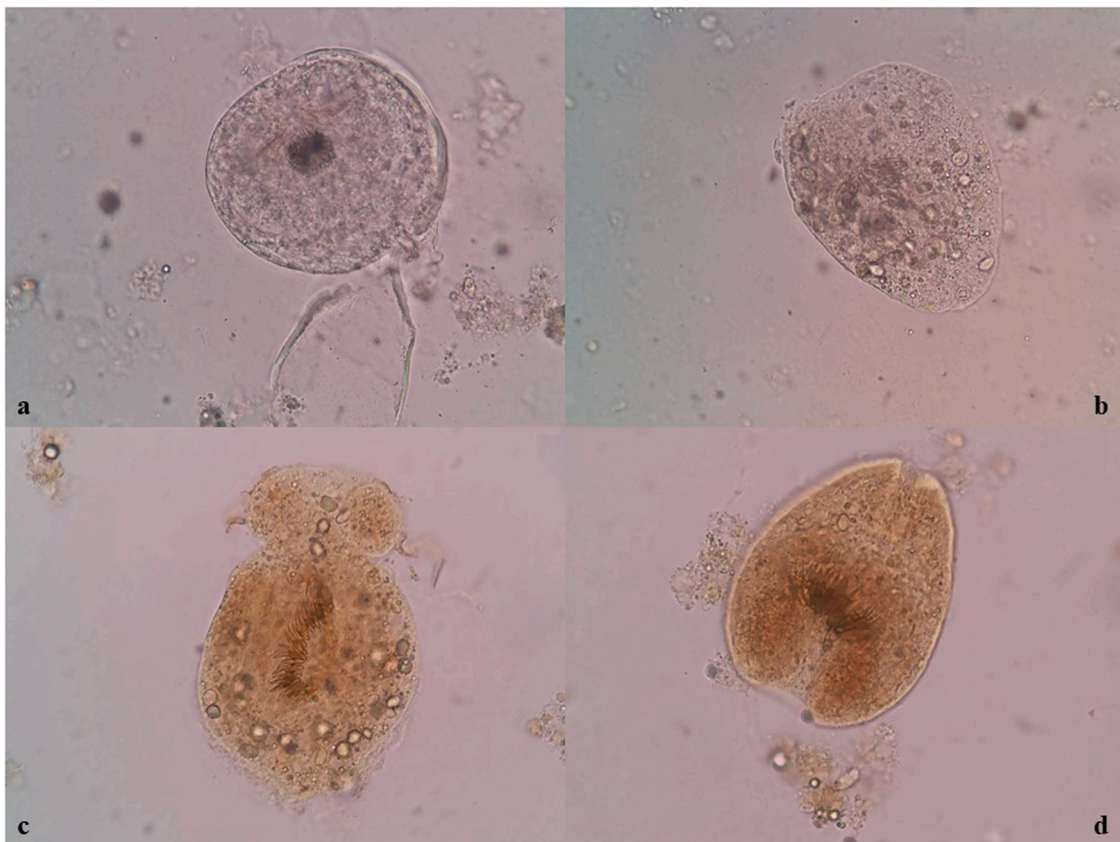


Fig. 2. a, b: Wet mount preparation of the fluid revealed mushroom like structures with hooklets and calcareous corpuscles. c, d: Lugol's iodine with wet mount preparation showing the oval to fetal like structures with numerous hooklets and granular bodies in the cytoplasm. [Wet mount $\times 100$].

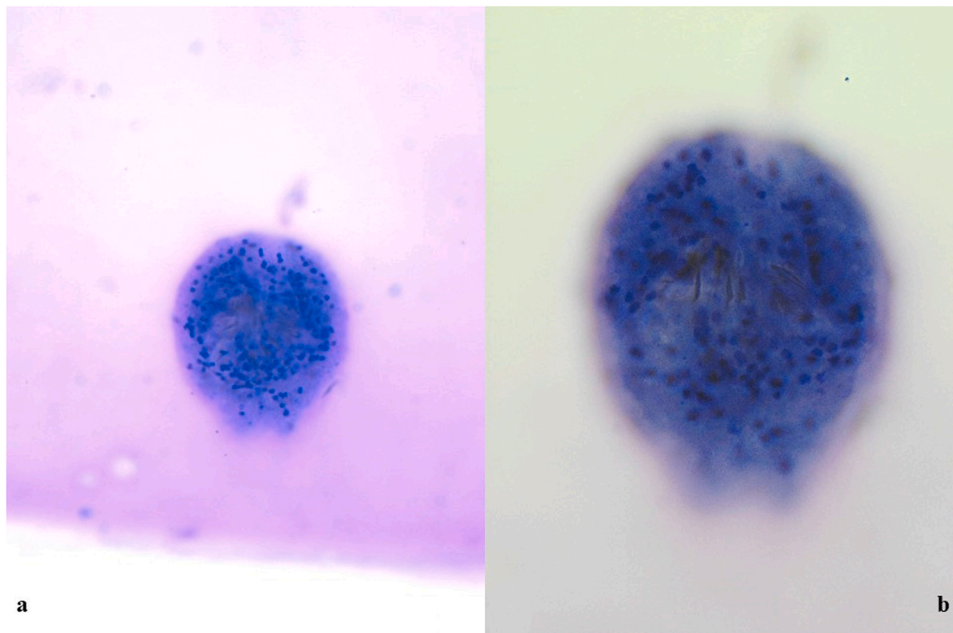


Fig. 3. a, b: Cytology showing protoscolex and hooklets in a granular background. [Tol blue, $\times 100$.

Ethical approval

This case report was conducted in accordance with the fundamental principles of the Declaration of Helsinki.

Consent

Written consent for publication and any additional related information was taken from the patient involved in the study.

Declarations

None.

Competing interests

The authors declare that they have no competing interests.

Availability of data and materials

All the data regarding the findings are available within the manuscript.

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