



PRIMARY HYDATID CYST ON THE NAPE OF NECK: A CYTOLOGICAL DIAGNOSIS

Pathology

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ABSTRACT

Echinococcosis or Hydatid disease is a zoonotic infection caused by *Echinococcus granulosus*, the dog tapeworm. Primary hosts are dogs. Intermediate hosts are sheep, cattle, horses & occasionally man. It develops most frequently in liver (65%), lungs (25%), the other sites account only 10%. Multiorgan involvement occurs in 20-30% cases with involvement of liver in all cases. Its occurrence is very rare in the head & neck region (0.5-4.7%). Here, we report a case of primary hydatid cyst in a 26 yr old female on the nape of neck, diagnosed by means of FNAC.

KEYWORDS

Hydatid cyst, Primary, *Echinococcus granulosus*, FNAC

INTRODUCTION

Echinococcal infection/ Echinococcosis / Hydatidosis is a zoonotic infection worldwide, particularly endemic in middle East, India, Africa, South America, New Zealand, Australia, Turkey & Southern Europe. It is a disease since ancient times, first described by Hippocrates more than 2000 years ago as a "fluid filled Liver". (1)

It is typically caused by *Echinococcus granulosus*, which causes hydatid disease/cystic echinococcosis. However, other species are there, *E. multilocularis* causes alveolar Echinococcosis, *E. vogeli* & rarely *E. oligarthus* cause polycystic Echinococcosis. (2) The primary hosts are dogs. Intermediate hosts are sheep, cattle, horses & occasionally man. It develops most frequently in liver (65%) followed by lungs (25%) & the remaining 10% occurs in muscle, spleen, bone, kidney, brain. Multiorgan involvement occurs in 20-30% cases with involvement of liver in all cases. (1) It is extremely rare in the head & neck region even in the endemic areas; only a few cases located in this region have been reported in the literature. This accounts for about 0.5-4.7%. (3)

Here, we report a unique case of primary hydatid cyst that was diagnosed by means of FNAC in the neck region without involvement of any other organ.

CASE REPORT : A 26 yrs old female presented with slowly growing painless cystic swelling in the nape of neck since 5 years, (Fig:-1) Local examination revealed a swelling on the nape of neck measuring (10×9×8)cm, soft-cystic, nontender. Overlying skin showed no signs of inflammation. FNAC yielded 5ml of clear fluid aspirate with white granularity & the swelling reduced in size following aspiration. After FNAC, no allergic reactions developed. Cytosmears were prepared from centrifuged deposit of cyst fluid & stained with Diff-Quik, PAP and H & E stain. FNA smears showed eosinophilic laminated membrane with few hooklets along with cyst macrophages seen in an amorphous necrotic background. The cytomorphological diagnosis given was Hydatid cyst. (Fig:-3, 4)

USG of neck was done later & revealed well defined thick walled lesion of size (10×9×8) cm with multiple daughter cysts of varying sizes interspersed with fine echogenic septae in between muscle layers in the left side of paravertebral space suggestive of hydatid cyst (muscular). (Fig:-2)

Chest radiography & abdominal USG revealed no other organ involvement. Complete blood count report was unremarkable.

DISCUSSION:

Hydatid cyst is a zoonotic infection caused by the dog tapeworm / the hydatid worm, *Echinococcus granulosus*. Primary hosts are dogs. Intermediate hosts are cattle, horses, sheep. Humans are accidental

hosts, do not play role in the biological cycle & usually dead end for parasite. (4) The usual destinations are liver (75%), lungs (15%); but may occur anywhere in the body including spleen, kidney, bile duct, mesentery, heart, brain, musculoskeletal and soft tissue where they end up of transforming into cysts. (5)

The adult worms live in the small intestine of definitive host (dogs or other carnivores) & discharge a large number of eggs in their faeces. Eggs are swallowed by the intermediate hosts while grazing in the fields & also by humans due to intimate handling of the infected dogs. In the duodenum, the embryos hatch, penetrate the intestinal wall & enter into the portal vein. The embryos are carried to the liver to be arrested in the sinusoidal capillaries (first filter). Some of the embryos may pass through the hepatic capillaries, enter the pulmonary circulation & filter out in the lungs (second filter). A few of the embryos may pass the pulmonary capillaries enter the general blood stream & lodge in various organs, thus affecting all the parts of the body. (6)

At the site of deposition, the embryo slowly develops into a hollow bladder or cyst filled with fluid & becomes hydatid cyst. (Greek hydatid :- a drop of water)

The cyst wall secreted by the embryo consists of three indistinguishable layers. (7)

1. Pericyst-It is the outer host inflammatory reaction consisting of fibroblastic proliferation, mononuclear cells, eosinophils & giant cells, eventually developing into dense fibrous capsule which may even calcify.
2. Ectocyst-It is the intermediate layer composed of characteristic acellular, chitinous, laminated hyaline material.
3. Endocyst-It is the inner germinal layer which is cellular & consist of number of nuclei embedded in a protoplasmic mass.

Daughter cyst formation could be endogenous or exogenous. The endogenous daughter cyst develops inside the mother cyst & may arise from the detached fragment of the germinal layer or from regressive changes of young brood capsule & scolex bud. The exogenous daughter cyst formation occurs due to high intracystic pressure which causes herniation or rupture of both germinal & laminated layers through some weakened portion of the adventitia (seen in bone & omentum). (7,8)

Usually Hydatid cysts are not considered in the differential diagnosis of cystic swellings in head & neck. Rarity of the disease in this anatomical location presents a diagnostic difficulty for the physician if he or she is not familiar with the disease. (9,10) as in our case.

Standard treatment modality is surgical removal of the cysts combined with chemotherapy using albendazole &/or mebendazole before & after surgery

CONCLUSION

Hydatid cyst should be considered in differential diagnosis of cystic lesions in the head & neck region, particularly in endemic areas for proper management.

Although FNAC has been discouraged as a diagnostic tool in the suspected case of hydatid disease due to the risk for anaphylaxis, it helped in the diagnosis of the present case as it was not suspected clinically. So this study is also meant for emphasizing the role of FNAC in detection of hydatid cyst.

Figure 1: 26 yrs F presented with swelling in the nape of neck.

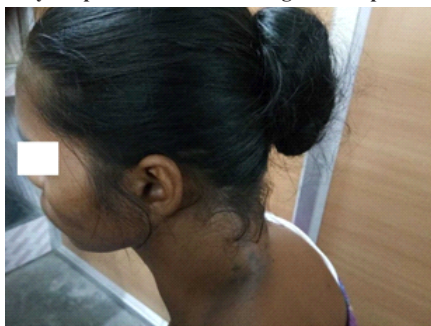


Figure 1: 26 yrs F presented with swelling in the nape of neck.

Figure 2: USG of neck showing multiple daughter cysts of varying size.

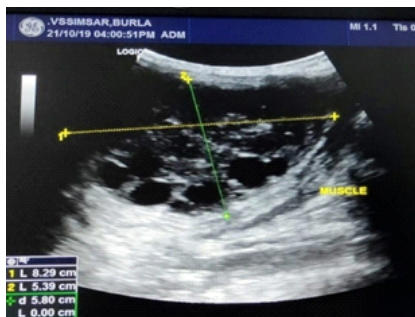


Figure 2: USG of neck showing multiple daughter cysts of varying size.

Figure 3: FNA smear showing acellular laminated membrane of hydatid cyst (H&E, X100)

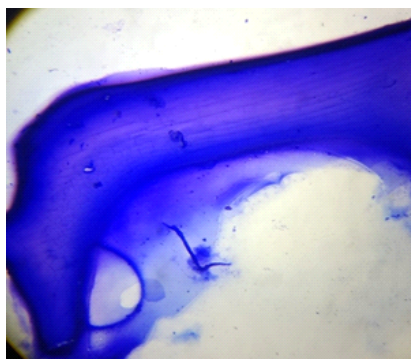
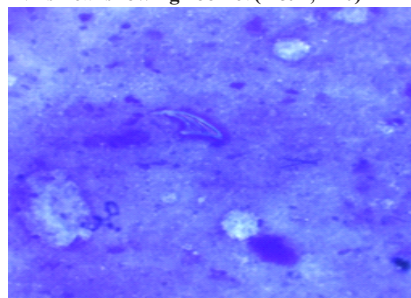


Figure 3: FNA smear showing acellular laminated membrane of hydatid cyst (H&E, X100)

Figure 4: FNA smear showing hooklet (H&E, X10)



Fine-needle aspiration smear showing hooklet (H & E , X100)

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