

Isolated Primary Splenic Hydatid Cyst: A Rare Site of Presentation

Anwar Ali¹, Sandeep Khadda², Ashok Parmar³, Ajay Kumar Yadav⁴, Jitendra Kumar Sakhrani⁵, Umrao Singh⁶, Akhil Kapoor^{7*}

¹⁻⁶Department of Surgery, Sardar Patel Medical College and associated group of Hospitals, Bikaner, Rajasthan, India

⁷Department of Oncology, Acharya Tulsi Regional Cancer Treatment & Research Institute, Bikaner, Sardar Patel Medical College and associated group of Hospitals, Rajasthan, India

*Corresponding Author:

Name: Akhil Kapoor

Email: kapoorakhil1987@gmail.com

Abstract: Primary isolated splenic hydatid cysts are extremely rare. Spleen is third most common site of hydatid cyst after liver and lung but it is present usually along with liver and lung. Cystic lesions are rare in spleen. Diagnostic challenge persists in non endemic area. Splenic involvement of hydatid disease occurs after parasite has passed liver and lung filter by arterial route. The retrograde venous route may infect spleen but much less common. Hereby, we present a 35 year female with pain abdomen in right hypochondrium. En-bloc excision of cyst and splenectomy was done. Histopathology report confirmed hydatid cyst of spleen of *Echinococcus granulosus* origin.

Keywords: Isolated hydatid cyst, Spleen, Splenectomy

INTRODUCTION

Isolated primary hydatid cyst of spleen is extremely rare [1]. Hydatid disease is a zoonosis caused by *Echinococcus* species, a cestode class parasite. There are many species including *Echinococcus granulosus*, *E. multilocularis*, *E. vogeli* and *E. oligarthrus* [2]. Definitive host of *Echinococcus* life cycle is dog and intermediate host is sheep [3]. Humans are accidental intermediate hosts that are contacted by ingesting eggs of *Echinococcus* in contaminated foods [4]. Human are dead end of parasite life [5]. These eggs are hatched in duodenum and released as embryo. Embryo reaches liver by portal circulation and in lung [6, 7]. No human to human transmission can occur [4].

The incidence of the splenic hydatid cysts varies. It ranges 0.5–4% of all cases of echinococcosis [1, 8, 9]. We report a 35 year female who was operated for hydatid disease of spleen.

CASE REPORT

A 35 year old female presented in surgical OPD of PBM hospital, Bikaner with chief complaint of dull aching pain in left upper quadrant for last 2 years and heaviness in upper abdomen for 1 year. The pain was localized in left hypochondrium and associated with feeling of heaviness. There was no history of diabetes, hypertension, tuberculosis or any surgical history in past. On physical examination, she was of average built with stable vitals. Per abdomen examination revealed soft, slightly tender mass in left hypochondrium region. The mass was palpable up to 7

cm from left costal margin with smooth surface, lower margin well defined with upper margin not palpable due to ribcage. Dull note was noted on percussion over the swelling. Splenic notch could be felt and the mass was not ballotable. Hematological examination showed Hb-10.2gm/dl, TLC-8600/cumm with eosinophils significantly high 4% suggestive of parasitic infestation. USG abdomen showed massive splenomegaly with large cystic lesion 12x13 size. CECT abdomen showed enlarged spleen with well defined 11x14x14 cm cystic lesion at upper pole with early peripheral calcification suggestive of hydatid cyst (Fig. 1).



Fig. 1: CECT abdomen showing enlarged spleen with well defined 11x14x14 cm cystic lesion at upper pole with early peripheral calcification

After complete pre-anaesthetic examination, the patient was taken for elective laparotomy. Midline skin incision was given and peritoneum opened. Intra abdominal packing was done so that if cyst ruptures then spillage of contents could be avoided to prevent anaphylaxis. After all ligaments were cut and hilum was tied, en-bloc excision of spleen with hydatid cyst was done (Fig. 2). Cut section of cyst showed multiple daughter cyst with fluid. Specimen was sent for histopathological examination and confirmed to be hydatid cyst of spleen caused by *Echinococcus* species with scolex and hooks. Albendazole that was started pre operatively to reduce infectiveness of fluid was continued post operatively for 2 months.



Fig. 2: Intraoperative picture showing enlarged spleen with cystic lesion



Fig. 3: Intraoperative picture showing en-bloc excision of enlarged spleen with cystic lesion

DISCUSSION

Infection in human by *Echinococcus* is called hydatid disease or hydatidosis [4]. It is a zoonotic disease [2]. Primarily, it is disease of liver and lungs in

human but may be present in spleen, brain, bone, and muscles [10]. Primary hydatid cyst of spleen in isolated case is very rare [1].

Infection is possible at any age, including childhood [11] and remain asymptomatic [12]. Cyst grows at a rate 0.3-1 cm/year and takes 15-20 years to cause symptoms [13].

Pre operative diagnosis should be mandatory to prevent anaphylaxis as rupture of cyst can occur. USG abdomen can diagnose as cystic lesion pre operatively and confirmed by CT scan [14]. Complication like rupture into peritoneum and infection can occur [13, 15]. Differential diagnosis of cystic lesion of spleen includes epidermoid cyst, pseudocyst, abscess, hematomas and cystic neoplasms [16, 17]. If there is calcification along wall of cyst, it is highly suggestive of hydatid cyst [15, 18].

Hydatid cyst has 3 layers: (i) pericyst, the outermost adventitia of fibrous tissue, formed by host tissue; (ii) ectocyst, the middle layer of laminated membrane; (iii) endocyst or germinal layer that produces scolices [19]. Scolices and broods are present in hydatid fluid in cyst called hydatid sand [20].

Laparotomy and en-bloc excision of spleen along with cyst is the standard treatment of choice [21]. Pre and postoperative administration of albendazole and praziquantel reduce the risk of anaphylaxis [22]. Intra operative hypertonic saline is given into cyst to kill daughter cyst [19].

CONCLUSION

In the presented case of primary isolated splenic hydatid cysts en-bloc excision of cyst and splenectomy was done. Albendazole that was started pre operatively to reduce infectiveness of fluid was continued post operatively for 2 months.

REFERENCES

1. Ozkan F, Yesilkaya Y, Peker O, Yuksel M; Anaphylaxis due to spontaneous rupture of primary isolated splenic hydatid cyst. *Int J Crit Illn Inj Sci.* 2013; 3(2): 152–154.
2. The Centre for Food Security and Public Health, Iowa State University; Echinococcosis. 2011. Available from <http://www.cfsph.iastate.edu/Factsheets/pdfs/echinococcosis.pdf>
3. Pujari S; Parasite *Echinococcus Granulosus*: Life Cycle, Mode of Transmission and Treatment. Available from <http://www.yourarticlelibrary.com/zoology/parasite-echinococcus-granulosus-life-cycle-mode-of-transmission-and-treatment/24205/>

4. WHO; Echinococcosis. Fact sheet N°377, 2014. Available from <http://www.who.int/mediacentre/factsheets/fs377/en/>
5. Mandal S, Mandal MD; Human cystic echinococcosis: epidemiologic, zoonotic, clinical, diagnostic and therapeutic aspects. *Asian Pac J Trop Med.*, 2012; 5(4): 253-260.
6. Echinococcus spp. (Pathogen – Tissue Cestode) (Cystic Disease). Available from <http://www.medchem.com/para-site.php?url=org/echino>
7. Brown HW, Neva FA; Basic Clinical Parasitology. 5th edition, Appleton-Century Crofts, 1983: 191-198.
8. Amr SS, Amr ZS, Jitawi S, Annab H; Hydatidosis in Jordan: An epidemiological study of 306 cases. *Ann Trop Med Parasitol.*, 1994; 88(6): 623–627.
9. Durgun V, Kapan S, Kapan M, Karabiçak I, Aydogan F, Goksoy E; Primary splenic hydatidosis. *Dig Surg.*, 2003; 20(1): 38–41.
10. Dandan IS; Hydatid cysts clinical presentation. *Medscape*, 2014. <http://emedicine.medscape.com/article/178648-clinical>
11. Coupland U, Dobosz S, Zawadka K, Marczyńska M; Cystic echinococcosis in a child infected with HIV. *Ann Parasitol.*, 2012; 58(2): 101-103.
12. Moro PL; Echinococcosis. *Travelers Health, Centers for Disease Control and Prevention.* Available from <http://wwwnc.cdc.gov/travel/yellowbook/2014/chapter-3-infectious-diseases-related-to-travel/echinococcosis>
13. Wani NA, Tak S, Shah ND, Bashir A, Arif SM; Bullet injury causing rupture of spleen with hydrated cyst. *JK Prac.*, 1998; 5(1): 55-56.
14. Murtaza B, Gondal ZI, Mehmood A, Shah SS, Abbasi MH, Tammy MS *et al.*; Massive splenic hydatid cyst. *J Coll Physicians Surg Pak.*, 2005; 15(9): 568-570.
15. Pandey P, Dixit A, Chandra S, Chaturvedi V, Sharma A; Primary splenic echinococcal cyst: A rare presentation. *Brunei Int Med J.*, 2013; 9(5): 345-349.
16. Pedrosa I, Saíz A, Arrazola J, Ferreirós J, Pedrosa CS; Hydatid disease: radiologic and pathologic features and complications. *Radiolgraphics*, 2000; 20(3): 795-817.
17. Durgun V, Kapan S, Kapan M, Karabiçak I, Aydogan F, Goksoy E; Primary splenic hydatidosis. *Dig Surg.* 2003; 20(1): 38-41.
18. Kar JK, Kar M; An unusual presentation of primary splenic hydatid cyst. *Trop Parasitol.*, 2011; 1(2): 126-128.
19. Rasheed K, Zargar SA, Telwani AA; Hydatid cyst of spleen: A diagnostic challenge. *N Am J Med Sci.*, 2013; 5(1): 10–20.
20. Chatterjee D; Echinococcus granulosus. In *Textbook of Parasitology*. 12th edition, Chatterjee Medical Publishers, Calcutta, India, 1980: 121-127.
21. Pukar MM, Shabari M. Pukar; Giant solitary hydatid cyst of spleen-A case report. *International Journal of Surgery Case Reports*, 2013; 4(4): 435-437.
22. Bhaskaran A, Kalyani R, Singh J, Anantha Raju GS, Praveen V; A rare primary hydatid cyst of spleen: a case rep. *J Clin Biosci* 2011;1(1): 20-24.