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Case Report of Pulmonary Hydatid Cyst

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Abstract **Case Report**

The lung is the second most common organ involved in hydatid cyst next to the liver. Hydatid cyst most commonly occurs in the right lobe of the lung. Common symptoms of pulmonary hydatid cyst are chest pain, cough, shortness of breath and the most diagnostic symptom being expectoration of cystic contents in case of rupture of the cyst into a bronchus. Surgery is the primary treatment option. Surgery should be followed by anthelmintic agents like albendazole or mebendazole.

Keywords: Hydatid Cyst, Right Lower Lobe, Marsupialisation, Pericystectectomy, Anthelmintic Agents.

INTRODUCTION

Hydatid cyst is a zoonotic disease caused by a parasite belonging to the cystode class Echinococcus. Human Echinococcosis is an infectious disease caused by the following species: E. granulosus, E. multilocularis, E. vogeli and E. oligarthrus, the commonest being Echinococcus granulosus. Dogs are the definitive host and cattle, goats, sheeps, pigs and humans are the intermediate host. The adult Echinococcus granulosus resides in the small intestine of the definitive hosts (dogs and other canines). Proglottids release eggs which are passed in the feces. After ingestion of the eggs by an intermediate host (usually cattle, sheep, goat, camels), the egg hatches in the small intestine and releases an oncosphere which penetrates the intestinal wall and migrates through the circulatory system into various organs including liver and lungs. In these organs the oncosphere develops into a cyst which enlarges gradually. Protoscolices and daughter cysts form within the cyst. The definitive host becomes infected by ingesting the cyst containing organs of the infected intermediate host. After ingestion, protoscolices evaginate and attach to the intestinal mucosa. They develop into adult stages in 32 to 80 days. Humans are not involved in the transmission loop of Echinococcus granulosus. But however, on ingestion of eggs by the human host, the oncospheres migrate from the intestinal lumen to other body sites via circulation and develop into hydatid cysts [1].

CASE REPORT

A 63 year old female patient came to the hospital with complaints of dyspnoea on exertion (NYHA class lll) and cough with expectoration for 1 week duration. On examination HR-76/min, BP-128/66mmHg, CVS-S1, S2(+), RS-B/L air entry equal. Routine blood investigations were found to be within normal limits. CXR showed a well circumscribed lesion in the right lower lobe. Subsequently CT- Chest was done which confirmed right lower lobe hydatid cyst. Patient planned for surgery.

Figure 1: CXR showing well circumscribed lesion in the right lower lobe

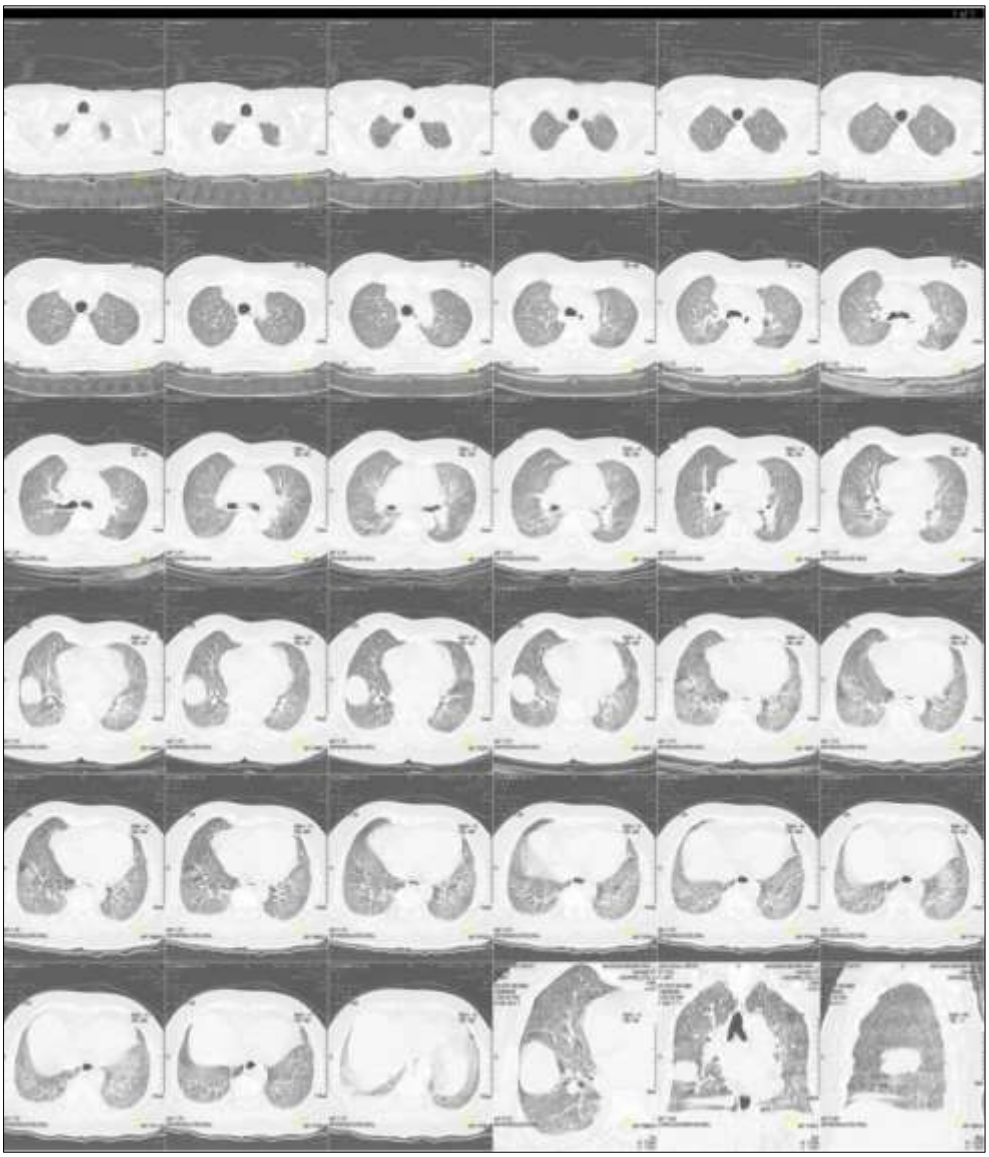

Figure 2 : Well circumscribed lesion seen in the right lower lobe

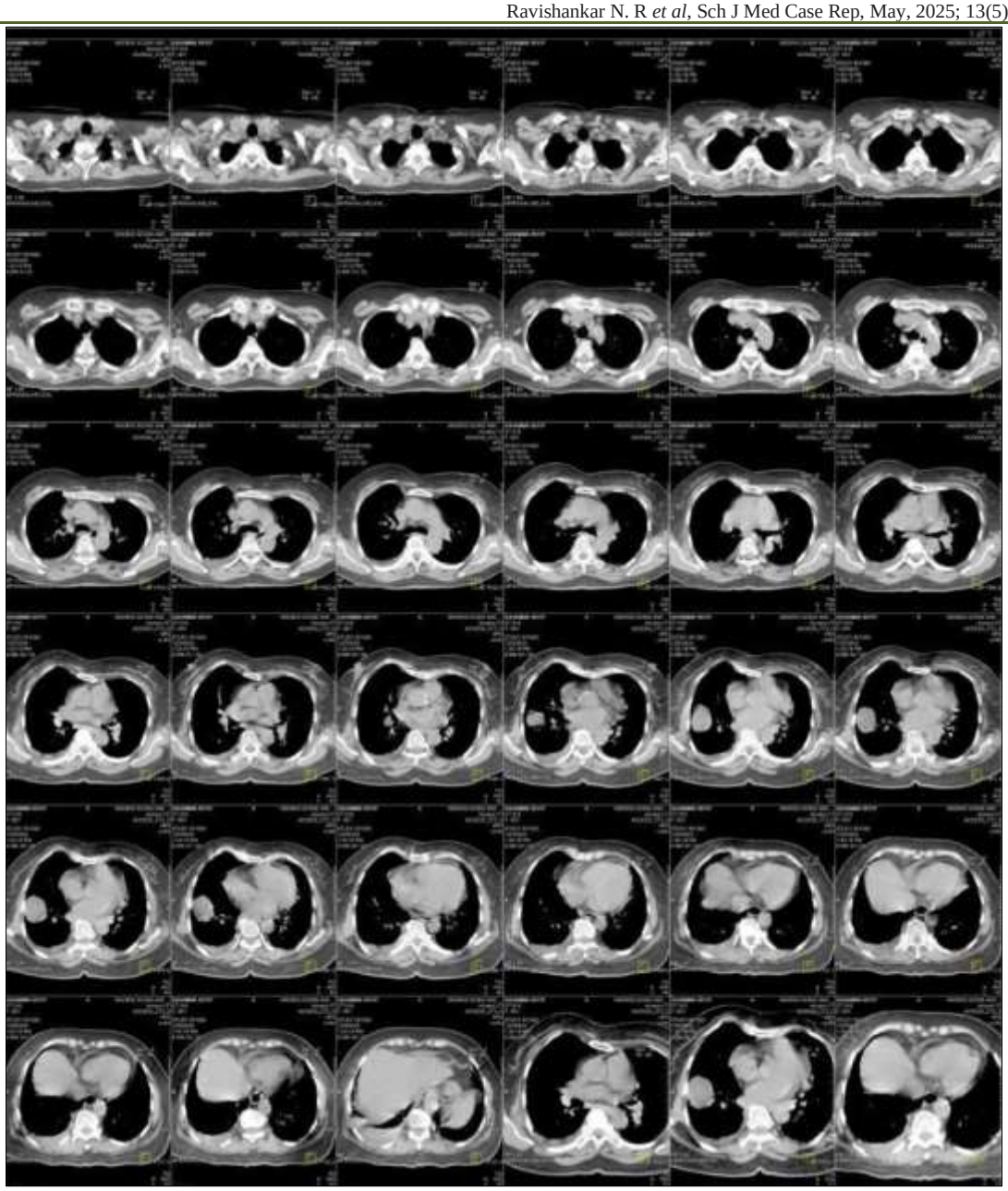

Figure 3 : Well circumscribed lesion seen in the right lower lobe

Operative Technique:

The patient was put in left lateral position and intubated with double lumen tube and parts painted and draped. Right lateral minithoracotomy was done and pleura entered through 5th intercostal space.

Figure 4: Right Mini Thoracotomy Incision

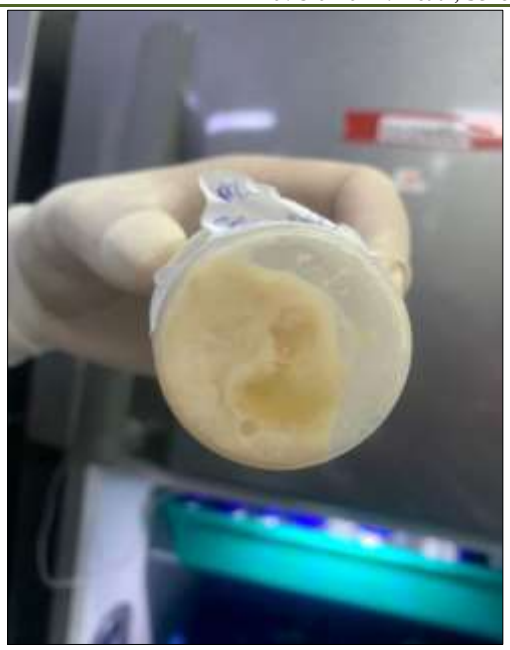

Figure 5 : Brood cyst removed from the pericystic cavity

Hydatid cyst identified in the right lower lobe of the right lung. G-pad was soaked in the scolicidal agent and it was packed in the pleural space surrounding the lesion. Cyst wall opened and the fluid within the cyst was suctioned. The Brood cyst was removed from the pericystic cavity without spillage and any surrounding contamination. The bronchus was communicating into the cystic cavity. After thorough wash of the cystic cavity with scolicidal agent the communicating terminal bronchioles were closed air tight with 5.0 prolene. Further cyst cavity was obliterated (marsupialised) using 5.0 prolene sutures. Surgicel was placed and lung cavity was fully obliterated and closed. No air leak was present. No. 32 size ICD drain was placed and secured. The ribs were approximated using 1.0 vicryl. The muscle layer was sutured with 2.0 vicryl. The skin incision was closed using staples.

The brood cyst was sent for microbiological analysis. The analysis revealed daughter cysts at various stages of development.

Figure 6 : Wet mount, 100x (low magnification) showing multiple Protoscolices

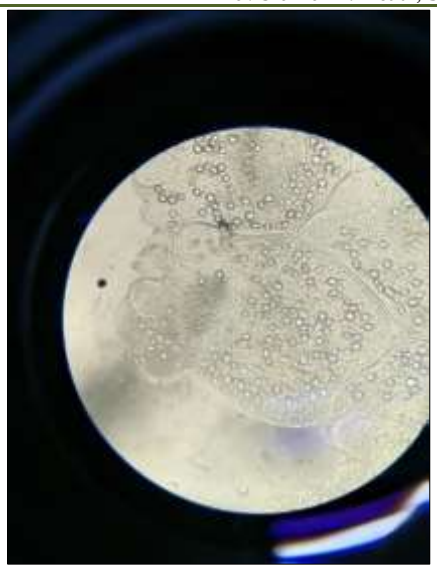

Figure 7 : Under direct Wet mount showing multiple protoscolices with developing future head

Figure 8 : Wet mount, 400x (High magnification) showing a single invaginated Protoscolex

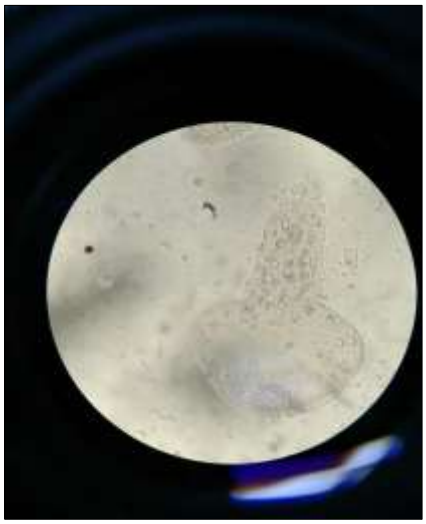

Figure 9 : Wet mount, 400x magnification showing evaginated Protoscolex with immature proglottids which is developing

Figure 10 : Wet mount, Daughter cysts at various stages of development, both invaginated and evaginated protoscolices forms can be seen

Figure 11 : Wet mount, Evaginated Protoscolex with hooklets

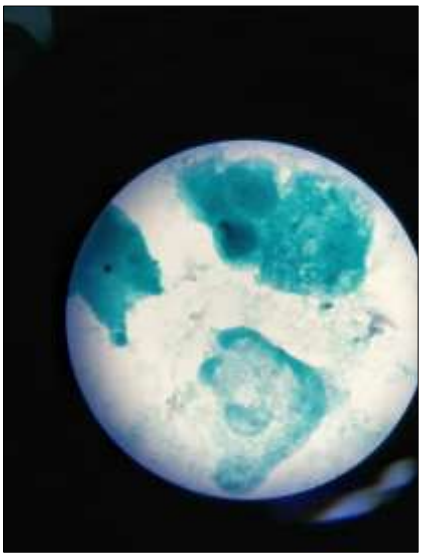

Figure 12 : Ziehl neelsen staining showing evaginated Protoscolices with free lying hooklets

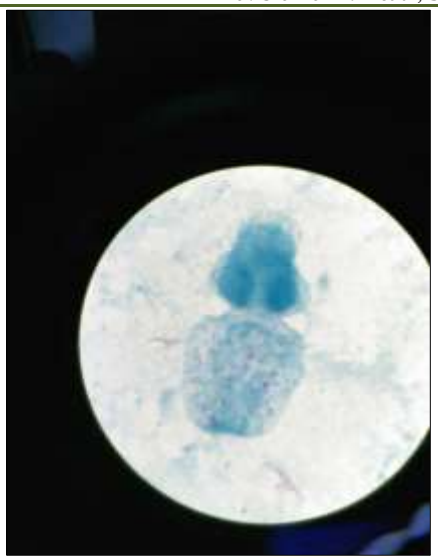

Figure 13 : Ziehl Neelsen staining showing a Protoscolex with immature proglottids, neck, suckers, rostellum and free lying hooklets

Figure 14 : Hp section: H&E stain - 100x showing Protoscolices with associated germinal line

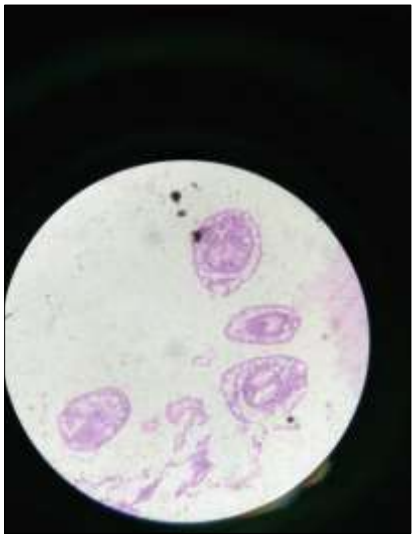

Figure 15: 400x (high magnification), HPE section under H&E stain showing Protoscolices

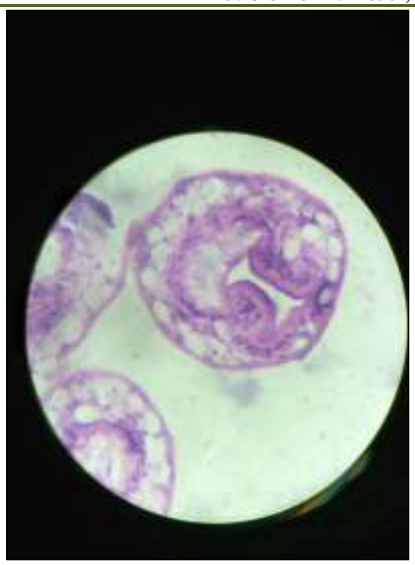

Figure 16: 1000x magnification, H&E stain under oil immersion showing Protoscolices

DISCUSSION

Various surgical techniques have been described in the treatment of hydatid cysts like enucleation, pericystectomy, wedge resection, segmentectomy, lobectomy. Onal and Demir reported that they treated 32 children with giant Hydatid cysts with the cystotomy and marsupialisation method and they did not do pulmonary resection in any of the cases. The advantages of marsupialisation is that it helps in preventing long term air leakage and fluid collection within the cystic cavity [2]. The other method in which pericyst is removed carries the disadvantage of lung parenchymal damage and post-operative air leak. In our case we deployed the marsupialisation technique and there weren't any post-operative complications. In a study done by Ayudin *et al*., albendazole treatment was found to be highly effective in preventing relapses and recurrence rate was significantly high in patients who did not receive albendazole. In our case we started albendazole 1 week prior to surgery and followed it for 28 days in the post operative period [3].

CONCLUSION

Pulmonary hydatid cysts should be surgically removed as soon after confirming the diagnosis. Surgery is the treatment of choice for large hydatid cysts with concomitant medical therapy with anthelmintic agents like albendazole. The lung parenchyma must be preserved as much as possible. Marsupialisation technique is found to have superior outcomes when compared to pericyst excision by preventing post-operative air leak and formation of broncho-pleural fistula [4].

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