



UNCOMMON PRESENTATION OF HYDATID DISEASE: A CASE OF MEDIASTINAL HYDATIDOSIS AND ITS SURGICAL MANAGEMENT

Cardiothoracis

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ABSTRACT

Background: Hydatid disease, primarily caused by *Echinococcus granulosus*, commonly affects the liver and lungs but can present in unusual sites such as mediastinum which is rare and presents diagnostic and therapeutic challenges. **Case Presentation:** We report a case of a 31-year-old male who presented with progressive dyspnea, persistent cough, dysphagia and hoarseness of voice. Imaging studies revealed a cystic mass in the superior mediastinum with characteristics suggestive of esophageal duplication cyst. Intraoperative and HPE confirmed the diagnosis of mediastinal hydatidosis. **Management:** Surgical resection was performed through posterolateral thoracotomy with careful removal of the cyst to prevent rupture and spillage. Postoperatively, the patient continued on albendazole and was closely monitored. Follow-up imaging showed no recurrence of the cyst. **Conclusion:** Mediastinal hydatidosis is a rare but important condition to consider in the differential diagnosis of mediastinal masses. Effective management of the cyst, and thorough postoperative follow-up to ensure complete resolution and prevent recurrence.

KEYWORDS

Mediastinal hydatidosis, *Echinococcus granulosus*, surgical management, cystic mass

INTRODUCTION

Hydatid disease, also known as echinococcosis, is a parasitic infection caused by tapeworms of the genus *Echinococcus*. The life cycle of *Echinococcus* involves canines as definitive hosts and herbivores or omnivores (including humans) as intermediate hosts. The most common species responsible for human infection are *Echinococcus granulosus* and *Echinococcus multilocularis*.

Echinococcus granulosus, which causes cystic echinococcosis, is typically transmitted to humans through the ingestion of eggs from contaminated food or water. In humans, the larvae develop into hydatid cysts, most commonly in the liver (60-70%) and lungs (20-30%). These cysts can grow slowly over years and cause a variety of symptoms depending on their location, size, and associated complications.

Uncommon Presentations of Hydatid Disease: While liver and pulmonary involvement is most common, hydatid cysts can occasionally form in unusual sites, including the brain, bones, spleen, thymic tissue and, as highlighted in this case, the mediastinum. Mediastinal hydatidosis is exceptionally rare and poses a diagnostic challenge due to its atypical location.

Pathophysiology: The formation of a hydatid cyst in the mediastinum typically occurs when the *Echinococcus* eggs are ingested and the larvae migrate to the mediastinal tissues via the bloodstream or lymphatic system. The mediastinum, being a central compartment of the thoracic cavity, can accommodate expanding cysts, which may lead to compressive symptoms and require differential diagnosis from other mediastinal masses.

Clinical Presentation and Diagnostic Challenges: Symptoms of mediastinal hydatidosis can be non-specific, including chest pain, cough, and dyspnea. The symptoms are often attributed to other more common mediastinal conditions, leading to a delay in diagnosis. Imaging studies such as chest X-ray, computed tomography (CT), and magnetic resonance imaging (MRI) are essential for distinguishing hydatid cysts from other cystic or solid masses in the mediastinum.

Importance of Accurate Diagnosis and Treatment: The diagnosis of mediastinal hydatidosis requires a combination of imaging studies, serological tests, and sometimes histological examination of biopsy specimens.

Treatment involves a multidisciplinary approach including antiparasitic medication (e.g., albendazole or mebendazole) and surgical intervention. The surgical management is critical to remove the cyst and prevent potential complications such as cyst rupture or

secondary infection.

Relevance: Understanding and recognizing rare presentations of hydatid disease like mediastinal hydatidosis is crucial for clinicians, especially in endemic areas or in patients with a history of exposure to *Echinococcus*.

Early diagnosis and appropriate treatment can significantly impact patient outcomes, reducing the risk of complications and improving overall prognosis.

This introduction provides a comprehensive background on hydatid disease and sets the stage for discussing a rare but clinically significant case of mediastinal hydatidosis.

Case Presentation

A 31-year-old male presented with dry cough on and off since 1 year, difficulty in breathing since 6 months which increased during the last 3 months and aggravated during sleep, difficulty in swallowing solids since 3 months, hoarseness of voice since 3 months. Patient also had 1-2 episodes of haemoptysis during the hospital stay. He had no history of weight loss, loss of appetite. No past history of medical comorbidities and operation.

Personal and family history were unremarkable. General examination was normal. Systemic examination was normal. Local examination, there was no palpable mass in the superior mediastinum. No regional lymph node enlargement.

Diagnostic Evaluation:

- **Chest X-ray:** The imaging revealed a well-defined, rounded mass in the superior mediastinum

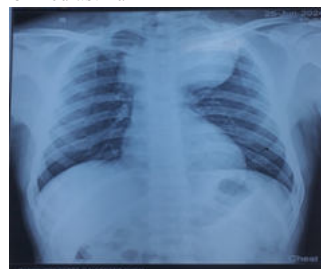


Fig 1: Chest Xray showing mass in superior mediastinum.

Computed Tomography (CT) Scan: CT scan of the thorax showed a large cystic mass in the superior mediastinum. The mass exhibited a characteristic double-contour sign and peripheral enhancement. The

cystic lesion was measuring 97 *89*100mm in dimension, causing mass effect over the trachea and esophagus displacing it towards right causing mild luminal narrowing of the same. Anteriorly it was closely abutting the left brachiocephalic artery with maintained fat plane. Inferiorly it was abutting arch of aorta with maintained fat plane. Superiorly it was extending upto the left lower paratracheal space, posteriorly it was causing mass effect over the pre-paravertebral muscles with compressed fat plane. The lesion was also causing mass effect over the left upper lobe. Prominent to enlarged (few calcified) lymph nodes were noted in precarinal,subcarinal,aortopulmonary window and prevascular stations measuring upto 12mm. No lung and liver cyst noted.

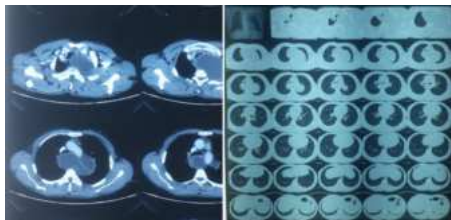


Fig 2 and 3: Ct thorax showing the cystic mass in superior mediastinum

- **Bronchoscopy:** Bulging of posterior wall of trachea causing stenosis of trachea. Bleeding spot in left lower lobe. No endobronchial growth seen. BAL taken for CBNAAT was negative.
- **Other Laboratory Tests:** Blood investigations were within normal limits.

Diagnosis:

Based on the clinical presentation, imaging findings, the patient was diagnosed with mediastinal hydatidosis.

The differential diagnosis included other cystic mediastinal masses such as thymic cysts, lymphangiomas, and germ cell tumors, esophageal duplication cyst.

Surgical Techniques:

1. Surgical Approach& Intraoperative Techniques:

- **Posterolateral Thoracotomy:** The thorax was entered through 4 th intercostal space, lung retracted. Careful dissection was done to identify and isolate the cyst from surrounding tissues. The goal was to avoid rupturing the cyst to prevent the spread of Echinococcus larvae.
- **Aspiration of cyst was done,** which was filled with clear fluid. The cavity was opened, scolices of cyst were present. Excision of cyst done. Betadine wash given.

Pressure ulcer over the esophagus was repaired with prolene 2-0. Haemostasis achieved, drain of 32G placed, thorax closed in layers. Specimen sent for HPE.



Fig 4: Cyst opened



Fig 5: Scolices extracted

Fig 6: Repair of esophagus done

- **In some cases,** sternotomy or video-assisted thoracoscopic surgery (VATS) may be considered, depending on the cyst's size and location. Also the cyst can be removed en bloc to minimize the risk of spillage. Techniques to prevent rupture include using cyst aspiration followed by resection of the cyst wall, or encapsulating the cyst in a sterile bag before removal. After removal of the cyst, the cavity is thoroughly inspected. Treatment with hypertonic saline or other disinfectants may be applied to the cavity to kill any residual parasites. This step is crucial in preventing secondary echinococcosis.
 - **HPE:** Suggestive of hydatid cyst
- 2. Postoperative Care:**
- **Antiparasitic Therapy:** Postoperatively albendazole was given and planned to be continued for 4-6 weeks to eliminate any remaining larvae and prevent recurrence.
 - **Monitoring:** Regular follow-up with imaging studies (CT or MRI) is necessary to monitor for potential recurrence or complications. Follow-up typically includes imaging at 3, 6, and 12 months postoperatively.
 - **Symptom Management:** Pain management, respiratory therapy was required to address postoperative discomfort and facilitate recovery. Intercoastal drain was removed by 10 th day and patient was discharged by 12 th day postoperatively.

Complications and Management:

1. **Cyst Rupture:** Intraoperative cyst rupture can lead to the dissemination of Echinococcus larvae and subsequent formation of secondary cysts. Immediate management includes thorough irrigation of the surgical field and use of hypertonic saline to kill larvae.
2. **Infection:** Postoperative infections are a risk, particularly if there has been spillage of cystic fluid. Antibiotic prophylaxis and careful monitoring are essential.
3. **Recurrence:** Recurrence of hydatidosis can occur if any larvae remain postoperatively. Regular follow-up and adherence to antiparasitic therapy are crucial for early detection and management of recurrence.

DISCUSSION

Mediastinal hydatidosis is a rare but serious presentation of hydatid disease. Its diagnosis can be challenging due to its rarity and the nonspecific symptoms. Imaging studies are crucial for diagnosis, and serological tests support the diagnosis. Surgical removal remains the primary treatment, with adjunctive medical therapy to address any residual parasite.

CONCLUSION

Surgical management of mediastinal hydatidosis involves a combination of careful planning, precise surgical techniques, and postoperative care. The primary objective is to remove the cyst effectively while minimizing the risk of complications. Antiparasitic therapy plays a vital role in preoperative and postoperative management to ensure comprehensive treatment of the disease. Successful surgical intervention, combined with appropriate medical therapy and follow-up, can lead to favorable outcomes and reduced risk of recurrence.

Consent

Written informed consent was obtained from the patient for publication of this case report.

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