


**CASE REPORT**

# **A Rare Case of Primary Posterior Mediastinal Hydatid Cyst with False Aortic Aneurysm**

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**ABSTRACT :** Hydatid cystic disease caused by the parasite *Echinococcus granulosus* is one of the major health problems in underdeveloped countries. Mediastinal localization is very rare. We report a rare case of hydatid disease in the posterior mediastinum with an enormous aorta defect. The patient underwent vascular graft placement without shunting or bypass.

**KEYWORDS:** Hydatid, Disease, Aorta Aneurysm, Cross-Clamp, Mediastinum

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## **INTRODUCTION**

Human hydatid disease caused by the larval form of *Echinococcus granulosus* has a worldwide distribution and is endemic in our countries [1]. Liver and lung are the most common sites of infection, but the cyst is seen elsewhere in the body [2]. Mediastinal localization is very rare and the association with false aortic aneurysm is extremely rare [1,3]. This association poses diagnostic, anesthetic and surgical challenges, as it was in our reported case.

## **CASE PRESENTATION**

A 28-year-old man was admitted to the hospital because of the continuous, moderate, and fixed pain for months in the left subcostal arch. The patient was in good general state, visual examination of the chest showed a left base thoracic distention. All other system examination appeared normal with no cardiovascular or respiratory abnormalities noted. Thoracic computed tomography revealed a multicystic lesion on the posterior mediastinum

extended from T4 to the level of the diaphragmatic hiatus with erosion aspect at the anterior part of T4, T5 and T6 vertebrae with important deformity of the spine, the lesion was seen to encompass the descending aorta and a false aneurysm with dimension of 4.2 cm × 3.7 cm was detected on medial portion of the lesion, there was neither lung, nor abdominal cyst, and no pleural effusion. Adamkiewicz artery (AKA) wasn't detected. (Figure 1).

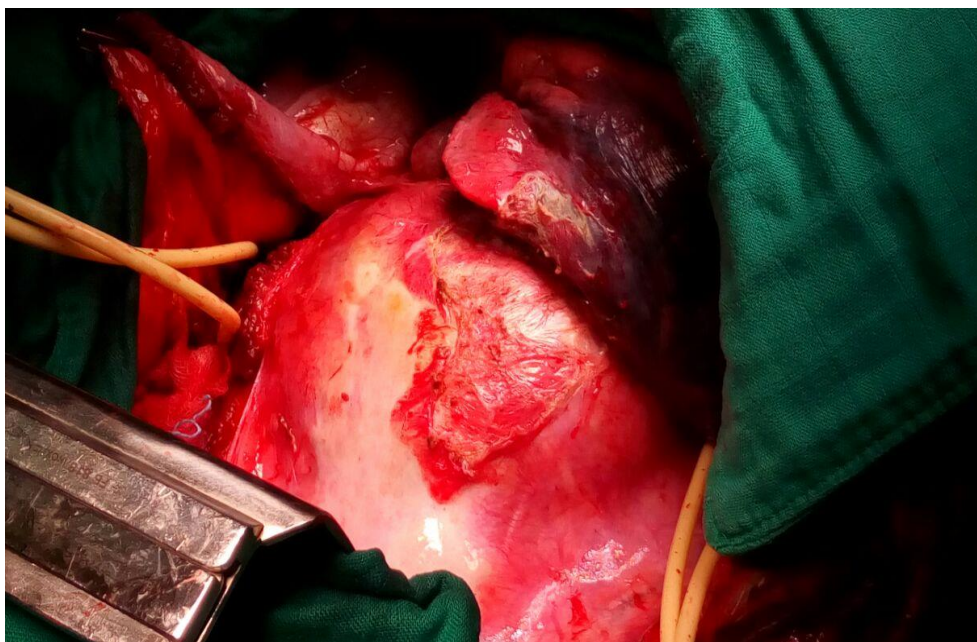
A thoraco-phreno-laparotomy was performed through the seventh left intercostal space, which provided an excellent surgical view. The incision was made from the vertebral border of the scapula to the umbilic along the intercostal space, costal margin was transected. The retroperitoneal region was accessed after dividing oblique muscles, the left dome of the diaphragm was partially divided. Intact peritoneum with all contents has reflected the right. An enormous mass of posterior mediastinum beginning 4cm distal from the left subclavian artery and extending down to the diaphragmatic level was

identified (figure 2). Some adhesences with the lung were released and then a puncture of the mass is performed but has nothing reduced. The aorta was cross-clamped below the origin of the left subclavian artery; the distal portion was cross clamped immediately above the celiac artery through a retroperitoneal approach, the mass was then opened carefully. It's consisting of multiple hydatid vesicles and thrombotic detritus that were evacuated.

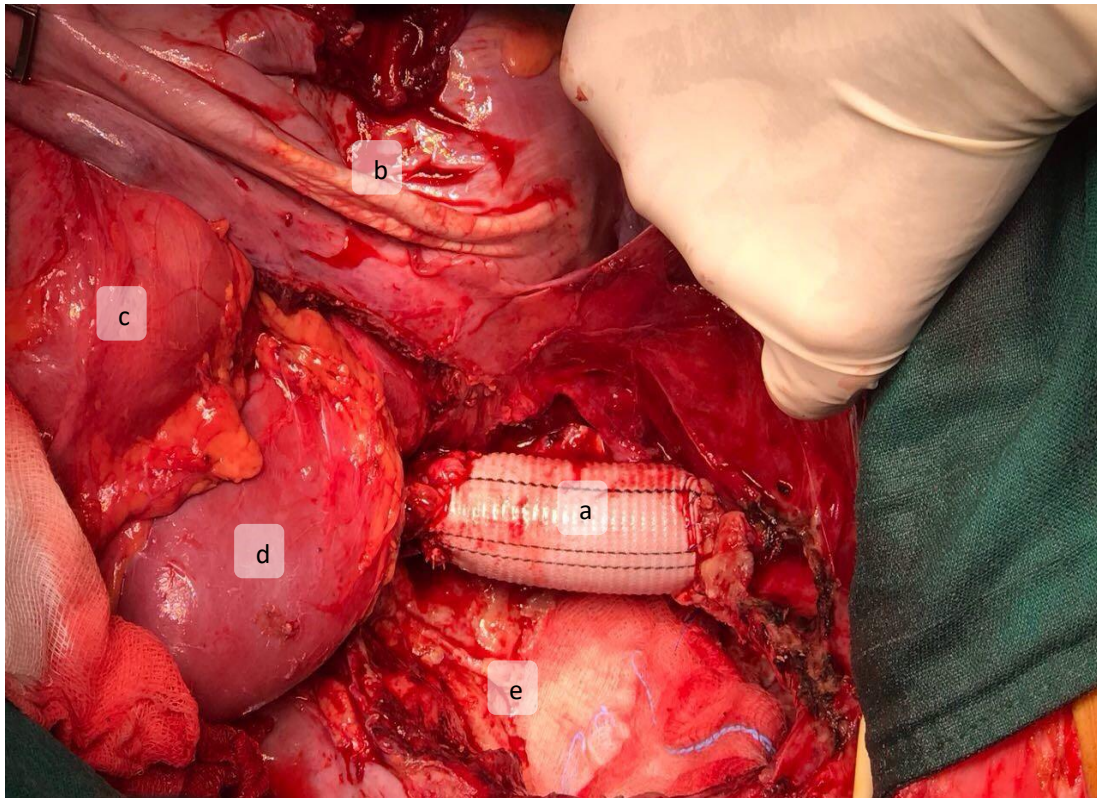
The false aneurysm showed communication to the aortic lumen each 2 cm in diameter. The false aneurysm was resected, the residual space, pleural cavity, and vertebral body were sterilized. Polyester vascular graft prosthesis, 24mm in diameter, and 10cm long was interposed (figure 3). The duration of aortic cross-clamping was 50 minutes.



**Figure 1:** An axial computed tomography scan showing a huge cystic posterior mediastinal mass encompass aorta with false aneurysm, and vertebral erosion.



**Figure 2:** demonstrating sup-pleural mediastinal mass with aortic control after mobilization of left lower lobe, diaphragm is divided.



**Figure 3:** Interposition of aortic graft (a), diaphragm disinsertion (b) and abdominal organs in the thorax (peritoneum and intra-peritoneal organs(c), kidney (d)). Note the deep cavity and eroded vertebrae below the aorta (e).

After an uneventful postoperative period of 20 days, the patient was dismissed from the hospital without any complaint (spinal injury or kidney failure), he was advised to continue taking Albendazole 800mg/day for 1 year.

The patient was oriented for spine stabilization surgery as a second-time surgery, but it's judged unnecessary. Three years later, he is asymptomatic.

#### Comment

Hydatid cysts are rarely present in the mediastinum, less than 2.6% of all chest locations [1]; the parasite localizes in the region after passing the hepatic and pulmonary filters, probably via an arterial branch of the thoracic aorta or via lymphatic. It's affects the vertebral column in 0.2–1% of all patients of which thoracic spine is involved in approximately 45% of cases [2].

The scolices can erode the arterial wall of the aorta from the adjacent organ, like maybe vertebrae in this case. Then aortic wall can be partially or totally integrated into the pericyst this has been proven with other arteries [3]. In another way primarily arterial wall involvement may be caused by parasite entering the vasa vasorum of the relevant artery through a defect in the intima. [4].

Our patient presented with chest pain, determined by the higher size of the cyst and the chest wall erosion. Vertebral destruction was marked with important dorsal spine deformity. Most of the cysts can be symptomatic when the cyst ruptures. Some patients are asymptomatic, the lesion being discovered fortuitously on chest X-ray.

CT-scan is most commonly used modalities for diagnosis of mediastinal hydatid cyst, it's considered essential and is important for displaying the morphology, density and limits of these lesions. Presence of calcification should raise strong suspicions of mediastinal hydatid cyst [5]. In our case, CT showed hypodense, septate cystic lesion around the false aortic aneurysm. These findings must be considered as very evocative sign of false aneurysm caused by hydatid cyst in the endemic countries [3].

The differential diagnosis of posterior mediastinal cyst is still numerous even after CT scan, and in such cases can only be made by surgery [6].

Complications of mediastinal hydatid cyst can be serious (Anaphylactic shock, rupture, fistula, infection, and compression of vital structures [7]. Communication between cyst and the aortic lumen is very rare. Intra-aortic rupture can produce anaphylactic reaction and systemic hydatid embolism [3] For these reasons, open surgical intervention is indicated.

The aim of surgical treatment for hydatid cysts of the mediastinum presenting as an aorta pseudoaneurysme is to eradicate the parasites, to prevent intrathoracic rupture, to excise the residual cavity, and to repair the eventual aortic defect. The surgical approach is the same for these two different pathologies [8]. The adjuvant use of bypass may help extend the critical window that the aortic cross-clamp may be applied safely in this situation.

## CONCLUSION

Cystic lesions of the posterior mediastinum should consider hydatidosis diagnosis in endemic areas. HC can be responsible for false aneurysm of aorta. The surgical strategy must reduce as possible aortic cross-clamping duration to prevent spine injuries and renal failure.

## AUTHORS' CONTRIBUTIONS

The participation of each author corresponds to the criteria of authorship and contributorship emphasized in the [Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly work in Medical Journals](#) of the [International Committee of Medical Journal Editors](#). Indeed, all the authors have actively participated in the redaction, the revision of the manuscript and provided approval for this final revised version.

## COMPETING INTERESTS

The authors declare no competing interests.

## REFERENCES

- [1] Y. Msougar, O. Afandi, N. Ihfa1, Y. Baiz, Y. Rouiessi, M. Khellouki and B. Finech. Mediastinal hydatid cyst: a case report. *Journal of Medical Case Reports* 2013 7:236. DOI: [10.1186/1752-1947-7-236](https://doi.org/10.1186/1752-1947-7-236)
- [2] G. Manenti, M. Censi, G. Pizzicannella, N. Pucci, F. Pitocchi, A. Calcagni, A. Amico, A. Collura, CP. Ryan. Vertebral hydatid cyst infection. A case *Radiology case reports* 15(2020) 523-527. DOI: [10.1016/j.radcr.2020.01.029](https://doi.org/10.1016/j.radcr.2020.01.029)
- [3] C. Ozer, T. Akbas, A. Yıldız, M. N. Duce, F. D. Apaydın. False aneurysm of the thoracic aorta due to hydatid cyst rupture. *European Journal of Radiology Extra* 54 (2005) 27–29. DOI: [10.1016/j.ejrex.2005.03.003](https://doi.org/10.1016/j.ejrex.2005.03.003)
- [4] Z. Chaari, A. Damak, N. Kardoun, Saif Hadhri, R. Hbaieb, N. Elleuch, A. Karoui, and I. Frikha, Primary Hydatid Cyst of the Thoracic Aorta Revealed by Peripheral Arterial Embolism. *Ann Thorac Surg* 2018;106: e257–9. DOI: [10.1016/j.athoracsur.2018.02.070](https://doi.org/10.1016/j.athoracsur.2018.02.070)
- [5] B. LM, Touza R, M. H. CT diagnosis of primary mediastinal hydatid cyst rupture into the aorta: a case report. *CardiovascInterventRadiol* 1988; 11:296–9. DOI: [10.1007/BF02577040](https://doi.org/10.1007/BF02577040)
- [6] E. Kabiri, A. Zidane, F. Atoini, A. Arsalane, H. Bellamari, Primary Hydatid Cyst of the Posterior Mediastinum. *Asian CardiovascThorac Ann* 2007;15:e60–2. DOI: [10.1177/021849230701500526](https://doi.org/10.1177/021849230701500526)
- [7] B. Saenz de San Pedro, J.L. Cazaña, J. Cobo, C.L. Serrano, J. Quiralte, J. Contreras, et al. Anaphylactic shock by rupture of hepatic hydatid cyst. Follow-up by specific IgE serum antibodies. *Allergy* 1992;47:568-70. DOI: [10.1111/j.1398-9995.1992.tb00683.x](https://doi.org/10.1111/j.1398-9995.1992.tb00683.x)
- [8] F. Sabzi, R. Faraji. Ascending Aorta Hydatid Cyst Presenting as Pseudoaneurysm. *Int CardiovascRes J*.2017;11(1):41-44