

## Hydatid necessitans—an unusual entity



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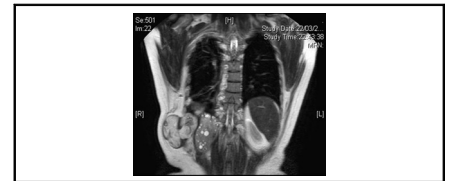
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MRI shows hydatid necessitans and multiple hyperintense daughter cysts within the pleura.

## CENTRAL MESSAGE

Hydatid cyst presenting as necessitans is unusual. It may be misdiagnosed and wrongly treated. A high index of suspicion and appropriate medical and surgical therapy are mandatory for its management.

▶ Video clip is available online.

Hydatid disease is caused by the parasitic cestode, *Echinococcus*. In humans, the lung is the second most-common organ to be infested, next only to the liver.<sup>1</sup> Other thoracic structures less frequently involved are the pleural cavity, chest wall, pericardium, mediastinum, and the heart.<sup>2</sup> Hydatid cysts in the pleural cavity, like the pus of an empyema thoracis, may erode through the intercostal muscles and egress to reach the subcutaneous or muscular plane of the chest wall and present like as a hydatid necessitans. We present 3 cases of this unusual entity. The institutional review board approved the study protocol and publication of data (institutional review board Minute no. 13220; July 22, 2020). The patients provided informed written consent for the publication of the study data.

## CASE REPORT

## Case 1

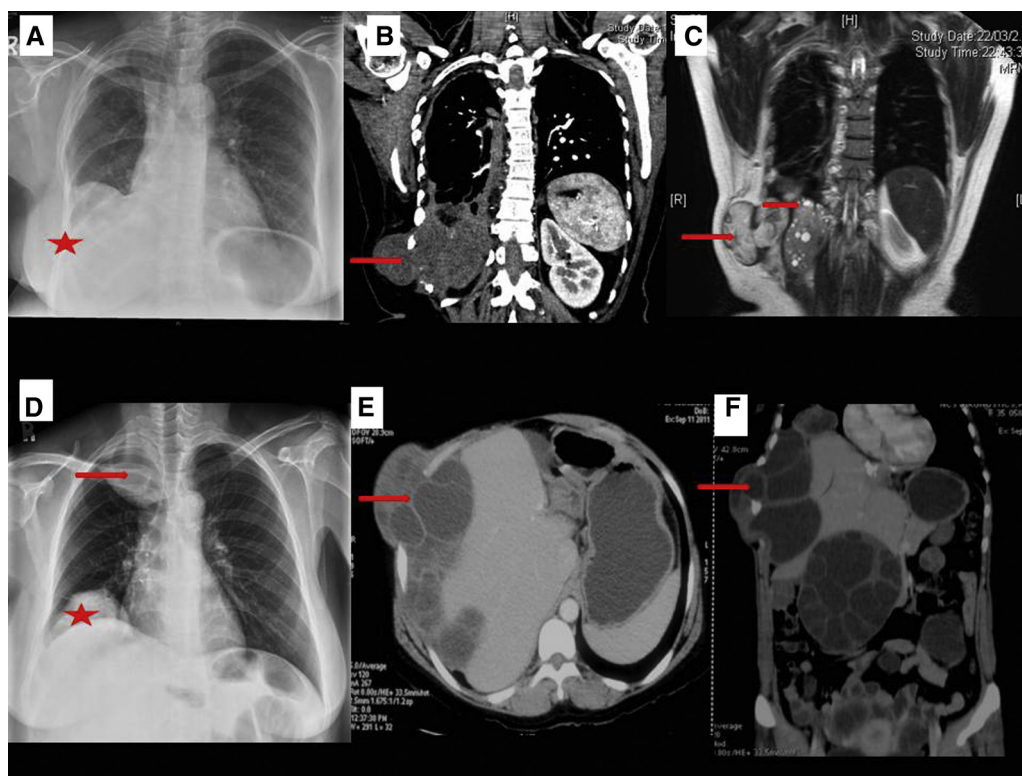
A 37-year-old female patient presented with a history of a painless swelling over the right lower chest for the past 3 months. Clinical examination revealed an 8 cm nontender, cystic swelling on the right lateral chest wall, overlying the sixth to eighth ribs. Chest x-ray (CXR) showed a well-defined homogenous opacity in the lower lateral chest (Figure 1, A). Contrast-enhanced computed tomography (CECT) of the thorax showed a broad-based cyst in the posteroinferior pleural cavity, extending through the eighth intercostal space into the subcutaneous plane (Figure 1, B). Magnetic resonance imaging of the thorax showed

hypointense folded membranes within the cyst in the chest wall (Figure 1, C).

The patient underwent a right posterolateral thoracotomy for excision of a 12-cm hydatid cyst from the posterior costophrenic angle, which had extended through the overlying chest wall. The postoperative period was uneventful, and she was discharged on oral anthelmintics.

## Case 2

A 40-year-old female patient presented with complaints of cough with mucoid expectoration and a dull, aching upper abdominal pain of 6 months' duration. Clinical examination revealed a diffuse, nontender prominence in the right lower chest wall. The CXR showed a well-defined homogenous opacity in the right lower hemithorax overlying the dome of the diaphragm and another well-defined round opacity in the right upper lobe of the lung (Figure 1, D). CECT of the thorax and abdomen revealed hydatid cyst in the upper, middle, and lower lobes of the right lung. There was another large hydatid cyst in the right pleural cavity, extending laterally to the subcutaneous plane of the chest wall through the ninth intercostal space, splaying the adjacent ribs. There was no communication with the adjacent lung. There were multiple intraabdominal cysts (Figure 1, E and F). Through a right posterolateral thoracotomy, the pulmonary cysts were excised, and the large herniating cyst was emptied and derooft. After an uneventful recovery, she was discharged on



**FIGURE 1.** A, Chest x-ray showing the hydatid cyst in the right lower zone, projecting outside the chest wall (*star*). B, Contrast-enhanced computed tomography of the thorax, coronal view, showing primary pleural Hydatid cyst extending through the chest wall as hydatid necessitans (*arrow*). C, Magnetic resonance imaging of the thorax, coronal section, showing hydatid necessitans (*arrow*) and multiple hyperintense daughter cysts within the pleural hydatid cyst (*small arrow*). D, Chest x-ray showing hydatid cyst as well-defined opacities in the right lower (*star*) and upper zones (*arrow*). E, Contrast-enhanced computed tomography of the thorax, axial view, showing primary pleural hydatids extending out through the intercostal space (*arrow*). F, Contrast-enhanced computed tomography of the thorax, coronal view, showing the hydatid necessitans (*arrow*) along with multiple intra-abdominal cysts.

anthelmintics and was followed up by the general surgeons for management of the abdominal hydatids.

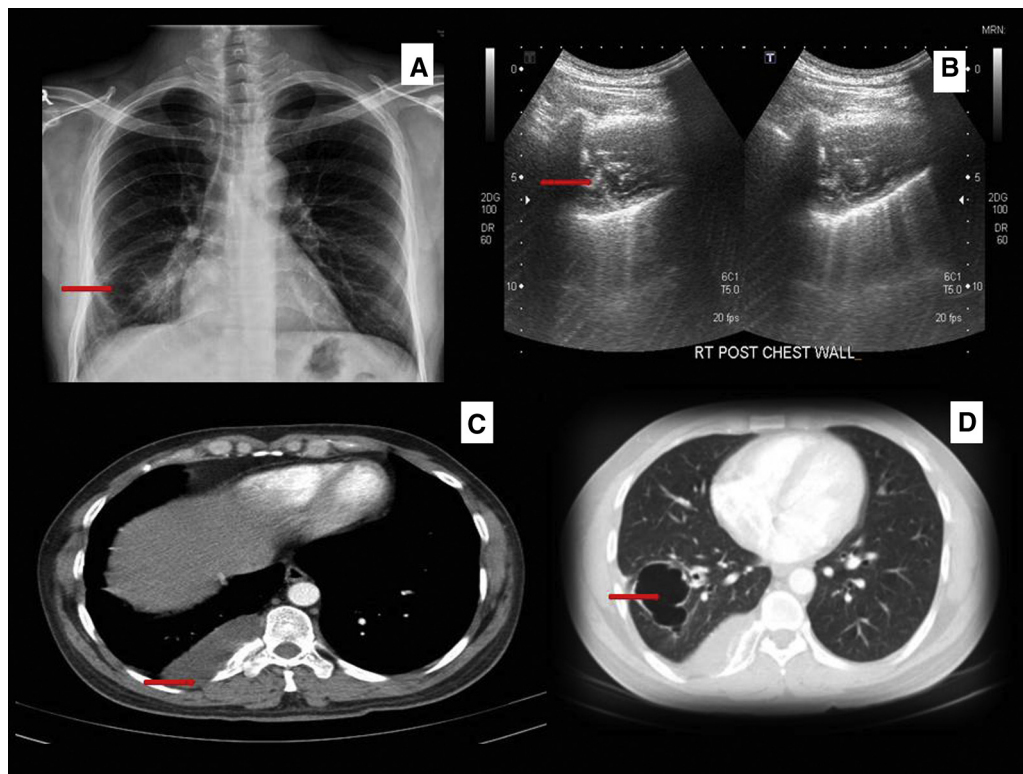
### Case 3

A 39-year-old male patient presented with complaints of recurrent cough with episodes of blood-tinged sputum for the past 1 year. He had also been expectorating salty fluid with whitish membranes periodically. Clinical examination showed fullness in the right lower paraspinal region. CXR showed an empty cavity in the right lower zone (Figure 2, A). The ultrasonogram of chest showed a cyst with membranes (Figure 2, B). CECT of the thorax showed the hydatid cyst in the paraspinal location at the D9-10 level causing scalloping of the adjacent vertebral bodies and the tenth rib (Figure 2, C). This cyst was connecting with another bigger cyst within the pleural cavity through a narrow defect in the intercostal muscles (Figure 2, C). There was also a 5-cm empty pericyst in the right lower lobe, with a few bronchi in its close relation (Figure 2, D). Intraoperatively, there was a 12-cm hydatid cyst in the right paraspinal location with extension into the overlying chest wall. There was an empty cavity in the lower lobe of right lung. The

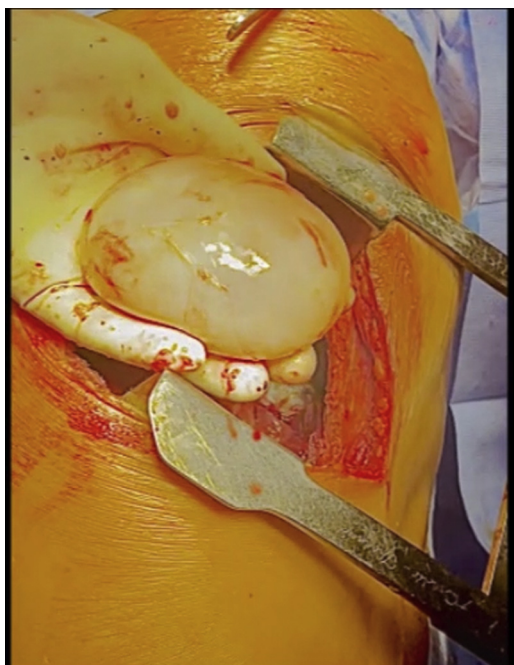
intrapleural cyst was excised and the extrathoracic component sucked out through the defect in the intercostal muscle. The lower-lobe cavity was opened, the bronchopleural fistula in its wall was closed, and the cavity capitonnaged. The patient had an uneventful postoperative recovery and was continued on anthelmintics.

### COMMENT

Primary pleural hydatid disease occurs by hematogenous or lymphatic seeding in about 1.4% to 3.4% of all cases of systemic echinococcosis.<sup>2</sup> Secondary pleural involvement may be due to rupture of a hydatid cyst from an adjacent organ.<sup>2</sup> Like in an empyema necessitans, the hydatid in the pleural cavity also has the tendency to egress out of the thoracic cavity by eroding through the intercostal muscles to present in the subcutaneous plane or deep to the muscles of the chest wall, forming a necessitans. These patients presented with a painless, soft swelling in the chest wall with or without symptoms pertaining to synchronous hydatid disease in other organs. This swelling may be misdiagnosed as an Empyema necessitans, a neoplasm or a chest wall cyst. CECT is diagnostic, and ultrasonography and



**FIGURE 2.** A, Chest x-ray showing an empty cavity in the right lower lobe of the lung (arrow). B, Ultrasonogram demonstrating the membranes of the hydatid cyst (arrow). C, Contrast-enhanced computed tomography of the thorax, axial view, demonstrating the necessitans (arrow). D, Contrast-enhanced computed tomography of the thorax, axial view, showing an empty pericyst in the lower lobe of the lung.



**VIDEO 1.** Described are the associated operative steps in thoracic hydatid disease along with medical management. Also explained is the importance and relevance of the paper for the readers of the *Journal*. Video available at: [https://www.jtcvs.org/article/S2666-2507\(22\)00206-1/fulltext](https://www.jtcvs.org/article/S2666-2507(22)00206-1/fulltext).

magnetic resonance imaging may aid in the diagnosis.<sup>3</sup> All patients are started on dual oral antihelminthics, albendazole (10-15 mg/kg/day), and praziquantel (40-60 mg/kg/once a week), immediately after the diagnosis of hydatid disease is made, and it is continued postoperatively for 3 months.<sup>4</sup> The aim of surgery is to evacuate the cyst without spillage; for this, the surgical site is isolated by packing around it with surgical pads soaked in a scolicalid solution (0.5% cetrimide) to prevent local implantation of protoscolices. The cyst is opened and the contents evacuated carefully, and the bronchial openings, if any, are closed. The empty cavity is then capitonnaged to obliterate the space. After excision of the cyst, the pleural cavity is washed thoroughly using the scolicalid agent (both 0.5% cetrimide and 3% saline). Surgery is to be expedited due to the many possible complications.<sup>5</sup> Careful handling of the cyst during surgery to avoid spillage of the cyst's contents and the use of intraoperative scolicalid agents and postoperative chemotherapy minimize recurrences (Video 1).

To conclude, pleural hydatid cyst presenting as necessitans is unusual. It may be misdiagnosed and wrongly treated, with undesirable outcomes. Hence, a high index of suspicion, scrutiny of radiologic investigations, and

appropriate medical and surgical therapy are mandatory for its successful management.

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