



Pneumothorax revealing a hydatid cyst ruptured into the pleural cavity

Hela Oueslati, Yasmine Houas, Fatma Thamri, Senda Houidi, Yosra Kerkeni, Sondes Sahli, Riadh Jouini, Said Jlidi

Department of Pediatric Surgery, Children's Hospital,
Faculty of medicine of Tunis, Tunis El Manar University, Tunis, Tunisia

Introduction

- Hydatid disease, caused by the larval stage of *Echinococcus granulosus*, remains **endemic** in many developing regions.
- In **children**, the **lungs** are the most frequently affected organ due to tissue elasticity and lower resistance to cyst expansion.
- Most **pulmonary hydatid cysts** are asymptomatic and discovered incidentally.
- Rupture into the pleural cavity** is **rare** but may lead to severe complications such as pneumothorax, empyema, or anaphylaxis.
- The condition often **mimics common thoracic emergencies**, making early diagnosis difficult.
- This case highlights the **diagnostic and therapeutic challenges** of a ruptured pulmonary hydatid cyst presenting as pneumothorax in a child.

Case presentation

- Patient:** 8-year-old previously healthy girl
- Symptoms:** Sudden right-sided chest pain, nonproductive cough, dyspnea (48 h evolution)
- Initial findings:**
 - ✓ **Chest X-ray** → total right compressive pneumothorax with mediastinal shift
 - Managed with chest tube → partial lung re-expansion; seropurulent drainage, no air leak



Fig 1. Chest X-ray showing a total compressive right pneumothorax.



Fig 2. Chest X-ray after drainage showing Air fluid level in the right lung.

CT Scan:

- Large thick-walled **air-fluid cavity** in right lower lobe
- Pleuro-parenchymal communication** through posterior defect
- Collapsed lower lobe with **floating membrane fragments**



Figure 3: Axial chest CT showing a large right lower lobe air-fluid cavity communicating with the pleural space, consistent with rupture of a pulmonary hydatid cyst.

Management:

- Initial conservative treatment with antibiotics and close monitoring
- Persistent cavity on follow-up imaging → surgical indication

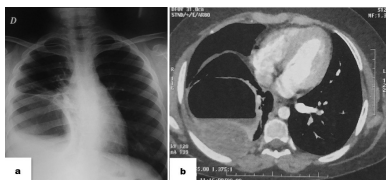


Fig 4. Imaging exams 6 weeks later
a) Chest X-ray showing persistent air fluid level in the right lung.
b) Axial chest CT showing persistent air fluid cavity with pleuro-parenchymal communication and unchanged effusion.

- **Surgery:** Right posterolateral thoracotomy
 - Findings: **superinfected ruptured hydatid cyst** opening into pleural space
 - Procedure: **Cystectomy + Capitonage + Pleural lavage and drainage**
- Histopathology confirmed hydatid cyst
- **Albendazole** 10 mg/kg/day for 3 months postoperatively
- Full lung re-expansion, no recurrence at 2-year follow-up. Patient remains **asymptomatic and disease-free**.

Discussion

- Hydatid disease** (*Echinococcus granulosus*) remains endemic in many developing regions.
- Lungs** are the most frequent site in children due to tissue elasticity allowing cyst expansion.
- Rupture into the pleural cavity is rare (0.5–6%)**, but serious — may mimic pneumothorax or empyema.
- Types of rupture:**
 - Contained (within pericyst)
 - Bronchial (into bronchi)
 - Pleural (into pleural space – most severe, as in our case)
- Clinical presentation:** often sudden chest pain, dyspnea, and signs of pneumothorax.
- Diagnostic challenges:** symptoms and radiology can resemble other thoracic pathologies.
- Imaging clues:**
 - Air-fluid level in cyst cavity
 - Pleuro-parenchymal communication “Floating membranes” or “water lily sign” on CT
- May be misinterpreted as CPAM or pneumotocèle
- Serology:** often negative in children due to weak immune response to pulmonary cysts.
- Treatment principles:** Early surgical intervention is the gold standard. **Cystectomy with capitonnage** preserves lung tissue. **Pleural lavage and drainage** prevent secondary infection. **Albendazole (10–15 mg/kg/day, 3–6 months)** to eradicate residual scolices and prevent recurrence.
- Prognosis:** Excellent with timely diagnosis and surgery. Delayed treatment may lead to complications: empyema, persistent air leaks, or sepsis.
- Public health importance:** Control of stray dogs, livestock hygiene, and public awareness reduce disease prevalence.

Conclusion

- Rupture of a pulmonary hydatid cyst** into the pleural cavity is a **rare but serious** complication in children. It can **mimic pneumothorax or empyema**, often delaying accurate diagnosis.
- In **endemic regions**, clinicians should maintain **high suspicion** in any unexplained pediatric pneumothorax.
- CT imaging** is essential for identifying pleuro-parenchymal communication and membrane fragments.
- Early surgical management** (cystectomy with capitonnage) combined with **postoperative albendazole therapy** provides excellent outcomes.
- Prompt recognition and multidisciplinary management** are key to preventing morbidity and recurrence.

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