

# Basics of Pulmonary Hydatid Disease

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There are three main differences between hydatid cysts of the lung and those of the liver. All three are readily explained on the basis of anatomic difference between these two organs:

1. The liver is involved about five times more often than the lungs. The reason is that the majority of ingested hexacanth embryos of the parasite, *Echinococcus granulosus*, about 30 microns in diameter, are carried to the liver in the portal system. There they are filtered out in liver sinusoids. No more than about 20% of these ova manage to escape the adult human liver to become trapped in the pulmonary capillaries.
2. Rupture of liver hydatids into bile ducts, excepting those at the hepatic hilum, is a clinically silent and pathologically inconsequential process. But a lung hydatid breaking into an even modest sized bronchial duct will usually reveal its presence by hemoptysis.
3. It follows from 2), that the majority of liver hydatids can be left alone, expecting them to undergo spontaneous abortion. A pulmonary hydatid cyst, on the other hand, will have to be treated sooner or later. The reason is that rupture of a lung hydatid into a bronchus leads to collapse of the laminated membrane which is too large to escape through the small bronchial opening. It is trapped within the pericyst cavity as an insoluble foreign body, perpetuating secondary infection. The

small bronchial airway opening; however, acts as safety valve allowing escape of accumulated purulent matter, and the abscess cavity is essentially self controlled. Antiscolicidal agents, incidentally, have no role in such a clinico- pathologic setting.

A fourth, but not so important difference between echinococcosis of these two organs is that lung cysts, resting in a "gaseous" environment, grow faster than liver cysts imbedded in a "solid" matrix. This difference is another reason why lung cysts should be treated surgically at the earliest opportunity after their discovery. There is one exception to this basic rule, and that is the occasional patient presenting countless small lung hydatids dispersed throughout both lung fields.

Operating on these innumerable cystic lesions would be like picking raisins out of a cake. Remarkably, albendazole administered continuously for at least a year or more, may actually lead to radiologic disappearance of these very small cysts.

Incidentally, there is no such thing as a primary pleural hydatid cyst, as the pleura does not have its own blood supply. All pleural hydatid cysts are; therefore, secondary to extension of primary lung or chest wall hydatids into the pleura.

Such a compressed overview of lung hydatids might help in knowing how to manage the majority of pulmonary hydatids. The fact that

host tissues are not destroyed but only displaced, should serve as a reminder that there is no need for pulmonary resection in the form of lobectomy or -Heaven forbid- pneumonectomy. Removal of the parasite is all that is necessary followed by meticulous suture closure of all bronchial openings. What remains behind is normal parenchyma which, albeit compressed at times, will recover in time.

Pulmonary hydatids have not escaped the onslaught of minimal access surgery enthusiasts, enchanted with their technical prowess. That the fluid of lung hydatids can be aspirated and the collapsed laminated membrane evacuated through tubal instrumentation has been amply documented. That the multiple bronchial side holes opening into the emptied pericyst cavity can be safely sutured closed, or even discovered through tubes, is more doubtful.

What may stymie the surgeon is the occasional aberrant presentation of hydatid cysts within the chest cavity. Anything is possible. I never thought a hydatid cyst could produce recurrent nerve palsy, until I saw a case. Entry of intrathoracic hydatid cyst into the aorta with widespread metastases has, as far as I know, not been reported. It undoubtedly, will occur someday. What may be frightening and has indeed been mentioned by Harold Dew of Australia, a pioneer in this field, is sudden asphyxia due to a large cyst entering a major bronchus and getting stuck beneath the vocal

cords (1). That is why one should always assess how far a given lung hydatid is from the trachea and its bifurcation. The other intraoperative emergency which can be life threatening is when a multivesicular liver hydatid has penetrated across the diaphragm into the lower lobe. During dissection of the damaged lower lobe, one or more daughter cysts may escape from the partially evacuated liver hydatid and enter into the opposite bronchial tree to acutely block its expansion (2). Bronchoscopic attempt at removing such bronchial hydatid embolisation is futile. I have had one patient with this intraoperative complication die on the operating table.

Anaphylactic reactions, possibly fatal, can be readily averted by routine pre-operative administration of 100 mg of hydrocortisone. A last precaution is not to perform a diagnostic bronchoscopy, rigid or flexible, before operating on a lung hydatid cyst. There is no need for this, and it might precipitate its perforation, inundating the whole bronchial tree.

## REFERENCES

1. Dew, Harold R. Hydatid disease. Its pathology, diagnosis and treatment. The Australasian Medical Publishing Company, Limited. 1982. p. 317.
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