

# A Complicated Pulmonary Hydatid Cyst Communicated to Bronchi and Pleura

## *Bronş ve Plevra ile İlişkili Bir Komplike Ünilocüler Hidatik Kisti*

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**Summary:** A forty-year-old woman applied to Heybeliada Chest Disease and Chest Surgery Center with complaints of cough, back pain and malodorous expectoration. She also suffered with stomach and gall bladder problems for 16 years. Routine radiologic examinations showed a radiolucence lesion which showed air-fluid level. It was about 12 cm in diameter. Cytologic examination of sputum, bronchioloalveolar lavage and pleural fluid revealed characteristic parasitic elements and a diagnosis of complicated pulmonary hydatid cyst communicated to bronchi and pleura was established. Subsequently a surgical resection of right lower lobe was done. Histopathologic examination of surgical specimen confirmed the cytologic diagnosis. Our results suggested that cytologic examination of sputum, bronchioloalveolar lavage and fine needle aspiration of pleural fluid is a useful and adequate technique to diagnose complicated pulmonary unilocular cystic hydatidosis (CPUCH), communicated to bronchi and pleura.

**Key Words:** Hydatid cyst, pleural effusion, lavage fluid, sputum, cytology.

**Özet:** Kırk yaşında bir bayan hasta Heybeliada Göğüs Hastalıkları ve Göğüs Cerrahisi Merkezine öksürük, sırt ağrısı ve kötü kokulu soluk yakınmaları ile başvurdu. Onaltı yıldır süren mide ve safra kesesi sorunları vardı. Rutin radyolojik incelemede "hava-sıvı düzeyi" bulunan yaklaşık 12 cm çapta radyolüsent lezyon izlendi. Balgam, bronşiolalveolar yıkama, plevral sıvı incelemelerinde karakteristik parazitik yapılar saptandı ve bronş ve plevra ile ilişkili pulmoner komplike ünilocüler kist hidatik tanısı verildi. Daha sonra sağ alt loba cerrahi rezeksiyon uygulandı. Histopatolojik tanı sitolojik tanıyı destekledi. Bulgularımız, bronş ve plevra ile bağlantılı, pulmoner komplike ünilocüler (tek gözlü) (tekil) kist hidatik olgularında balgam, bronkoalveolar yıkama, plevra ince iğne aspirasyonunun sitolojik incelenmesinin kullanışlı ve yeterli bir yöntem olduğu yönündedir.

**Anahtar Sözcükler:** Kist hidatik, plevral efüzyon, yıkama sıvısı, balgam, sitoloji

**C** PUCH is a common infestation in Turkey. However, its communication to bronchi and pleura is a rare occurrence. There are only a few reports directed through cytologic diagnosis of pulmonary hydatid disease in English literature (1-6). In a large study with 1812 cases of unilocular cystic hydatidosis, done in İstanbul region, we found 962 patients with pulmonary cystic hydatidosis (7). While almost half of these cases were complicated, only one communicated bronchi and pleura concomittantly. This case was diagnosed by sputum, bronchioloalveolar lavage and pleural fluid cytology at the same time. We were unable to find such a case diagnosed by the techniques mentioned above in English literature.

### Case Report

A forty-year-old woman had been under investigation and treatment for problems with her stomach and gall bladder for 16 years. A radiolucence image was discovered in her right lung 1.5 years ago. Since then she has been suffering from cough, expectoration and back pain. However, she had been neglecting these symptoms. Due to recent increase in the degree of back pain, yellow colored malodorous expectoration, lack of appetite, lose weight and hemoptysis she was hospitalized. In physical examination, thoracic vibration and respiratory sounds were diminished in right hemithorax. Hematologic tests showed hypochrome microciter anemia. Posteroanterior and lateral chest radiographs revealed a radioludence image which showed air-fluid level in her right lung, lower lobe. Ultrasonographically this lesion was hyperechoic and uniloculated. Pleural thickennig and pleural effusion was associated with it. Computurized tomography showed that the lesion had a thick walled unilocular cystic structure and its dimentions were 140x106x100 mm. Pleural effusion was rich in proteins. Its lactic dehydrogenase activity was high. Cholesterol and glycogen was also found in pleural fluid. Bacteria was not isolated in culture of pleural fluid. Fiberoptic bronchoscopic examination showed that, right lower and medial lobe openings were compressed, hyperemic, edematous and covered with purulent secretion. Cytologic smears of pleural fluids, bronchioloalveolar lavage and sputum were rich in neutrophils and eosinophils and included hooklets, degenerated scolices and laminated membrane fragments (Figure 1-3).

Hooklets showed reflection under dark field microscopic and phase-contrast microscopic examinations. We also stained some slides with Gomories trichrome and Ziehl-Neelsen stains. Hooklets were colored red with these stains. A diagnosis of complicated pulmonary hydatid disease was done based on these findings. The patient was then undergone a lobectomy and histopathologic examination of surgical material confirmed the diagnosis.

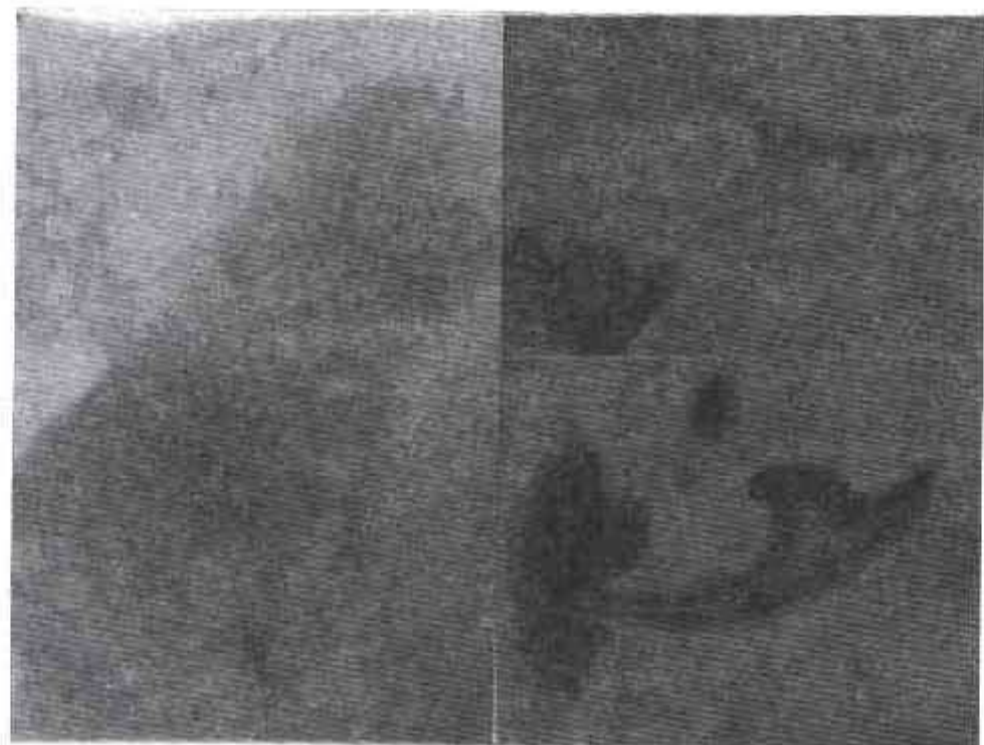


Figure 1. Degenerated scolices and laminated membrane pieces in sputum (PAP-EA50, X200).

Figure 2. A degenerated scolex and a hooklet in cellular background mainly consisted of eosinophils (Bronchioalveolar lavage, PAP-EA65, X400).

Figure 3. A hooklet in sputum (PAP-EA50, X1000).

### Discussion

Diagnosis of pulmonary hydatid cyst is generally based on clinical and radiological findings (8, 9). Although the disease is generally indolent, cough, chest pain, dyspnea, fever, expectoration and hemoptysis are usual symptoms especially seen in patients with complicated cysts (10, 11). In some cases rupture may be the first manifestation. Possible complications are intrabronchial, mediastinal or paranchimal rupture, anaphylactic response, fatal asphyxia, and lung abscess (8, 9, 12) which all require immediate treatment. Uncomplicated cysts are seen as oval or spherical opaque lesions on chest radiographs (8-10). Perforation

may change the radiographic appearance of a hydatid cyst, resulting in a wrong diagnosis and delay treatment. Even though some radiological signs, such as water-lily sign, crescent sign, hydropneumothorax and others may indicate a ruptured hydatid cyst, these findings may be difficult to interpret due to severe inflammation and abscesses which are usually associated with perforations (8-10). However, the diagnosis is quite difficult since rupture may change the radiological appearance of hydatid cyst. Serologic tests have a lower sensitivity and false positive results may often be seen due to cross reactions with other parasitic infestations and some pulmonary malignancies (8-11). Eosinophilia is not a good indicator of hydatid disease, either (8-10). Therefore, diagnosis of a complicated pulmonary hydatid disease is problematic. Demonstrations of white or yellowish gelatinous membranes in fiberoptic bronchoscopic examination may lead to diagnosis, however, it is an invasive technique and its value has not yet been established (13). Cytopathology is a rapidly growing science which is as effective as histopathology in definitive diagnosis of many conditions. It is the only method which may provide

ultimate diagnosis of an hydatid cyst without requiring invasive procedure. Cytologic diagnosis of hydatid disease is based essentially on the presence of scolices, hooklets and laminated membrane fragments (1-6, 14-19). All these elements were found in smears of sputum, bronchioloalveolar lavage and pleural fluid in our case. Hooklets may be found in scolices or free-lying in the background. When they are in scolices, it is easy to recognise them. However, free hooklets may be quite difficult to distinguish from necrotic debris, fibrin and other cellular elements. Since hooklets are refractile, dark field microscopy and phase contrast microscopy are helpful in recognising them (15-19). Gomories trichrome and Ziehle-Neelsen stains are also valuable to make hooklets visible. Our case was examined with all above mentioned techniques and results were consistent with previous studies (1-6).

In conclusion, we suggest that cytologic examination of sputum, bronchioloalveolar lavage and fine needle aspiration of pleural fluid is a useful and adequate technique to diagnose CPUCH, communicated to bronchi and pleura.

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