



A RETROSPECTIVE STUDY ON COEXISTENCE OF PULMONARY HYDATID CYST AND ASPERGILLOSIS

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Abstract- Hydatid disease is a rare zoonotic disease. Rarely the hydatid cyst can become infected with mycotic organisms, such as *Aspergillus*. We describe a young male who presents with clinical features of suppurative lung abscess whose workup diagnosed hydatid cyst complicated by *Aspergillus* co-infection.

A 32-year-old male farm labourer hospitalized with complaints of fever, chills, and productive cough with chest pain since four months duration. Significant findings included leukocytosis with eosinophilia. Chest x-ray showing cystic lesion with air fluid level in Left lung suggestive of Hydatid cyst. CECT imaging of thorax and abdomen showed encysted left hydro pneumothorax with hypo dense cystic lesion in right lobe of liver, suggesting possibility of hydatid. The patient underwent decortication of the pulmonary cyst. Histopathological examination of surgical specimen revealed cyst of 10 cm in its largest diameter showing cyst wall with thin branching septate hyphae with spores along with pink laminated wall like structure suggestive of hydatid cyst with aspergilloma.

Aspergillosis and Hydatid cyst coexistence should be considered in presence of pulmonary cavitory lesion particularly in endemic areas. Detection of such association is important for planning adequate management.

Keywords- Pulmonary hydatid; aspergillosis; Hydatid cyst.

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Case History

A 32 years old male farm labourer was admitted to our hospital with chief complaints of chest pain and productive cough since one year. Patient was relatively asymptomatic before one year. Then he gradually developed pain in the right side of chest, which is not associated with activity or exertion. Pain was increasing in severity gradually. Then he developed low grade intermittent fever since last four months, which is on and off pattern without chills & rigors. There is also dull epigastric pain since last four months. Occupationally he was a farm labourer. There is a close association with street dogs and they were habituated to feed dogs within the same dish. There is also close association found with the other animals like sheep and cattle. Patient was fairly built and fairly nourished, he was taking mixed diet. Family history and other were not found significant.

On examination patient was pale. There was no any swelling noted on abdomen or chest. There was tenderness on the lower part of

right side of the chest and adjoining areas of the epigastrium and right hypochondrium.

Chest radiograph showed cystic lesion with air fluid level in Left lung suggestive of Hydatid cyst. Right lung was within normal limits. CECT imaging of thorax and abdomen were obtained which showed moderate to gross encysted hydro pneumothorax on left side with collapse of underlying lung fields. There is evidence of well defined hypo dense cystic lesion noted in segment V and VII of right lobe of liver which on post contrast study shows enhancement of its wall. Largest lesion measures approximately 45 x 55 x 50 mm size suggesting possibility of hydatid cyst likely. Other findings were within normal limits. Complete blood count of the patient was done which showed moderate anaemia with increased total count (12,400/cmm) and increased eosinophils (absolute eosinophil count 1600/mm³. Normal range 40-400/mm³).

The patient ultimately underwent decortication of the pulmonary cyst. Utmost care was taken during the surgery not to rupture the

cyst. Histopathological examination of the surgical specimen was done. On Gross examination the cyst was 10 cm in its largest diameter and was whitish, shiny & translucent. On Microscopic examination the cyst wall showed outer cuticular layer and inner germinal layer with degenerated pink granular and membranous, laminated material invaginated by fungal elements i.e. large collections of thin branching septate hyphae characteristically dichotomous pattern with evidence of spores (fig.1). All those findings suggestive of hydatid cyst invaginated by aspergillus.

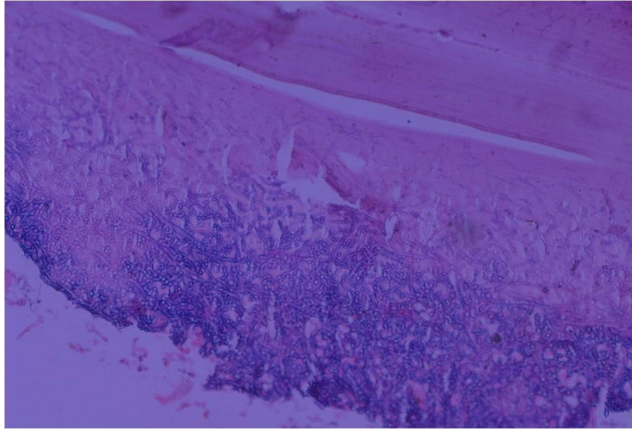


Fig. 1- Layers of hydatid cyst invaginated by fungal hyphae of *Aspergillus*

Patient after decortication of cyst was put on mebendazole therapy. Post operative period was uneventful and patient was free from recurrence of either disease at 6 months follow up.

Discussion

Aspergillus invading the hydatid cyst was found in 2% of the cases. Hydatid disease is endemic in Mediterranean countries [1]. Most common location- Liver (50-70%) and second common site is the lungs (20-30%) [2]. Pulmonary disease appears to be more common in younger individuals [3]. Clinical presentation of pulmonary hydatid cysts depends on the size of the cyst and whether the cyst is intact or ruptured. Intact cysts are either incidental findings or present with cough, dyspnea or chest pain. If it ruptures into a bronchus, pleural cavity or biliary tree it is called a complicated cyst and may present with expectoration of cystic contents, productive cough, repetitive haemoptysis, fever or anaphylactic shock in addition.

Immune deficiencies and structural deformities of the lung are predisposing conditions for aspergillosis [1]. *Aspergillus* occurs generally in pre-existing cavities caused in the most by tuberculosis. It can also occur in operated hydatid cyst cavities, only few cases have been reported [4-7]. Manifestations of the infection depend upon the host's immune status and presence of underlying structural changes in the lungs [8-12]. Although patients with immune deficiencies are prone to aspergillosis, coexistence of *Aspergillus* and hydatid cyst has been reported in both immunocompromised and immunocompetent patients [13-15]. Coexistence of *Aspergillus* and echinococcosis is rare and also that pulmonary echinococcosis leads to higher susceptibility to saprophytic fungal co-infection than echinococcosis located in other sites of the body [1].

Clinical significance of detecting coexistence is important for adequate

management of the patient. Although both in echinococcosis and aspergillosis radiological imaging procedures are highly accurate but their sensitivity and specificity in detecting the *Aspergillus* colonies entrapped in a hydatid cyst is not clear.

Detection of aspergillus galactomannan (AGA) antigen is valuable in invasive aspergillosis. This test is performed only if a suspicion exists. But AGA levels may not be helpful in non-invasive cases.

There is a number of pathophysiological mechanisms leading to pulmonary aspergillosis and clinical features are numerous. The complication results due to deterioration in local defenses against opportunistic infections such as aspergilloma, *Cryptococcus*, *Phaeohyphomycosis* etc. It has been suggested that in cases of giant hydatid cyst extending to the hilum, refraining from obliterating the cyst cavities may lead to opportunistic infections such as aspergilloma.

Surgical resection is the treatment of choice for both simple as well as complicated pulmonary hydatid cysts. Surgical resection may be curative for both aspergillosis and hydatid if aspergillosis is limited within cyst. Chemotherapy with an oral antihelminthic - mebendazole, is useful in unresectable, recurrent, or inoperable cases of hydatid disease. Invasive aspergillosis may further risk the patient especially in immunocompromised patients, so prophylactic antifungal therapy for aspergillosis may be useful to prevent further complications. The cyst was intact before surgery and surgical resection was carried out successfully without rupturing the cyst so we can conclude that aspergillosis was limited to the cyst and surgical resection was curative for both of them. Our patient had an uncomplicated post-operative period which implies that he was immunocompetent. Since reports in the literature are very few in number and are only sporadic case reports, there is no reliable data on optimum management of the patient.

Conclusion

Aspergillus and Hydatid cyst coexistence should be considered in presence of pulmonary cavity lesion particularly in endemic areas. Detection of such association is important for planning adequate management. There are few published case reports describing incidental findings of *Aspergillus* in a hydatid cyst. The rare occurrence of such a condition can lead to a delay in diagnosis and treatment.

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