Case Report

Right sided Diaphragmatic Mesothelial Cyst in a 40 year old adult male: A rare congenital anomaly

Hajrah Hilal Ahmed, Muhammad Jamaluddin, Kanwal Irshad

Abstract

Mesothelial growths are lined by a solitary layer of mesothelial cells, and they are benign in nature. These lesions are uncommon and can be found on, or adjacent to serous membrane. Intrathoracic mesothelial growths are congenital deformities and an intradiaphragmatic site is exceptionally rare. Complete excision is obligatory for definite diagnosis. We are reporting a case of intradiaphragmatic mesothelial cyst in a 42-year-old male patient who came with backache, shortness of breath and right sided chest discomfort. Careful extraction of the cyst was performed. The final diagnosis based on histopathology report was mesothelial cyst arising from the diaphragm.

Keywords:Computed Tomography; Diaphragm; Histopathology; Mesothelial Cyst; Surgical Excision.

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Introduction

Primary tumors and cysts of the diaphragm are uncommon.[1] An intradiaphragmatic location is extraordinarily rare and not many cases have been accounted for in the writing until now.[2-4] They are classified as benign and malignant. Most frequently occurring benign lesions are either mesothelial or bronchogenic in origin.[5] Mesothelial cysts are inherent lesions emerging from the remaining parts of coelome[5-8] which can be found in the ovary, adrenal organs, spleen, falciform tendon, mesentery, vaginal process of the testicle, and rarely the diaphragm. The cyst is found in youngsters, just as in the grown-ups. Normal age at presentation is 40 years. Half of the reported tumors are benign, which were distributed similarly between the left and right half of the diaphragm. Chest discomfort and abdominal pain are the most widely recognized presenting complains.[5] The diagnosis may be challenging as a result of its anatomic position and rarity.[9] The final dignosis was made after laparotomy and histological assessment.[10]

Case Presentation

A 42 year, industrial laborer, presented to the surgical OPD complaining of back discomfort for one-year, shortness of breath (SOB) and chest pain for 6-7 months. Backache was continuous and aching in nature along with SOB which exacerbated on effort and lying down. Likewise, chest discomfort was constant of dull nature, with intermittent cough. His past history was insignificant.

On examination he was sick looking, cachectic, oriented, and was vitally stable. Abdomen was soft, with mild generalized tenderness along with mild hepatomegaly, shifting dullness was present. Respiratory assessment demonstrated dull percussion on right chest beneath second intercostal region and diminished air entry on right

lower zone of lung. Rest of the systemic examination was unremarkable.

Laboratory investigations including CBC and LFT's were within normal limits. Echinococcus titers were negative. Chest x-ray (**Figure 1**) demonstrated compression of right lung with homogenous opacity. Ultrasonography of the abdomen demonstrated free liquid around liver, with moderate ascites. CT of abdomen and pelvis (**Figure 2A, 2B**) demonstrated a huge, well defined hypoechoic area of 21.7x16.6cm in the right hemi chest causing significant mediastinal shift towards the left side with sub segmental atelectasis in right lower lobe. Moderate ascites was present. Liver was normal and displaced inferiorly because of mass effect. Fibrocystic changes were recognized in the right upper lobe and mild fibrosis in the left lower lobe of lung.

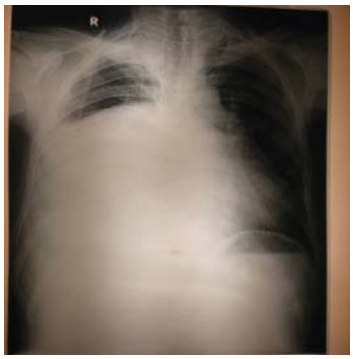

Figure 1. Pre-operative Chest X-ray

Benign Cyst of Liver, Hydatid Cyst of Liver and Diaphragmatic Cyst were included in the differential diagnosis. Echinococcal titers being negative were supportive of Benign Cyst of Liver and Diaphragmatic Cyst as likely differentials. Exploratory Laparotomy was done; 1000mL of ascitic liquid was drained. Giant cyst of about 20x20cms was seen emerging from right dome of diaphragm, right dome of diaphragm was incised along with the cyst wall emptying 2500mL serous fluid out of it. Diaphragmatic defect was closed along with placement of chest tube. Secondary cyst of about 5x5cms was seen close to gall bladder which was punctured and left open. Histopathology was sent which demonstrated benign diaphragmatic mesothelial cyst with clear margins with no evidence of granuloma or malignancy.

Post-operative course was unremarkable. On seventh post-operative day chest tube was removed and patient was discharged. On OPD follow up he had resolution of all his presenting complains alongside expansion of right lung evident on chest x-ray (**Figure 3A, 3B)**.

Discussion

Mesothelial growths are benign cysts, lined by a single layer of mesothelial cells, found on, or in contiguity to the serous membrane.[11] Their pathogenesis stays obscure; they

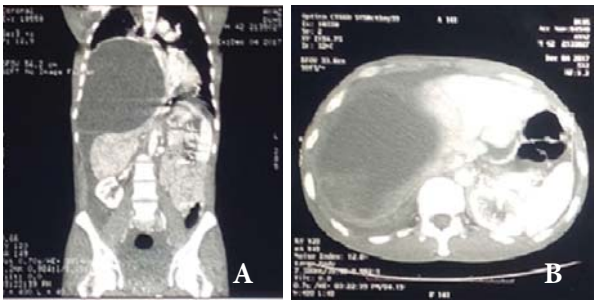

Figure 2(A, B). Pre-operative CT scan

occur from congenital defects of peritoneal surfaces. They are frequently asymptomatic, may be found by chance on imaging.[12,13]

They have been classified as (1) mesothelial, (2) bronchogenic and (3) fibrous.[14] Diaphragmatic mesothelial growths emerge from coelomic fragments. Their exact anatomic site is hard to distinguish; they might be misdiagnosed as an intrahepatic simple growth, or other cystic lesions adjacent to diaphragm, for example, bronchogenic cyst, teratoma, or hydatid cyst.[9] Bronchogenic cysts are likewise extremely uncommon and are situated at the posteromedial part of the hemidiaphragm. Teratomas are generally cystic yet have other tissue components accompanying with them. A Hydatid cyst of the diaphragm is uncommon and has diverse radiologic appearances.[7]

Diaphragmatic mesothelial cysts have vague clinical presentation, typically as abdominal discomfort or respiratory manifestations, which were consistent with our patient.[7] Imaging alone cannot diagnose the pathology or exclude the chance of malignancy, therefore resection is compulsory.[3] Final diagnosis is only made on histolpathology.[10,12] As the majority of the available literature is old there is a likelihood that current imaging procedures may permit a conservative approach in a portion of the people.

Estaun JE et al, Akinci D et al and Kahriman G et al report that albeit rare, mesothelial cysts are significantly more prevalent in children. Conservative treatment is suggested in asymptomatic cases. If an intervention is required, percutaneous aspiration with sclerotherapy ought to be the best option.[9,13,15]

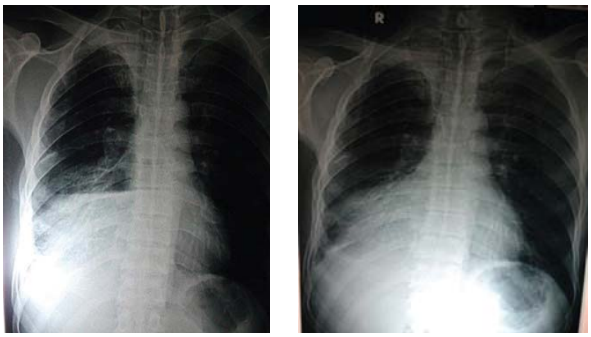

Figure 3(A, B). Post-operative CT scan

As indicated by the literature review no report has been published until now which shows that a mesothelial cyst of an adult being dealt conservatively or by aspiration and sclerotherapy. Any diaphragmatic cyst which is either symptomatic or a coincidental finding on an imaging should be excised.[3] Recurrence risk is zero after complete surgical excision with excellent prognosis.[12]

Conclusion

Diaphragmatic mesothelial cysts are an extremely rare congenital anomaly, usually detected incidentally on imaging and may mimic hepatic or pulmonary pathology. Due to their rarity, definitive diagnosis is difficult and only possible after exploration, on the basis of histopathology. Complete surgical excision is the treatment of choice with excellent prognosis.

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