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Case Report

A Pyogenic Liver Abscess Leading to Massive Pleural Effusion: A Case Report

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Abstract

Pyogenic liver abscesses are common in tropical developing countries. They are typically present with right and upper abdominal pain; nevertheless, occasionally, we encounter atypical presentations. Here we present a rare case of complicated large liver abscesses caused by Klebsiella pneumonia, which manifests in massive pleural effusion in a young, healthy gentleman. The patient stayed ten days in the hospital for drainage and to receive appropriate antibiotics.

Keywords: Pyogenic liver abscesses; Klebsiella pneumonia; Pleural bacterial infection; Pleural effusion.

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Introduction

Pyogenic liver abscesses (PLA) are common in tropical countries; they are manifested from parasitic, bacterial, and fungal infections [1]. They are more common in developing rather than developed countries [2]. Historically, pyogenic liver abscesses are typically caused by Escherichia coli or polymicrobial etiology, which are related to the biliary system or intestine. Pleural effusion secondary to pyogenic liver abscess is an unusual presentation [3]. We are discussing a case of an unusual massive lung effusion due to a metastatic pyogenic liver abscess.

Case report

A 34-year-old gentleman who was previously healthy was presented to our surgical causality complaining of three days history of

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right upper quadrant pain, associated with fever, nausea, anorexia, and vomiting. The patient had no past medical or surgical history and no recent travel or animal encounter.

On examination, he was only febrile (38°C); the rest was normal. On examination his abdomen was mildly tender at the right upper quadrantal and epigastric region, and a mass was felt on deep palpation. Laboratory investigation revealed white blood cells (WBC) 13.0x109, alkaline phosphatase (ALP) 156 (normal range 35-48), and gamma-glutamyl transferase (GGT) 122 (normal range 12-64) were recorded.

Ultrasound abdomen scan showed massive right lobe liver mass; thus, computer tomography (CT-scan) abdomen and pelvis was ordered that revealed sizeable right liver lobe liver abscess measuring around 7x9x10 cm (Figure 1).

Serology and cultures were sent but came back negative for hydatid cyst. Administration of antibiotics started, 300 ml pus was drained under ultrasound, and a pigtail catheter was fixed. The pus culture was positive for Klebsiella pneumonia. The patient was improving slightly however had intermittent fever.

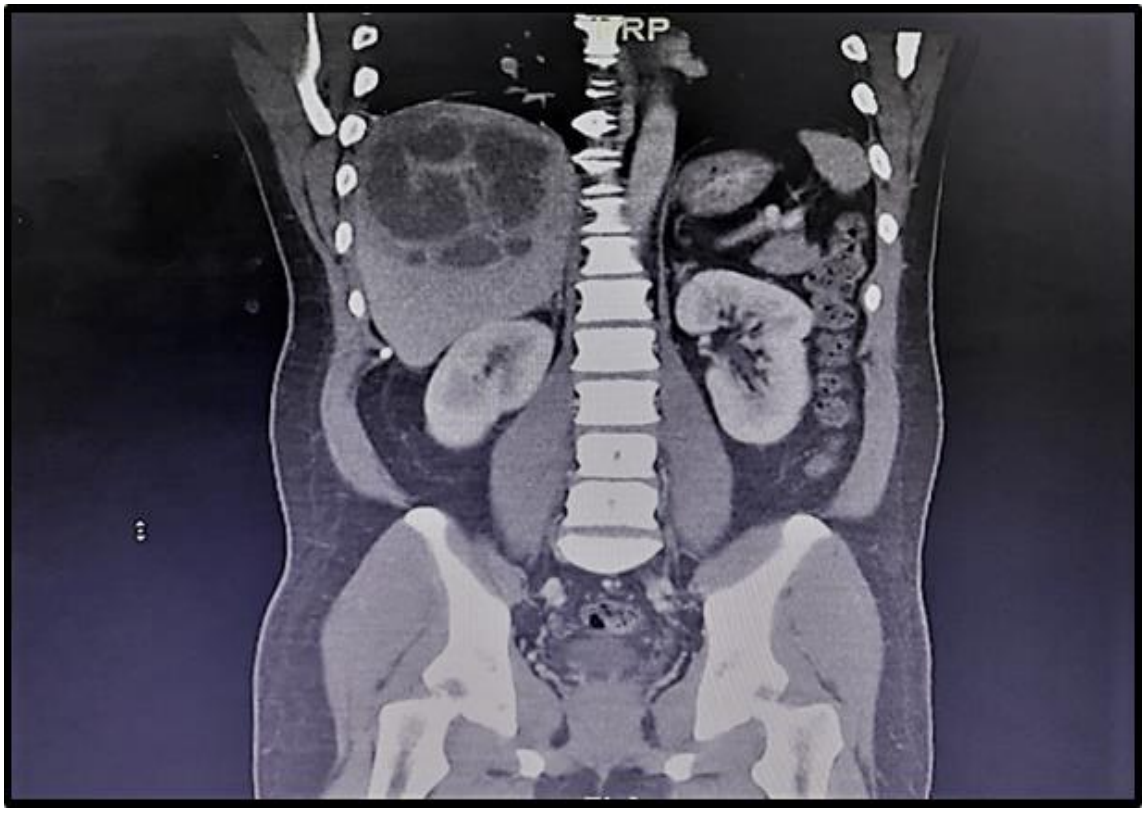

Figure 1: CT-scan abdomen and pelvis showing the large liver abscess.

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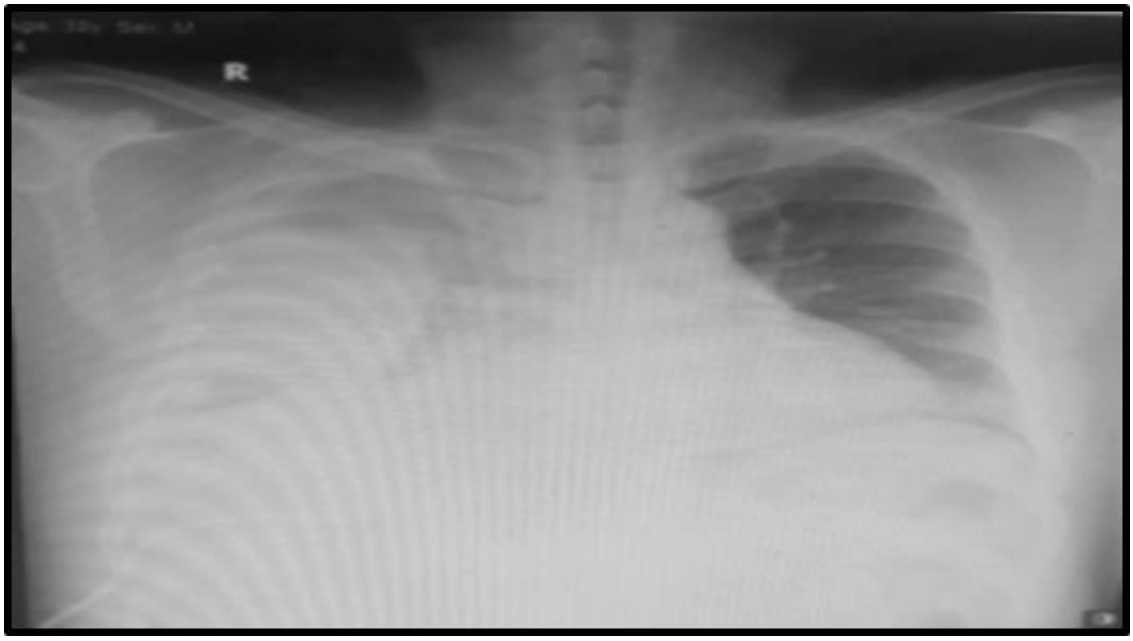

Figure 2: Chest X-ray showing right-side pleural effusion.

Another septic workout was sent, and a chest x-ray was ordered, which revealed a massive right side pleural effusion (Figure2); the patient had no previous respiratory symptoms. A pigtail catheter was inserted in the right chest (Figure3), which drained around 200 ml of serous fluid. Unfortunately, the pigtail catheter was bringing nil the next day. Therefore, a CT-chest revealed moderate right-sided pleural effusion with consolidation and collapse of the right lung (Figure4).

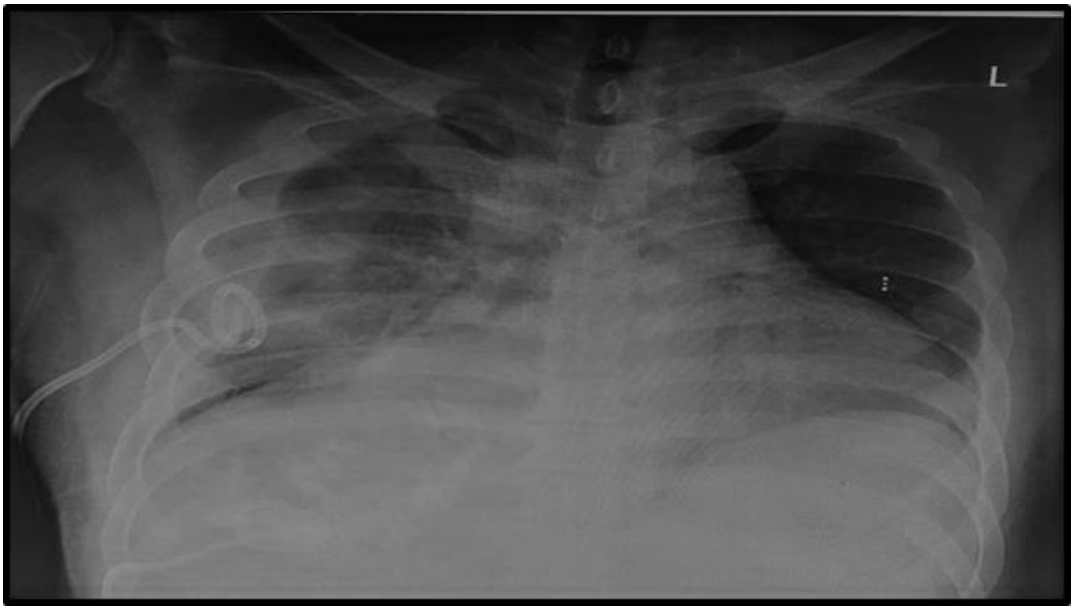

Figure 3: Catheter in the right lung to drain the effusion.

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Figure 4: CT-chest after insertion of a pigtail catheter.

Chest physician consult was sent to re-assess the patient. The plan was to insert another pigtail and give three doses of chemical decortication (Matelase) (Figure5). After three days, the patient was improving. The patient had two successful procedures and continued to be afebrile with antibiotics after drainage. A follow up CT-chest was done showed regression course of the right lung consolidation (Figure6).

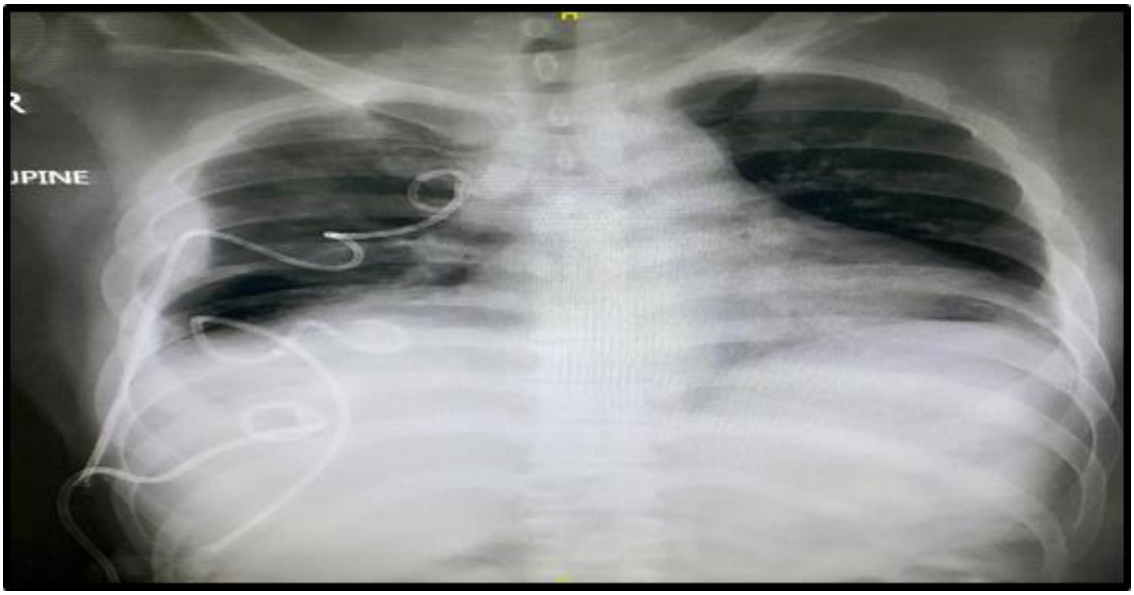

Figure 5: Chest X-ray improvement of the right lung effusion.

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Figure 6: Follow-up CT-chest.

Drains were removed after becoming nil. The patient was discharged home on three weeks of antibiotics (ciprofloxacin). The first OPD visit was uneventful after 14 days of discharge; The patient had no abdominal pain, respiratory symptoms, nor fever.

Discussion

A pyogenic liver abscess (PLA) is commonly caused due to biliary disease; however, it can be manifested due to intestinal pathologies such as diverticulitis, appendicitis, trauma to the liver, colon cancer, pancreatic cancer, and septicaemia1. It is most prevalent in the age group 20 to 45 years, with a ratio of 10:19 male to female [4,5].

Patients are usually present with upper abdominal pain, fever, and sepsis with deranged liver enzymes. 75% of patients are present with elevated alkaline phosphatase (ALP), whereas 50%of patients present with elevated transaminase [2]. However, respiratory complications are unusual in pyogenic liver abscesses. Only a few case reports were mentioned in the literature [6].

Only 10% of parasitic liver abscesses cause massive right pleural effusion [7]. They are typically present as anchovy paste or chocolate sauce pleural effusion [8], whereas one-third of bacterial (PLA) present with infective pleural space [3]. The pathophysiology behind this is either due to sympathetic stimulation or rupture of the abscess. (PLA) caused by Klebsiella pneumonia have more chance of developing pleural metastasis. In 1998 a study was done in Taiwan, where it was found that 11.9% of Klebsiella pneumonia infections lead to metastatic pleural effusion, compared to 0% in other polymicrobial liver abscesses [9] - which is the same in our case report. Management of both pyogenic liver and pleural effusion is drainage; our patient underwent both procedure and antibiotics.

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Delayed or difficult pleural drainage with an adverse patient presentation may require oxygen supplementation, lung expansion, and decortication. Further difficulties may require open surgical intervention [10].

Conclusion

Pyogenic liver abscesses can present with atypical complications, such as pleural effusion. It is an interesting case due to the rare presentation and absence of respiratory symptoms. Early intervention with drainage and appropriate antibiotics will improve the patient's prognosis. Therefore, it is helpful to share this case report for future medical personnel to widen their diagnostic spectrum.

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