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Case Report

Perforated retrocecal appendicitis presenting with lung abscess—A case report ☆,☆☆

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ABSTRACT

Retrocecal appendicitis usually presents with atypical signs and symptoms which may lead to delayed diagnosis, perforation and serious complications. Development of a large lung abscess secondary to perforation of retrocecal appendicitis in an adolescent patient is an extremely rare entity and to the best of our knowledge has not been described in literature. We present a 15-year-old boy with complaint of chest pain, cough, fever, vague abdominal pain and raised inflammatory markers who underwent CT examination. On CT, a collection with focal calcification was noted in the right iliac fossa that extended along the right retroperitoneum through the retrocrural space in the right lung base communicating with a cavitary pulmonary lesion with air-fluid level. A diagnosis of perforated retrocecal appendicitis with retroperitoneal and right lung abscesses was made. The patient underwent appendectomy and the entire retroperitoneal and lung abscesses were drained. A lung abscess as a complication of perforated retrocecal appendicitis should be in consideration in septic patients with thoracoabdominal infectious manifestations.

Background

Lung abscess is a cavitary lesion containing necrotic lung tissue or infected fluid component. It is most commonly caused by lung parenchymal disease. However, it can develop from hematogeneous dissemination, direct spread from the mediastinum, and rarely from the abdominal cavity [1]. In the absence of an intrathoracic pathology, an intra-abdominal cause should be considered [2].

Retrocaecal position of the appendix constitutes 26%-65% of cases. It may be inside of the peritoneal cavity or in the retroperitoneal position. Retrocecal appendicitis usually presents with atypical signs and symptoms. Because of atypical presentation of the retrocecal appendicitis, the diagnosis maybe delayed that may lead to higher incidence of perforation and serious complications [3].

The main objective of this study is to present an extremely rare case of large lung abscess due to perforation of retrocecal appendicitis and to review the challenges concerned with diagnosis of retrocecal appendicitis.

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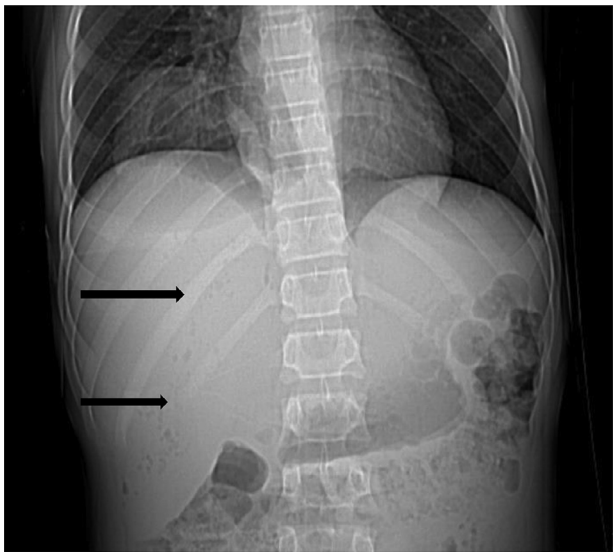

Fig. 1 – Scout view at the level of lower chest and upper abdomen demonstrates a faint rounded opacity in the right lower zone, with well-defined superior and lateral margins. There are multiple tiny air bubbles projected over the liver (arrows).

Case report

A 15-year-old boy with clinical history of chest pain, cough, fever and vague abdominal pain was referred to emergency department of our center. On physical examination, there were decreased breath sounds with crackles in the right lung base and mild right side abdominal tenderness. Laboratory findings showed increased ESR, CRP and leukocytosis. The patient underwent contrast-enhanced chest and abdomen CT.

On scout view, a faint rounded opacity was noted in the right lower zone. This opacity had well-defined superior and lateral margins; however, the inferior margin was indistinct. No definite fluid level was noted inside of it. Multiple tiny air bubbles also noted projected over the liver (Fig. 1). On CT, there was a retrocecal collection with focal calcification consistent with appendicular abscess with appendicolith within (Fig. 2). This collection extended along the right retroperitoneal space all the way up to the sub-diaphragmatic location (Fig. 3). A large, well-defined, thick wall cavitary lesion with air fluid level was seen in the posterobasal segment of right lung consistent with lung abscess. It measures approximately 8 cm × 7 cm × 6.5 cm in (CC × AP × TR) dimensions. (Fig. 4) The lung abscess was seen communicating with retroperitoneal abscess through retrocrural space (Figs. 5-7).

The patient underwent appendectomy with complete drainage of entire retroperitoneal and lung abscesses. The patient was discharged with a satisfactory condition.

Fig. 2 – Selected contrast-enhanced axial section from the lower abdomen demonstrates a collection in the right iliac fossa (black arrow) with focal calcification representing appendicolith (white arrow).

Fig. 3 – Selected contrast-enhanced axial section from the upper abdomen demonstrates a ring enhancing collection with air bubbles in the right retroperitoneum.

Discussion

Acute appendicitis is the most common cause of emergency abdominal surgery in pediatric population which requires prompt diagnosis and early treatment [2,4]. The classic clinical manifestation of acute appendicitis is periumbilical pain localizing to right iliac fossa with nausea and vomiting. Mild fever, leukocytosis and right iliac fossa tenderness are usually present.

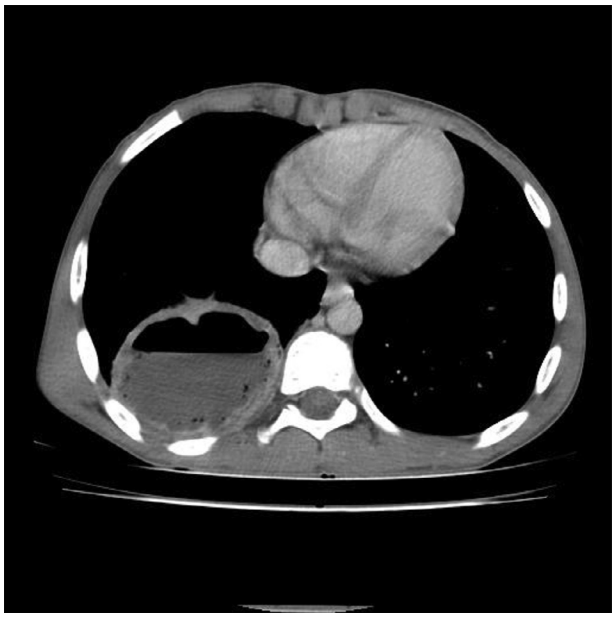

Fig. 4 – Selected contrast-enhanced axial section from the lower chest demonstrates a thick-walled cavitary lesion with air-fluid level in the right lung base consistent with lung abscess.

Fig. 5 – Reformatted contrast-enhanced selected sagittal section from the abdomen and lower chest demonstrates a collection in the right retroperitoneal collection with focal calcification extending all the way up to the subdiaphragmatic location communicating with lung abscess.

Fig. 6 – Reformatted contrast-enhanced sagittal section from the abdomen and lower chest better demonstrates the communication between retroperitoneal and lung abscesses through retrocrural space.

Retrocaecal position of the appendix constitutes 26%-65% of cases. It may be inside of the peritoneal cavity or in the retroperitoneal position. Eighty-one percent of patients with retrocecal appendicitis present with atypical signs and symptoms. Because of atypical presentation of the retrocecal appendicitis, the diagnosis maybe delayed which may lead to higher incidence of perforation and serious complications [3,4].

In review of literature, complications such as retroperitoneal abscess, perinephric abscess, thigh abscess, lumbar abscess, scrotal abscess, empyema, portomesenteric thrombosis and liver abscesses has been described [2,4–10].

Retroperitoneal abscess is a rare and serious complication of retrocecal appendicitis which is usually due to late diagnosis and treatment. The retroperitoneal abscess can also be present as complication of other diseases like perforation of colonic carcinoma, inflammatory bowel disease, diverticulitis, pancreatitis, cholecystitis, pyelonephritis, renal abscess, trauma, post radiation, tuberculosis and osteomyelitis of thoracolumbar vertebrae [5]. In our case, the presence of inflamed appendix with appendicolith in the right iliac fossa was diagnostic for perforated retrocecal appendicitis.

Lung abscess is a cavitary lesion containing necrotic lung tissue or infected fluid component. It is most commonly caused by lung parenchymal disease. However, rarely it can develop from an intra-abdominal focus [1]. Lung abscess is an extremely rare complication of perforated retrocecal appendicitis. To the best of our knowledge, such a large lung abscess

Fig. 7 – Reformatted contrast-enhanced selected coronal section from the abdomen and lower chest demonstrates a lung abscess communicating with retroperitoneal abscess.

as a complication of perforated retrocecal appendicitis has not been described in literature. The retrocrural space provides communication between thoracic and retroperitoneal cavity [2]. As in our case there is visible communication between retroperitoneal and lung abscesses through the diaphragm.

Ultrasonography has sensitivity of 70% for detection of retroperitoneal abscess. It is a preferred imaging modality in pediatric population; however, it is operator dependent and small abscesses maybe missed. Moreover, it may not give us information regarding cause and extension of retroperitoneal abscess. Computed tomography is the gold standard diagnostic test for localization and delineation of retroperitoneal abscess, its relationship with adjacent structures, its origin and for preoperative planning [3–5].

Surgical intervention is the treatment of choice for retroperitoneal abscesses and large pulmonary abscesses [1,5].

Conclusion

Retrocecal appendicitis usually manifests with atypical clinical presentation which may result in late diagnosis, perforation and serious complications. A lung abscess as a complication of perforated retrocecal appendicitis is an extremely rare entity. Whenever there is a lung abscess without intrathoracic cause and the patient is septic with thoracoabdominal infectious manifestations, an intra-abdominal cause should be in consideration.

Patient consent

Written informed consent was obtained from the parents of the patient for publication of this case report and will be provided upon the request of the editorial team.

Authors' contributions

Both authors have participated sufficiently in the submission and take public responsibility for its content.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study (as this is a case report).

Ethics approval and consent to participate

The manuscript has got ethical review exemption from Ethical Review Committee (ERC) of the authors' institution as case reports are exempted from review according to the institutional ethical review committee's policy.

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