Ultrasound and CT Findings of Actinomycosis of the Greater Omentum

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Actinomycosis of the greater omentum is rare. A case of histologically proven actinomycosis of the greater omentum was reported. Ultrasonography (US) showed an omental lesion with complex echogenicity. Computed tomography (CT) revealed a mass at the greater omentum with spiculated margin near the epigastric region. Actinomycosis of the greater omentum, although rare, should be included in the differential diagnosis of an omental mass especially in patients with fever (or leukocytosis).

Key words: Greater omentum, actinomycosis; Greater omentum, computed tomography; Greater omentum, ultrasonography

CASE REPORT

A 60-year-old male presented with abdominal dull pain for two weeks without fever or chilless. On physical examination, a mass without local tenderness, ulcer, and discharge at the epigastric region was found. US of the abdomen showed a intra-abdominal mass with complex echogenicity at the upper anterior central abdomen (Fig. 1). CT demonstrated a heterogeneously enhanced mass at the greater omentum with spiculated margin (Fig. 2). Laboratory data showed elevated white blood count and higher percentage of neutrophils. Under the impression of omental tumor, the patient underwent exploratory laparotomy with excision of the omental mass. A mass of 10 cm in maximal diameter was found in the greater omentum with firm attachment to the transverse colon and proximal jejunum. Histology revealed acute and chronic inflammation with nest of sulfur granules (Fig. 3). The final diagnosis was actinomycosis of the greater omentum. The patient was discharged after 10 days and treated with oral penicillin at the outpatient department.

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DISCUSSION

The historical background of investigating actinomyces was first given by Berardi [3]. Bradshaw was the first who observed abdominal actinomycosis as a right lower quadrant abdominal mass in 1846. In 1877, Israel noted the same mycelia in human autopsy specimens as sampled by Bollinger from masses in the jawbones of cattle and made the diagnosis in humans. Israel was remembered for these accomplishments in 1940 when human pathogen was named Actinomyces israelii to distinguish it from the animal strain bovis [3]. It is a gram positive, non-sporing, and anaerobic branching higher bacteria found as normal flora of the mouth, thorax, and gastrointestinal tract [3]. Aside from the intestine, actinomycosis may involve liver [5], gall bladder [6], kidney [7], pelvis [8], and omentum [1-2] in the abdomen. Trauma, surgery, bowel perforation, and placement of intrauterine device are all predisposing factors related to non-intestinal actinomycosis of the abdomen [1,4,6,7,9]. Like this patient, many patients with abdominal actinomycosis have no predisposing factors or any history of preceding disease [1, 10]. The cause of the omental actinomycosis can be either by organism penetrates the intact mucosa or a small mucosa break heals after access to the adjacent tissue [1,3].

US findings of the omental acinomycosis was only demonstrated in the English literature by Wan et al as a mass with complex echogeneity near the left flank area [2]. Like this case, the omental mass also shows the same echo-texture. On CT, the mass showed an infiltrative mass with unusual aggressiveness and dense inhomogenous contrast enhancement. Even though the radiological findings in this case was not pathognomonic, with the combination of CT findings and patient’s leukocytosis, one can consider to place actinomyces in the differential diagnosis as suggested by Ha et al [11]. However, those findings may also occur in cases of intraabdominal hemorrhage and neoplasm [12]. Anyway, CT still plays a major role in delineating the location and extent of the disease.

Omental lesions can be divided into solid and

Figure 1. US of the epigastric region shows an intra-abdominal mass (small arrow heads) with complex echogenicity in the upper anterior central abdomen. Abdominal wall (large arrow head) and transverse colon (arrows).

Figure 2. CT demonstrates an infiltrative mass (arrow heads) with heterogeneous enhancement in the greater omentum.

Figure 3. Photomicrography reveals dense fibrotic tissue with marked acute suppurative inflammation, heavy lymphoblastic infiltration, and many sulfur granules like bacterial clumps (arrow heads) in the abscess (H & E stain 100X).
cystic masses. Solid mass may be primary neoplasm, secondary neoplasm, or infectious and inflammatory process [13]. The most common infectious cause of patients with omental mass is due to tuberculosis which may be seen in 38% of pulmonary tuberculosis. Another possibility is actinomycosis [1-2]. Malignant omentum tumor accounts approximately 33% primary omental tumors.

In conclusion, actinomycosis of the greater omentum is a rare disease entity that cannot be diagnosed easily on the basis of clinical and radiologic findings. Although findings are non-specific, actinomycosis of the greater omentum should be included in the differential diagnosis when CT scans show an infiltrative mass in the greater omentum with dense inhomogenous contrast enhancement, especially in patients with leukocytosis or fever.

**REFERENCES**

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大網膜放射菌感染之超音波及電腦斷層攝影表現

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大網膜之放射菌感染非常罕見，我們報告一例病理證明之大網膜放射菌感染。超音波看到一混合回音之大網膜腫塊，而電腦斷層發現一周邊不整齊之腹腫塊。雖然大網膜之放射菌感染非常罕見，當一發燒病人發現大網膜腫塊，它應列入鑑別診斷。

關鍵詞：大網膜，放射菌感染；大網膜，電腦斷層攝影；大網膜，超音波