


Falciform Ligament Abscess in Adult, Resolving without Surgical Treatment

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ABSTRACT

A 59 year-old female presented with a one-month history of abdominal discomfort, nausea, vomiting, weight loss, and a palpable mass on her epigastrium area. Initial history, physical examination, and work up lead to a diagnosis of gastric malignancy. However; discharge of purulent secretion from the biopsy site and biopsy results of PMN infiltration leads to a diagnosis of abscess. Culture subsequently showed *E. coli*. The patient was not amenable to surgical procedure hence was treated with third generation cephalosporin antibiotic as guided by culture results. After one month of antibiotic treatment, the abscess was completely resolved. This case presents the first falciform ligament abscess following enteritis; resolving with a non-surgical approach.

Keywords: Abscess, hepatic round ligament, intra-abdominal

ABSTRAK

Seorang wanita 59 tahun datang dengan keluhan nyeri perut, mual, muntah, penurunan berat badan, dan massa epigastrik sejak satu bulan. Anamnesis, pemeriksaan fisik, dan pemeriksaan penunjang mengarah kepada diagnosis keganasan lambung. Akan tetapi, adanya sekret purulen dari lokasi biopsi dan hasil biopsi yang menunjukkan infiltrasi PMN mencurigakan diagnosis abses. Kultur pus menunjukkan *E. coli*. Pasien tidak menyetujui tindakan operasi, sehingga diterapi konservatif menggunakan antibiotik *cephalosporin* generasi ketiga sesuai pola resistensi dari hasil kultur. Setelah satu bulan pemberian antibiotik, abses sepenuhnya menghilang. Artikel ini mempresentasikan kasus pertama abses ligamentum falciform setelah enteritis; yang teratasi tanpa terapi bedah. **Natalia Sisca Wijaya, Sidharta Salim. Abses Ligamentum Falciform pada Dewasa, dapat Diobati Tanpa Bedah.**

Kata kunci: Abses, inra-abdomen, ligament sekitar hepar

INTRODUCTION

Only few cases of falciform ligament abscess have been reported. Most reported cases of falciform ligament abscess occurred in childhood following an omphalitis.[2,8,10] Several cases of falciform ligament abscess in adult following cholecystitis and one case following a ventriculoperitoneal shunt infection have also been reported.[1,2] In our review of literature, this is the first case of falciform ligament abscess without preceding omphalitis or cholecystitis; which resolved without surgical procedure.

CASE REPORT

A 59-year old female, presented with a one month history of abdominal discomfort, described as epigastric fullness and early satiety, associated with nausea and vomiting. She was previously diagnosed with dyspepsia at a clinic; was given proton pump inhibitor and anti-emetic. Despite of medications, symptoms persisted and it was later associated with a palpable mass on her epigastrium area. She also had a two-kilogram weight loss associated with fatigue. She only recalled having a history of enteritis 2 month ago. Any febrile episode and previous history of umbilical infection was denied.

Physical examination showed her to be pale, slightly tachycardic at 105 bpm and afebrile. There was approximately 10 x 7 cm mass palpated at her epigastrium extending to left upper quadrant abdominal area, with a smooth and flat surface, firm consistency with indistinct border, non-pulsatile, non-fluctuating, and immobile, without any tenderness on palpation. No discoloration noted on the skin.

A whole abdominal ultrasound revealed normal liver, spleen, pancreas, and kidney. No stone or thickening of gallbladder wall, but a 9.27 x 7.28 x 5.86 cm mass with inhomogen echostructure just outside the gastric wall was found. A suspicion of gastrointestinal stromal tumor was made. The patient was then admitted to the hospital for further diagnostic procedures.

Complete blood count showed a microcytic hypochromic anemia, with hemoglobin 5.8 g/dL, leukocytosis 14.1 x 10^9/L and thrombocytosis 851,000/ul. AST and ALT were slightly elevated at 36 U/L and 57 U/L respectively. Her kidney function test as well as electrolyte showed normal results. Blood transfusion of three units (600 mL) of packed RBC was initiated. A repeat complete blood count showed a hemoglobin count 9.9 g/

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dL, leukocyte count 22.3 x 10^9/L, and platelet count 802,000/ul.

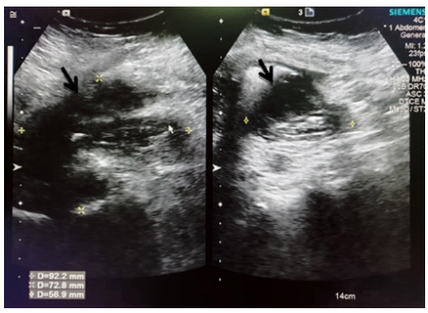

Figure 1. Initial ultrasound showing a large mass with inhomogen echostructure

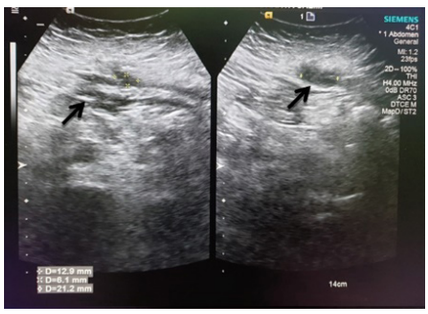

Figure 2. Follow up ultrasound showing reduced size of the mass 3 weeks after antibiotic therapy

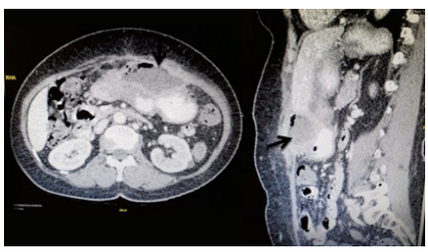

Figure 3. Initial CT scan showing an extra luminary mass with a size of 10.13 x 2.98 x 3.89 cm.

A whole abdominal CT-scan revealed an extra luminary mass with a size of 10.13 x 2.98 x 3.89 cm, with an irregular border and indistinct boundary on the minor curvature of gastric wall; attached to the anterior abdominal wall, the rectus abdominis, and the left liver lobe; and infiltrating subcutaneously as high as lumbar 3 spine, leading to suspicion of malignancy, e.g. gastrointestinal stromal tumor. Neither intra-abdominal lymphadenopathy nor ascites were seen. No sign of hemoperitoneum or bowel obstruction.

A surgery consultation was made to consider the possibility of a biopsy as well as removal of the mass, however it was deemed too risky for an open surgery and the patient did not consent to the procedure. We then decided to do a diagnostic gastroscopy with the possibility of a biopsy.

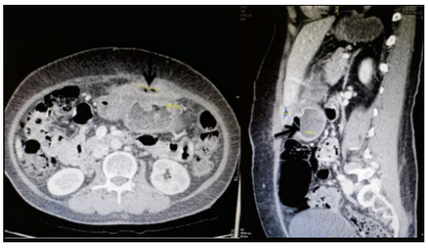

Figure 4. Second CT scan showing reduced size of the mass to 3.02 x 1.45x 0.8 cm, two weeks after initial CT scan.

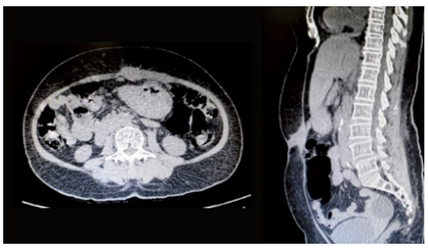

Figure 5. Latest CT scans showing a complete resolution of the mass, one month after initial CT scan.

On gastroscopy, we found a difficulty on gastric insufflation with a swollen gastric mucosa; leading to a gastric wall infiltration from the outside; however, there was no obvious mass seen. Biopsies from the swollen gastric mucosa were performed and upon discussion with the patient, we also decided to do percutaneous biopsies of the mass. Two cores of tissue samples were obtained. The patient was then allowed to go home while waiting for the biopsy results.

Upon her follow up at the clinic 5 days later, she was noted to have a discharge of purulent secretion from the biopsy site. The biopsy results subsequently showed polymorphonuclear leukocytes (PMN) infiltration, leading us to the diagnosis of an intra-abdominal abscess. Culture and a PCR TB were then requested, showing an E. coli infection and a negative PCR result.

The patient was then started on a third generation cephalosporin antibiotic as guided by the culture. Assessment after seven days of antibiotic administration showed improvement of symptoms with reducing discharge of pus and smaller size of mass on palpation. A repeat whole abdominal CT-scan revealed a decreasing size of the mass to 3.02 x 1.45 x 0.8 cm.

A serial culture was subsequently done and antibiotic were given guided by the result. After one month of antibiotic therapy, there was a complete resolution of the mass. Her latest complete blood count showed a hemoglobin count of 10.5 g/dL, leukocyte count of 8.4 x 10^9/L, and platelet count of 428,000/ul.

DISCUSSION

The falciform ligament is a broad and thin peritoneal ligament. It is sickle-shaped and a remnant of the ventral mesentery of the fetus.[3] It is located on the left of the midline of the abdomen, and runs through the anterior wall of the abdomen in contact with the peritoneum behind the right rectus abdominis as well as the diaphragm, and in contact with the left lobe of the liver posteriorly.[3,4] The length of the falciform ligament may vary individually and it contains between its layers a small but variable amount of fat and its free edge contains the obliterated umbilical vein (ligamentum teres) and if present, the falciform artery and paraumbilical veins. The falciform ligament divides the left and right subphrenic compartments but may still allow passage of fluid from one to the other.[3]

Although the anatomical structure and variation of the falciform ligament are definitely defined, associated conditions of the falciform ligament remain to be elucidated. The most common pathologies include ligament cysts, tumors, and abnormal vascularization secondary to portal hypertension.[5] Additionally, the most recognized abnormalities of the falciform ligament are congenital pathologies including derivation and partial ligament defects. A few cases of falciform ligament abscess secondary to infectious diseases of the liver and gallbladder have also been reported in adults.[3]

A soft tissue mass beneath the abdominal wall continuous with a thickened round ligament is a diagnostic feature of a falciform ligament abscess by ultrasound or CT scan.[6] However, because of its rarity and obscure location, a definite radiological diagnosis of a falciform ligament abscess is difficult. Infections can extend from the liver, gallbladder[1] and


umbilicus.[2]

In this case, our patient didn't have any history of umbilical infection. Ultrasound also revealed a normal liver and gallbladder. She however had previous history of enteritis prior to the abscess formation.

It was postulated by Lipinski, *et al*,[2] that contiguous spread of the infection via the round ligament was the etiology of falciform ligament abscess secondary to an omphalitis. The superficial veins of the abdominal wall form a network that radiates out from the umbilicus, and a few small veins named paraumbilical veins connect the network to the portal vein forming a portal-systemic venous anastomosis,[7] which might explain the extension mechanism of the omphalitis into falciform ligament abscess in the absence of a round ligament.[8] The porta hepatis, which carries the neurovascular bundle containing the common hepatic duct, proper hepatic artery, hepatic portal vein, and autonomic axons into the liver, is located in a fissure on the inferior aspect of the far left side of the right lobe. Because of the proximity of the porta hepatis to the round ligament of the liver, infections or carcinomas in the porta hepatis can travel to the falciform ligament.[9] Additionally, the superficial lymphatics of the liver can carry infections or malignancies from surrounding structures and seed the falciform ligament.[10]

In our case, we presumed that the microorganism from the patient's previous enteritis episode entered the bloodstream to the portal-systemic venous anastomosis. The paucity of the vascular network inside the ligamentous structure might have impaired the venous outflow from the ligament and the organism could then be colonized easily within the falciform ligament to form an abscess.[8]

Many readily accessible abscesses are treated successfully with percutaneous drainage and the antibiotics. Previous authors reported successful treatment of the falciform ligament abscess after excision of the ligament.[2,11] There was no previous report of a falciform ligament abscess treated non-surgically. In our case, the patient responded well to third generation cephalosporin antibiotic and the abscess resolved completely without surgical procedure.

CONCLUSION

Falciform ligament abscess should be considered as a rare but important. It presents a difficult and perplexing problem clinically and it is often misdiagnosed. A soft tissue mass beneath the abdominal wall, even though not preceded by any umbilical infection, liver or gallbladder disease should lead physicians to a suspicion of falciform ligament abscess. A radiologic confirmation with ultrasound and CT scan should then be performed. Though less established, successful non-surgical treatment was applied to this case because the patient did not consent to surgical procedure.

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