

Intraabdominal Focal Fat Infarction Due to Torsion of Falciform Ligament Appendage

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Case Report

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Abstract: Intraabdominal focal fat infarction (IFFI) due to torsion of falciform ligament appendage is an extremely rare condition that causes severe abdominal pain and inflammation. Computed tomography (CT) scan is highly sensitive to establish the diagnosis. This can be managed conservatively with anti-inflammatory analgesia and the early recognition of torsion may prevent operative intervention. We report a case of torsion of the fatty appendage of the falciform ligament leading to IFFI and describe its imaging characteristics on CT scan.

Keywords: Falciform Ligament; Torsion; Computed Tomography.

INTRODUCTION

Torsion of appendage of the falciform ligament leading to fat infarction is an extremely rare condition. Pathologies involving the falciform ligament are rare and only handful of cases have been reported so far [1]. This type of torsion and infarction more commonly involves the greater omentum or epiploic appendages [2]. The condition causes severe abdominal pain and raised inflammatory markers, and it can be very well imaged on CT scan.

CASE PRESENTATION

A 56-year-old female presented with complaint of epigastric pain on and off with anorexia. It was not associated with vomiting or diarrhoea. The patient had history of sealed gastric perforation.

On physical examination, the patient had tenderness and guarding in the right upper quadrant. The patient was afebrile and non-icteric. Laboratory findings showed elevated white cell count ($19.8 \times 10^9/L$). Other blood tests including liver function tests, C-reactive protein and amylase were normal.

The abdominal ultrasound showed heterogenous perigastric inflammatory mass (5.9 x 5.6 x 2.1 cm). The mass was not moving with respiration. On doppler there was no colour uptake seen. There was no evidence of cholelithiasis or cholecystitis. The appendix was normal, and no free fluid was present in the abdominal cavity (Figure 1).



Fig-1: Ultrasound abdomen showed heterogenous perigastric inflammatory mass which was not moving with respiration

Following ultrasound, the computed tomography (CT) of the abdomen axial sections were obtained to further characterise the lesion. The CT revealed an ovoid hypodense fat density area with hyperattenuating peripheral rim in the epigastrium in right paramedian region, just below the anterior abdominal wall which was lying anterior to the left lobe of liver and anteromedial to the falciform ligament. Mild inflammatory fat stranding was seen around it. Parietal peritoneum and adjacent rectus sheath was mildly thickened. There was no evidence of ascites /

pleural effusion seen. These radiological signs were suggestive of IFFI due to torsion of falciform ligament appendage (Figure 2 and 3).

CT also showed bilateral lower lobe atelectasis and mild pleural thickening along with small umbilical hernia with mesentery as its contents. The patient was managed conservatively with anti-inflammatory analgesia and she did not undergo any surgical procedure. Symptoms resolved after 4-5 days with conservative treatment.

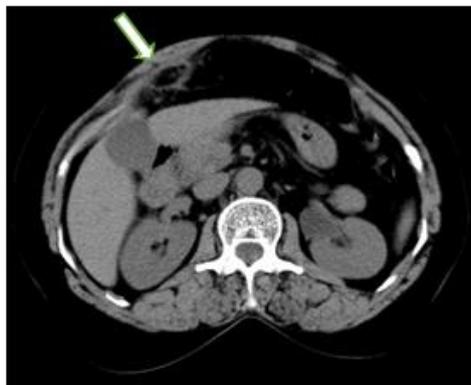


Fig-2: CT abdomen axial section showing ovoid hypodense fat density area with hyperattenuating peripheral rim



Fig-3: CT abdomen and pelvis, sagittal view. Arrow head - Torsion of appendage of falciform ligament

DISCUSSION

The falciform (Latin "sickle-shaped") ligament is a double fold of peritoneum that attaches the liver to the anterior body wall and divides the liver into right and left lobes. It contains the ligamentum teres, paraumbilical veins and extraperitoneal fat. The falciform ligament is supplied by branch of the left inferior phrenic artery and the middle segmental artery of the liver [3].

Pathologic conditions of the falciform ligament are rare and IFFI due to torsion of falciform ligament is an extremely rare condition. Other conditions involving falciform ligament include ligament cysts, tumours, abnormal vascularisation, internal hernia and gangrene are not common and at last the torsion of fatty appendage of the falciform ligament as described in this case [4].

IFFI is the focal lipomatous tissue necrosis which occurs due to torsion or infarction of the greater omentum, epiploic appendages, lesser omentum and the lipomatous appendage of the hepatic falciform ligament. Patient commonly presents with epigastric or right hypochondrial pain with raised white blood cell count.

USG and CT are considered the first imaging modality for cases of acute abdomen. CT is the preferred investigation of choice to visualise torted fatty appendage of the falciform ligament and it appears as an area of fat density with hyperattenuating peripheral rim associated with surrounding inflammatory fat stranding. Multiplanar reconstructed images help to demonstrate the relationship between the lesion and the falciform ligament and to delineate the lesion. USG

helps to demonstrate its extraperitoneal nature as the lesion does not move with breathing.

It is difficult to diagnose this condition on plain film radiography as the falciform ligament is only seen on abdominal plain films in the presence of pneumoperitoneum [5]. The “falciform ligament sign” could be seen in such condition, which consists of gas outlining the falciform ligament.

Differential diagnosis includes acute epiploic appendagitis because of its similar appearance. CT with multiplanar reconstructed images helps to differentiate them by demonstrating the close association of the lesion with falciform ligament. CT has high sensitivity and specificity which helps in early diagnosis and avoids surgical intervention. Patients can be managed conservatively with anti-inflammatory drugs and analgesics. In most cases the patient improves with conservative management and that surgical intervention is not required [2].

CONCLUSION

Although IFFI due to torsion of falciform ligament is rare, but it should be considered as a part of a differential diagnosis when patient presents with atypical right upper quadrant pain or epigastric pain. It

can be diagnosed accurately with multiplanar reconstructed CT and can save the patient from a surgery.

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