Contrast-Enhanced Computed Tomography Findings of the Torsioned Wandering Spleen: A Case Report

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ABSTRACT:
Contrast-enhanced computed tomographic findings of the wandering spleen: a case report

Objective: Wandering spleen is a rare entity that defines abnormal localization of spleen due to various causes. Wandering spleen is prone to rotate on its peduncular axis and finally torsion and infarction. Contrast enhanced computed tomography can visualize the torsioned pedicle and non enhanced parenchyma with contrast medium.

Case: A 60 year old woman who had abdominal pain was admitted to ER. Contrast enhanced computed tomography depicts the abnormal localization of spleen and absence of contrast medium in the parenchyma and pedicle. Diagnosis was torsioned wandering spleen.

Conclusion: Contrast enhanced computed tomography is very important useful modality for diagnosis of torsioned wandering spleen

Keywords: Computed tomography, torsion, wandering spleen

INTRODUCTION

The “wandering spleen” is a very rare entity, with an incidence rate estimated to be less than 0.2%. The entity has no gender predilection (1).

There are 4 ligaments which stabilize the spleen in the abdominal cavity. These are the 1) gastrosplenic, 2) colicosplenic, 3) phrenocolic, and 4) phrenosplenic, ligaments (2). A complete or incomplete embryologic developmental anomaly of these ligaments may give rise to a wandering spleen. Among the other etiological factors are ligamentous laxity and the congenital or acquired defects of the diaphragm (3). The most important ones of the acquired factors are the advanced laxity and abdominal wall fatigue which arise due to the hormonal irregularities caused by multiparity (4). A substantially increased splenic mobility is an important cause of of a torsioned wandering spleen.

It is important to remember that if there is a suspicion of torsion, imaging modalities will be more precious for early diagnosis. For diagnosis, ultrasonography and computed tomography can be used for early diagnosis.
We present a female patient who was admitted to ER with abdominal pain and palpable mass lesion.

**CASE REPORT**

A 60-year-old female patient applied to the Emergency Department of our hospital with the complaints of nausea and vomiting during the last 10 days. The patient had undergone a right mastectomy operation due to breast cancer. Her physicals revealed a palpable midline mass in the abdomen, together with the findings of abdominal defense and rebound. Her blood pressure was 140/90 mmHg, her heart rate was 90 bpm, and her blood saturation level was measured as 92%. Her hemogram revealed a white blood cell (WBC) count of 6700/mL (reference range being 4400 – 11000/mL), and a C reactive protein (CRP) level of 58.5 mg / L (reference range being 0 – 5 mg/L). A contrast enhanced computed tomographic (CECT) examination was performed with Toshiba Aquilion 80 Tokyo Japan. Iomeprol 300/100 mg (Iomeron 300/100 mg Bracco UK Ltd.) was used as intravenous contrast medium with 4 ml/sec injection rate. CECT disclosed that the spleen was not in place, and that there was a soft tissue lesion in the mid-abdomen. This lesion was not enhancing with iodinated contrast, and it was attached to the main vascular structures with a peduncle (Figure-1 and 2). The lesion was compatible with a wandering spleen. There was not any well known disposing factor, such as ligamental laxity or congenital malformation. It was found that the arterial peduncle feeding this wandering spleen had rotated on its axis and arterial contrast enhancing was present only at the mid section of this torsioned peduncle (Figure-3 and 4). The patient was operated and underwent an uncomplicated splenectomy procedure. Surgery revealed that the spleen was not in its normal location but was at the midline of the abdomen, and also that the peduncle was torsioned and thus the spleen necrosed.
DISCUSSION

The entity “wandering spleen” was first described by Van Horne in 1667 in an autopsy specimen (5). Hatfield et al. (6), on the other hand, were the first to define the ectopic spleen using selective angiography preoperatively, in 1976. Congenital and acquired reasons can cause wandering spleen. Congenital causes are complete or incomplete development of the ligaments of spleen. Acquired causes are increased laxity of ligaments due to hormonal changes secondary to multiparity, lymphoma, and myeloproliferative disorders (7).

Patients with a wandering spleen may present with intermittent pain attacks secondary to peduncular torsion. Cases with complete torsion may present with acute abdomen findings. Besides abdominal pain, patients may develop abdominal distension, nausea, and vomiting. Due to torsion detorsion, the pain can be present as intermittent (4). It was reported in one paper that the wandering spleen could lead to complaints of enuresis due to the ectopic spleen’s indenting pressure on the bladder. In the paper’s presented patient, the cause of the wandering spleen phenomenon was a defect in the diaphragm, and the patient’s enuresis complaints had ceased following the repair of this defect (8).

The critical question to be solved in wandering spleen cases is if there is a peduncular torsion and thus a secondary splenic ischemia and infarction.
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This is exactly why an early diagnosis is so vital. Various imaging modalities may be used for the diagnosis. Conventional radiography, ultrasonography (US), color Doppler ultrasonography (CDUS), CT, and CECT are among these modalities (7).

Direct radiograms may show that the spleen density is missing in the normal location and there are intestinal segments there instead. Besides, a scanogram, as was the case in our patient, may reveal the presence of the wandering spleen as an ectopic density (Figure-5).

US, on the other hand, may not only demonstrate that the spleen is not in place, but it may also reveal the very location of the wandering spleen. US may also disclose the rotation and torsion of the splenic peduncle. With Doppler US, one can examine the vascular supply condition of both the peduncle and the splenic parenchyma. US is a cheap, easy applied modality and has no ionized radiation. But US is a user dependent modality, therefore US must be performed by experienced sonographers.

As was the case in our patient, a CECT examination may demonstrate the ectopic location of the wandering spleen, together with its increased size due to congestion secondary to torsion, and the lack of parenchymal contrast enhancement. CECT may also delineate the current status of the arterial and venous vascularization, and also the devascularized segment of the peduncle, with high accuracy. CECT has the highest contrast resolution, and therefore has the high diagnostic capability. Sagittal and coronal reformation increases the diagnostic evaluation. CT cause ionizing radiation, and this is the major disadvantage of this modality. IV contrast medium can cause side affects, such as renal impairment, anaphylaxis.

CONCLUSION

The torsion of the wandering spleen is a rare but a very important clinical entity, and it is a serious cause of acute abdomen. CECT is a very effective modality in the diagnosis of this entity, providing a fast and accurate management of the emergency situation.

REFERENCES