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Wandering spleen with splenic torsion: Report of two cases

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ABSTRACT

INTRODUCTION AND IMPORTANCE: Anatomical variation of the spleen's position in the abdomen, is a rare condition called Wandering Spleen (WS). WS is a vital differential diagnosis in patients presenting with acute abdomen and diagnosis should be made promptly to prevent development of serious complications. **CASE PRESENTATION:** In this article, we report two cases of WS (27 and 20 years old females) presenting with abdominal pain due to splenic torsion. Both Patients underwent splenectomy and discharged with no further complications.

CLINICAL DISCUSSION: The presentation of a wandering spleen varies from an asymptomatic mass to an acute abdomen due to torsion and splenic infarction, therefore recognition of this condition can be challenging. Diagnosis depends on imaging studies, and treatment options consist of performing either splenectomy or splenopexy.

CONCLUSION: Concerning the high incidence of splenic torsion and infarction in WS patients, early recognition of this condition and initiation of apt intervention is of great significance.

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1. Introduction

Anatomical variation of the spleen's normal position in the left upper abdomen, is a rare condition called Wandering Spleen (WS) or ectopic spleen. The spleen can be found in a number of positions in the abdomen or pelvis, and this condition is a result of congenital malformation or agenesis of the splenic ligaments or ligamentous laxity due to trauma, pregnancy, and connective tissue diseases [1].

There's a variety of clinical presentations of this condition; from an incidental finding in imaging surveys to acute, chronic, or intermittent symptoms due to splenic torsion [2].

The spleen's weight, length of pedicle, and degree of ligamentous laxity, are the parameters affecting the severity of the splenic torsion [3]. Imaging studies have an important role in diagnosis, and computed tomography and ultrasound are the preferred modalities. Splenopexy and splenectomy are two alternatives of treatment in these patients, and the preferred alternative depends on the patient's age, vascular status, and size of the spleen [4,5].

Concerning the high incidence of life-threatening complications such as splenic torsion and infarction in these patients, early recognition of this condition and initiation of apt intervention is of great significance.

In this article, we report two cases of this rare condition admitting to Sina Hospital of Tabriz University of Medical Sciences. This project has been reported following SCARE criteria [6].

2. Case 1

A 27-years-old woman presented to the hospital clinics, with history of intermittent acute on chronic lower abdominal pain for last two years, and early satiety. Last episode of the pain was sudden in onset and associated with vomiting and mild abdominal distension. Patient's history (including drug, family, and psychosocial history) was not significant. Physical examination demonstrated a giant palpable mobile lump in mid abdomen and suprapubic area with no significant tenderness around the mass and with no rebound tenderness and guarding.

Routine biochemical parameters were in normal range except for a mild leukopenia (3400/mm³). With a primary diagnosis of ovarian related mass, contrast-enhanced abdomino-pelvic computed tomography (CT) was performed; Spleen was not visualized in its normal position and was found in pelvic area. Distal pancreatic body and tail were coiled at the splenic pedicle within pelvis and thus confirmed diagnosis of wandering spleen associated with torsion of its pedicle (Fig. 1).

Afterward polyvalent vaccination, we prepared patient for surgery and elective laparotomy was performed by Dr P. Virani, revealing a significantly enlarged spleen suspended only by its coiled pedicle. As a consequence of enormous splenomegaly,

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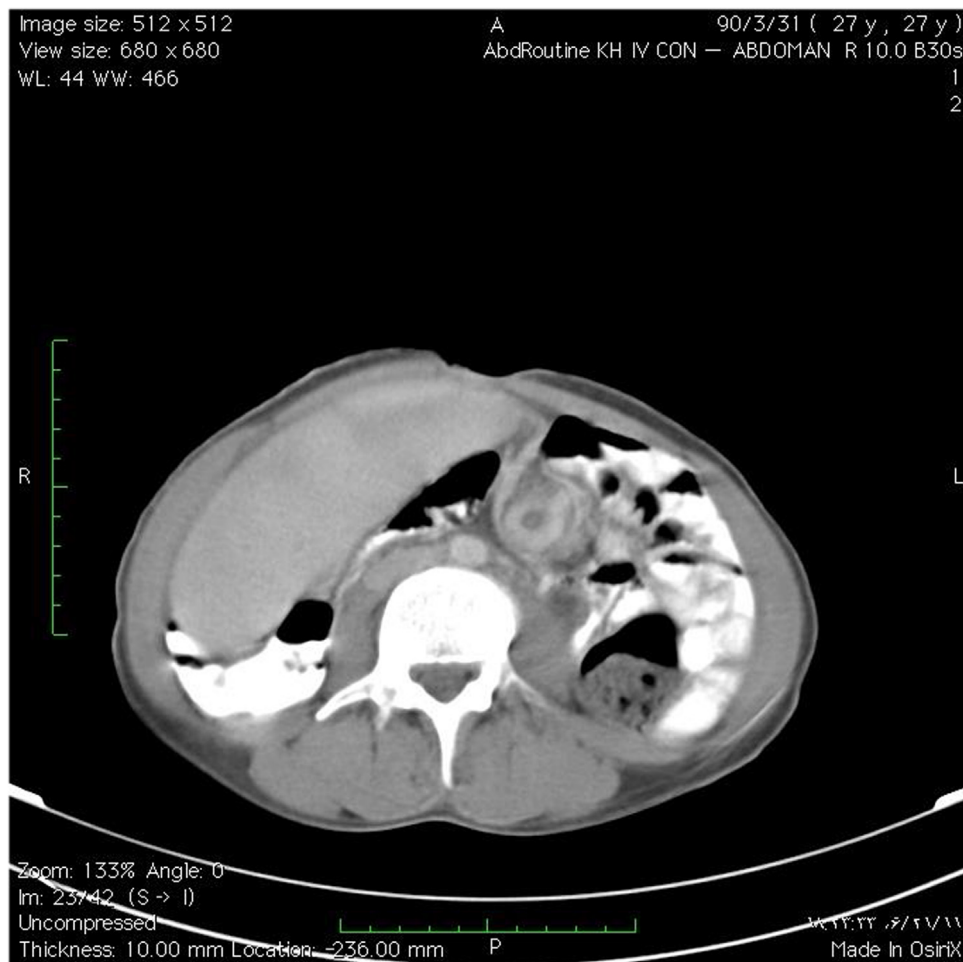


Fig. 1. Contrast-enhanced abdomino-pelvic computed tomography (CT) showing an ectopic spleen with torsion of its pedicle.

splenopexy was found impossible; therefore, splenectomy was undertaken.

The postoperative course was uneventful, and the patient was discharged on the fourth day postoperatively, in satisfactory condition. The patient reported no symptoms in one week, one and six month follow up at the Sina hospital clinics and will be followed up every six months for meningococcal vaccination and every five years for pneumococcal vaccination.

3. Case 2

A previously healthy 20-year-old female presented to the hospital surgery clinics, complaining of a left upper quadrant pain over the past month. The pain was colicky in nature and relieved by vomiting. The patient had been treated for gastritis and urinary tract infection several times within the previous six months. Each time the pain was relieved spontaneously, and no specific diagnosis had been made. There was no related finding in patient's drug, family, and psychosocial history and no specific finding in physical examination was obtained.

Ultrasonography was performed with a linear transducer. Liver and gallbladder were normal. Spleen was not visualized in its normal position and moderate splenomegaly was shown. Enlargement of the spleen raised the concern of possible splenomegaly resulting serious conditions such as hematologic malignancy. Hematologic, microbiologic, and biochemical investigations were all found to be normal. Contrast-enhanced CT scan revealed a congested spleen with a pedicle torsion and its hilum pointing toward the left lat-

eral. Ring enhancement of spleen capsule, weak enhancement of spleen parenchyma, and cork screw-like soft tissue density containing enhanced splenic vessels suggesting a distorted splenic pedicle, were visualized as well (Fig. 2).

Vaccination against pneumococcus and *H. influenza* completed and two weeks afterwards, we operated an elective operation, which revealed an insitu torsion of the spleen with partial infarction at the end of a long pedicle. Splenectomy was performed through laparotomy and the patient was discharged on the fourth postoperative day with no further complications. The patient reported complete relief of abdominal pain, in one and six month follow up at the Sina hospital clinics. She will be followed up every six months for meningococcal vaccination and every five years for pneumococcal vaccination.

4. Discussion

Ectopic positioning of the spleen within the abdomen or pelvis is an uncommon condition called wandering spleen, which is found in <0.5% of splenectomies. WS can be a result of either congenital or acquired conditions. Congenital anomaly in development of the dorsal mesogastrium resulting in formation of abnormal splenic suspensory ligaments, and acquired conditions including abdominal wall weakness, multiple pregnancies, hormonal changes, and splenomegaly are the main etiologies causing WS [7–9].

An abnormally long pedicle is a result of above factors, and it is susceptible to torsion. Torsion of the pedicle results in a partial

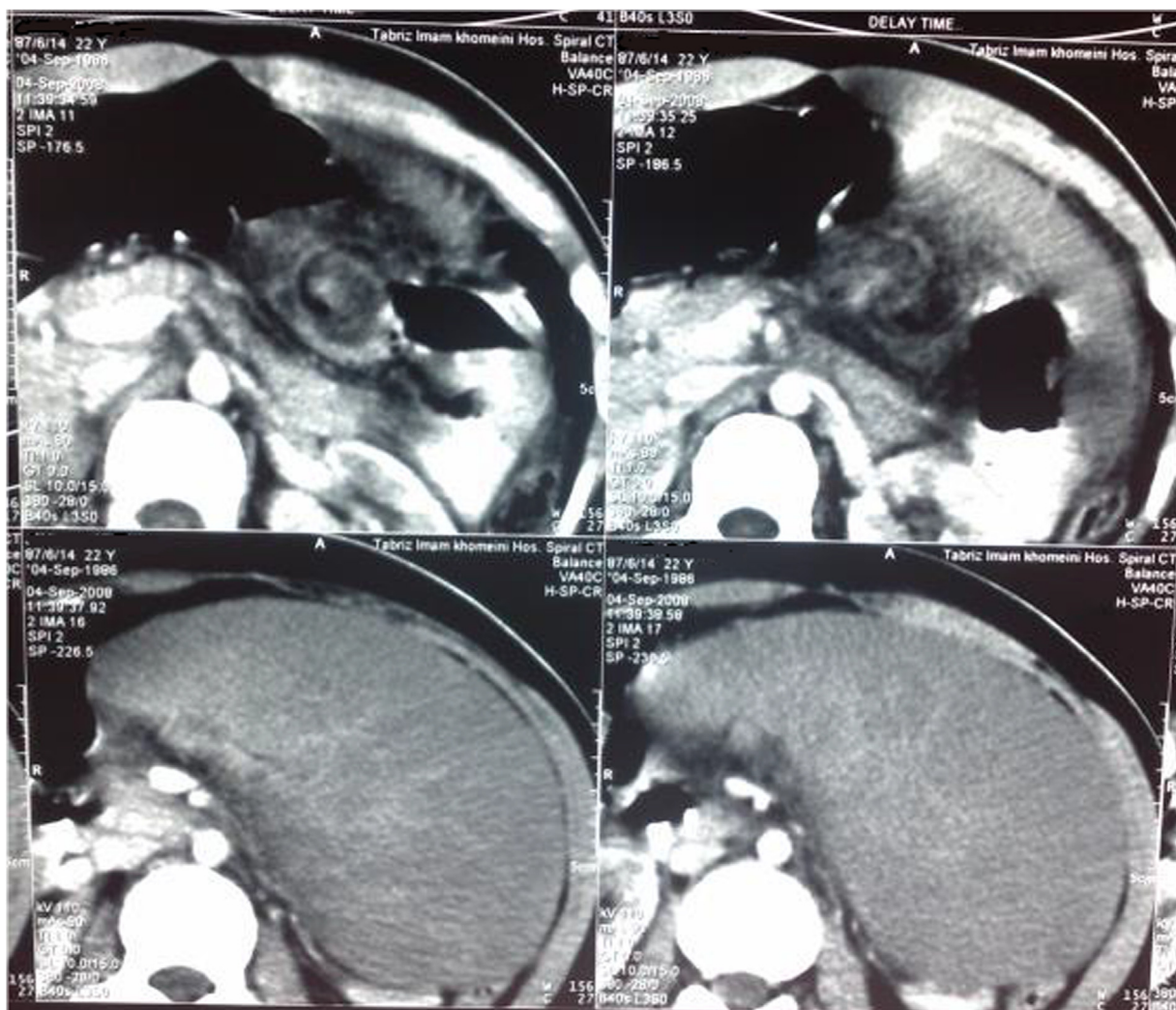


Fig. 2. Contrast-enhanced CT scan of the abdomen showing a congested spleen with a pedicle torsion and its hilum pointing toward the left lateral. Ring enhancement of the spleen capsule, weak enhancement of the spleen parenchyma, and cork screw-like soft tissue density containing enhanced splenic vessels suggesting a distorted splenic pedicle, is presented.

or complete splenic infarction, concerning presence of the splenic vessels within the pedicle [10].

Therefore, regarding the high incidence of splenic torsion in patients with this condition, early diagnosis is of great importance. Sudden torsion may result in acute abdomen with serious complications such as splenic abscess, infarction, gangrene, or rupture with a 50% mortality rate [11]. Intermittent splenic torsion with incomplete blood flow obstruction, may lead to venous congestion, congested splenomegaly and a subsequent hypersplenism or mass effect symptoms [12] as occurred in our first case.

Numerous imaging methods, such as plain radiography, scintigraphy, ultrasound, Doppler ultrasonography, CT, and angiography have been used for establishing a definitive ectopic spleen diagnosis [13]. Contrast-enhanced abdominopelvic CT scan is able to provide information about the exact location of WS in relation to other intra-abdominal organs, and viability of the spleen in the setting of a possible splenic torsion, as well [14].

Currently, there are two surgical options for WS approach; splenopexy and splenectomy. Viability of the spleen is the main determinant of the preferred form of the treatment. Splenopexy in the uncomplicated cases includes suturing the capsule of the spleen to the left upper quadrant of the abdomen and forming a posterolateral extra peritoneal pocket at the 12th rib level. Other methods consist of dislocating the splenic flexure of colon and suturing the

greater curvature of the stomach to the anterior abdominal wall [15,16]. More recently, the use of a polyglycolic mesh as a 'snood', to anchor the spleen, has been reported [17].

Despite complications following splenectomy such as sepsis and high mortality rate, in case that the splenic blood supply is not restored after manual detorsion (non-viable spleen), splenectomy is inevitable. On the other hand, there is a considerable recurrence rate following splenopexy.

As a result, the choice between splenopexy and splenectomy (open or laparoscopic) depends on the clinical state of patient and surgeon's expertise [3,9].

Declaration of competing interest

The authors declare that there are no conflicts of interest regarding the publication of this article.

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Ethical approval

The case report was approved by the regional ethic committee of research in Tabriz University of Medical Sciences.

Consent

Written informed consent was obtained from both patients for publication of this case reports and accompanying images. A copy of the written consents is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Data collection: By all authors.
Analysis and case management: P V,
Writing: A F, S N, A A.

Registration of research studies

Not applicable.

Guarantor

Peyman Virani accepts full responsibility for the work and the conduct of the study, had access to the data, and controlled the decision to publish.

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