

Splenic Torsion of a Wandering Spleen

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Torsion of the spleen is a rare cause of acute abdominal pain. A "wandering spleen" is characterized by laxity or absence of the supporting splenic ligaments and where a long pedicle facilitates abnormal positioning of the spleen outside its native left sub-diaphragmatic location. Wandering spleen predisposes the spleen to torsion, blood-flow impairment and ischemia, and can cause a variety of symptoms from mild intermittent abdominal pain to acute abdominal crisis [1]. The non-specific signs and symptoms together with the rarity of this condition hamper the clinical diagnosis. We present a case of splenic torsion in a 22 year old woman.

PATIENT DESCRIPTION

A 22 year old woman was admitted with sudden-onset abdominal pain of 2 days duration localized mainly in the left upper quadrant and two episodes of diarrhea. The pain was constant and did not radiate elsewhere. Further anamnesis revealed no abnormalities. On examination, she was afebrile (36.6°C) with normal heart rate (75 beats per minute) and blood pressure (117/76 mmHg). Physical examination was within normal limits except for slight tenderness in the left upper quadrant of the abdomen, with a palpable ovoid mass in a horizontal position just below the rib cage.

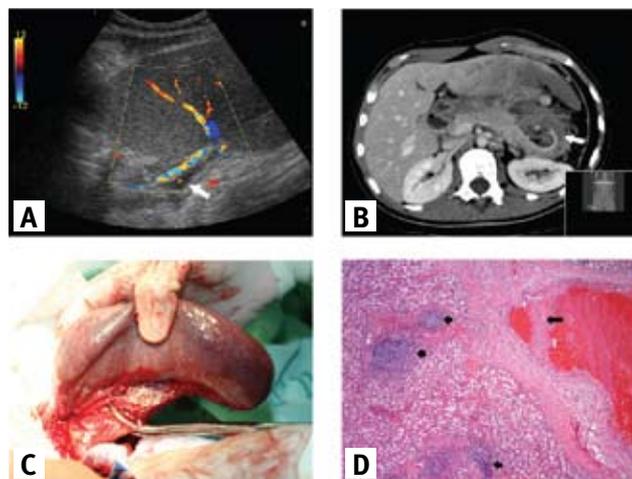
Laboratory tests revealed normal white blood cell count and normal hemoglobin level, but the platelets count was slightly low (119 x 10⁹/L) and C-reactive protein somewhat elevated (6.64 mg/dl). Abdominal sonography showed an enlarged spleen located in an unusual position (rotated anteriorly and horizontally), with heterogeneous patchy texture and hypo-echoic and hyper-echoic regions. Doppler sonography demonstrated preserved arterial blood flow while venous drainage was diminished with narrowing of the splenic vein [Figure A]. The impaired venous outflow was suspicious for partial vein thrombosis. Enhanced computed tomography demonstrated an enlarged spleen (14 x 9 x 15.2 cm) with large hypo-dense regions compatible with

wide ischemic areas. The scan showed stranding and a whorl of concentric arcs in the region of the splenic hilum [2] [Figure B].

Because of the irregularity of the spleen and the question of its viability, the patient was referred to splenectomy. Exploratory laparotomy through a left Kocher's incision was performed followed by total splenectomy. The operative findings demonstrated a congested spleen, rotated 90° clockwise. The spleen was freely mobile on its pedicle with no ligamentous attachments at all [Figure C].

The excised spleen weighed 246 g. On cut sections no gross abnormalities were detected except for tortuous and congested hilar blood vessels, some with thrombi. Histological examination was

[A] Doppler sonography of the splenic hilum showing minimal venous blood flow (the arrow points to the lower dark vessel) with preserved arterial blood flow. **[B]** Contrast-enhanced CT demonstrating displacement of the spleen to the anterior-horizontal position, patchy enhancements of the parenchyma, and the "whirl sign" of the splenic pedicle diagnostic of splenic torsion (arrow). **[C]** The enlarged spleen twisted around its pedicle without ligamentous attachments. **[D]** Histological picture of the spleen illustrating preserved white pulp (short arrow) embedded within the red pulp with patent sinuses and large congested blood vessel on the right with laminated thrombus (long arrow). Hematoxylin and eosin x 40.



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notable for organizing thrombi within large blood vessels [Figure D]. The patient was discharged with appropriate post-splenectomy treatment.

COMMENT

Wandering spleen is rarely diagnosed clinically due to its rare occurrence (< 0.2%). It has a female predominance [3] and the pathogenesis is believed to be failure of development or elongation of the splenic ligaments, causing a mobile spleen. It may be due to congenital anomalies such as incomplete fusion of the dorsal mesogastrium, acquired conditions such as splenomegaly [4], or abdominal trauma. A transient or permanent torsion of the spleen is the major complication of a wandering spleen. The clinical presentation varies from asymptomatic intermittent pain and discomfort to acute abdominal crisis. Non-specific abdominal signs and symptoms (nausea, emesis, etc.) may also occur [4]. The major complications related to splenic torsion are splenomegaly

due to venous stasis and congestion, and splenic vein thrombosis culminating in impaired arterial supply leading to splenic infarction and necrosis. Laboratory tests are usually non-specific but may reveal elevated inflammatory markers and evidence of hypersplenism or functional asplenia [4].

Since a clinical diagnosis may be difficult, a definitive diagnosis is reached by imaging modalities such as Doppler sonography and enhanced CT. Surgical treatment includes splenectomy and splenopexy. Splenopexy, which preserves the spleen and avoids the risk of overwhelming post-splenectomy sepsis, may be considered in a viable wandering spleen without torsion complication. On the other hand, splenectomy is advocated if there is functional asplenia due to torsion, splenic infarction, splenic vessel thrombosis or secondary hypersplenism [5]. Our patient's history together with the clinical and pathological findings can serve as a reminder that the entity of wandering spleen should be suspected

in unusual cases of recurrent unspecific abdominal pain. A high index of suspicion, prompt diagnostic workup and surgery are the key points for a favorable surgical outcome.

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