# Weird Activity and the Wandering Spleen

Nehama Sharon MD[1], Jacob Schachter MD[2], Ruth Talnir MD MBBCh MSc[2], Joel First MD[2], Uri Rubinstein MD[2] and Ron Bilik MD[3]

Departments of [1]Pediatric Hemato-Oncology and [2]Pediatrics, Sanz Medical Center, Laniado Hospital, Netanya, Israel
[3]Department of Pediatric Surgery, Sheba Medical Center, Tel Hashomer, Israel

**Key words:** wandering spleen, Doppler ultrasound, splenectomy

*IMAJ 2005;7:744–745*

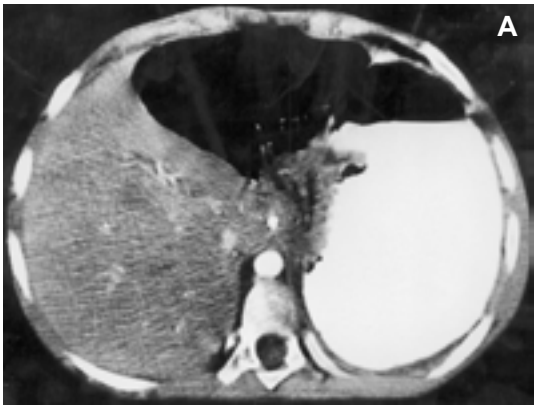
A wandering spleen is a rare form of developmental anomaly of the dorsal mesogastrium of the spleen, leading to failure or incomplete attachment of the splenic ligaments to the diaphragm, retroperitoneum and colon. Laxity of the suspensory ligaments of the spleen can be congenital or acquired. These two forms of developmental anomalies result in the formation of a long vascular pedicle and variable intraperitoneal splenic mobility depending on the length of the vascular pedicle. We describe here an acute torsion of a wandering spleen in a child following an unusual physical activity.

## Patient Description

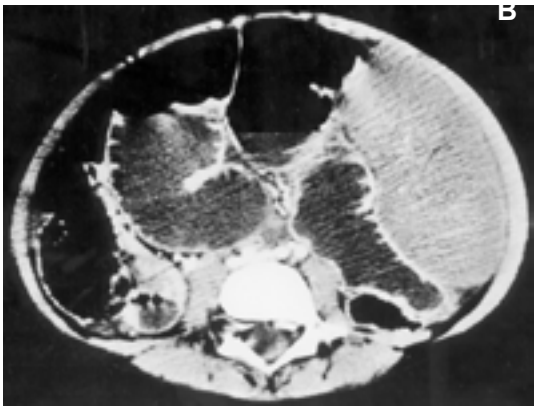
A 7.5 year old boy was admitted to our ward because of sudden onset of vomiting and colicky abdominal pain lasting several hours. The boy was well until several hours before his admission and his past medical history was non-contributory. On further inquiry it was discovered that a week prior to his admission he had occupied himself doing headstands.

Physical examination on admission revealed a thin, pale and apprehensive child. His temperature was 36.5ºC, blood pressure 114/74 and pulse 96 regular. On palpation the abdomen was diffusely tender with an extremely enlarged and hard mass. The rest of the physical examination was unremarkable. Laboratory analysis on admission showed hemoglobin 11.7 mg/dl, mean cell volume 87, white blood cells 9,000/mm³ with neutrophilia, and platelets 300,000/mm³. Electrolytes, amylase and liver function tests were within normal range.

Doppler ultrasound examination of the abdomen revealed an enlarged spleen measuring 12.7 cm in length with no flow in the splenic vein. There was a small amount of peritoneal fluid around the liver and in the pouch of Douglas. The examiner commented on the mobility of the spleen and raised the possibility that it could be a wandering spleen. A computed tomography-angiography scan of the abdomen showed that the stomach was grossly distended into the left upper quadrant normally occupied by the spleen [Figure A]. The spleen was enlarged and located in the left lower quadrant of the abdomen, encroaching the pelvic inlet. There was no enhancement following injection of contrast medium. The splenic artery was narrowed [Figure B].




**[A]** Grossly distended stomach occupying the left upper quadrant normally occupied by the spleen.




**[B]** Enlarged spleen located in the left lower quadrant of the abdomen encroaching the pelvic inlet. No enhancement appears following injection of contrast medium. The splenic artery is narrowed.

The child was admitted but deteriorated clinically, and as the blood count showed a drop in hemoglobin level to 8.8 mg/dl, an emergency laparoscopy was performed. Examination revealed an enlarged, congested spleen with torsion, findings that necessitated the removal of the spleen.

The postoperative course was uneventful; the boy received pneumococcal, meningococcal and H*aemophilus influenzae* vaccines and was discharged home with ambulatory follow-up. On examination 1 year later the child was doing well and his blood counts were within normal range.

## Comment

A wandering spleen is a rare form of developmental anomaly and an uncommon clinical finding. Normally the spleen is fixed in its position in the left upper quadrant by three main suspensory ligaments. A wandering spleen arises from either a congenital or acquired laxity of the suspensory ligaments of the spleen, or a congenital fusion anomaly of the posterior leaf of the dorsal mesogastrium

of the spleen with the parietal peritoneum [1]. These developmental anomalies result in failure or incomplete attachment of the spleen to the diaphragm, retroperitoneum and colon, or a formation of a long vascular pedicle and variable intraperitoneal splenic mobility. The incidence of a wandering spleen in the general population is unknown. It is more common in adult females (7:1). Children make up one-third of all cases, a third of them under the age of 10 years, with an equal male to female ratio.

Clinical presentation includes an incidental finding of a painless abdominal or pelvic mass, chronic intermittent non-specific abdominal or pelvic pain as a result of spontaneous torsion and detorsion of the splenic pedicle, and a mass on palpation. Most ectopic spleens are enlarged because of venous congestion, and the inflammatory reaction secondary to ischemia and traction by the enlarged spleen elongates the vascular pedicle and contributes to the development of torsion [2]. In about 50–65% of cases the presenting symptoms are those of an acute abdominal event. In two-thirds of these patients no symptoms preceded the acute event. Fever, vomiting and leukocytosis often accompany the acute abdominal symptoms. Precipitating factors in the development of torsion include changes in intra-abdominal pressure during respiration or peristalsis or distension of adjacent organs, abdominal trauma and movements of the body. In the case described here, the unusual physical activity probably displaced the spleen from its position and precipitated the acute event of splenic torsion.

There are various diagnostic modalities to demonstrate a wandering spleen and suspected torsion. A plain abdominal X-ray in the supine and erect position show the spleen as a mobile mass in the left or central abdomen and the normal splenic contour in the left upper quadrant is absent. Ultrasonography shows absence of the spleen in its usual site in the left upper quadrant and a homogenous, hypoechoic or anechoic mobile mass in the left flank, mid-abdomen or pelvis [3]. Power Doppler sonography is preferable to duplex and color Doppler for detecting weak blood flow in the splenic vessels. Radionuclide scan is valuable for assessing splenic function. It shows normal uptake in an abnormally positioned spleen or in cases of torsion and infarction there will be no uptake of isotope on a scan and the spleen will not be demonstrated. CT scan with contrast medium shows abnormal position of the spleen and delineates the anatomic position of other abdominal structures. In cases of torsion or infarction a CT-angiography demonstrates lack of blood flow in the splenic pedicle and lack of enhancement following injection of contrast medium [4]. The modalities of choice for definite diagnosis are Doppler ultrasound and CT of the abdomen. Surgery is required for a wandering spleen and the definitive procedure depends on whether the spleen is viable or not. Because of the high incidence of torsion of a wandering spleen even in asymptomatic patients and the increased risk of splenic trauma such as bleeding or rupture, fixing the spleen is the definitive treatment. In recent years various techniques of laparoscopic splenopexy have replaced the more traditional laparotomy as the preferred procedure [5]. In cases of torsion in which the spleen cannot be salvaged after detorsion, splenectomy is performed.

In conclusion, a wandering spleen is a rare clinical finding, especially in children. This diagnosis should be considered whenever there are signs and symptoms of an acute abdomen or during investigations of chronic intermittent abdominal pain.

## References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**Correspondence:** Dr. N. Sharon, Head, Dept. of Pediatric Hemato-Oncology, Laniado Hospital, Kiryat Sanz, Netanya 42150, Israel.

Phone: (972-540) 430-3351

Fax: (972-9) 860-4748

email: nsharon@laniado.org.il