

Acute splenic torsion in children: which is the best treatment? A case report

Torsione splenica acuta nei bambini: quale trattamento? descrizione di un caso

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Abstract

Wandering spleen is a clinical entity which rarely affects children and adolescents. This condition can be asymptomatic or responsible of chronic pain, but it appears as a surgical emergency when an acute twisting occurs. The risk of post-splenectomy sepsis in the pediatric population suggests a conservative approach whenever possible, and also in case of acute torsion, most authors prefer to preserve the spleen and perform a splenopexy. The Authors describe a case of a child with acute splenic torsion, in whom a conservative surgical approach was initially adopted. The conservative option has to be balanced with the risk of prolonged thrombocytopenia, multiple transfusions and a possible second procedure to remove the spleen.

Introduction

Wandering spleen (WS) is a clinical entity which rarely affects children and adolescents. It is caused by laxity or absence of the supporting splenic ligaments, allowing the spleen to be mobile within the abdomen and predisposing to the torsion along the vascular pedicle.^{1,2} This condition can be asymptomatic or responsible of chronic pain, but it appears as a surgical emergency when an acute twisting occurs. The risk of post-splenectomy sepsis in the pediatric population suggests a conservative approach whenever possible, and also in case of acute torsion, most authors prefer to preserve the spleen and perform a splenopexy.^{3,4}

We describe a case of a child with acute splenic torsion, observed in our Department, in whom a conservative surgical approach was initially adopted.

Case Report

A 5 year old girl presented to the local hospital with acute abdominal pain and vomiting that had started the day before. The findings at physical examination were consistent with an acute abdomen. Laboratory values included a white blood cell count of 20000/mm³ and platelets count of 27,7x10⁴/mm³. Because of the suspect of an acute appendicitis, the patient was taken to the operating room. At laparotomy an enlarged spleen was occupying the central area of the abdomen. Suspecting a lymphoproliferative disease, it was decided just to remove the appendix, to conclude the procedure, and to plan further investigations. A computed tomography (CT) scan, planned the day after the operation, demonstrated a 14 cm intra-abdominal soft tissue mass, resembling an enlarged spleen for its shape and density, with suspected torsion of its pedicle and initial splenic congestion (Fig 1). The contemporary laboratory work-up was remarkable for important decrease of white blood cell (9700/mm³) and platelets (1.9x10⁴/mm³).

The child was immediately referred to our Department. On admission, she was feverish and very suffering, with distended, firm abdomen. A soft mass was palpable in the central abdominal quadrants. Laboratory investigations confirmed splenic sequestration. Based on these data, an emergency laparotomy, was performed: the spleen was found in a central abdominal position, with a 720° torsion around its pedicle. No ligamentous attachments were found. The spleen had a viable aspect, with several small dusky areas on the surface, but after detorsion, the surface returned quickly to its normal aspect. Therefore a conservative treatment was decided: a snood splenopexy was performed, using a patch of absorbable mesh. During the first post operative days the conditions of the child did not improve; progressive thrombocytopenia and anaemia required multiple transfusions. Two consecutive Doppler sonographic studies confirmed a regular arterial and venous blood flow of the spleen.

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Due to persistent thrombocytopenia and worse conditions of the child, the splenectomy was carried out after 4 days. At operation the spleen was located in its fossa, not enlarged and slightly dusky, with a rather good blood flow. The histological evaluation demonstrated several areas of haemorrhagic infarction. The post-operative course was uneventful. The patient received vaccines against pneumococcus, meningococcus and haemophilus influenza and now she is doing well at 30 months from the second operation.

Discussion

WS is a rare entity, well described in adults and frequent in women of childbearing age. Fewer than 500 cases have been reported in literature¹ and only about 130 in childhood.⁵ In some cases, other congenital abnormalities were reported: Prune-Belly syndrome, renal agenesis, gastric volvulus, diaphragmatic eventration, congenital diaphragmatic hernia and splenic cysts.^{1,5,6,7}

The etiology can result from congenital lack of development of primary legamentous attachments of the spleen¹ or from an acquired laxity of the same attachments, being the first hypothesis more suitable for children.⁸ The clinical presentation is various in children as well as in adults: patients may suffer from intermittent abdominal pain, probably due to partial torsion and spontaneous detorsion of the spleen, or may show a moveable, asymptomatic mass in the abdomen.^{1,8} Patients manifest an acute abdomen, if a sudden torsion of the splenic pedicle occurs.⁵ In these cases the clinical features can delay the diagnosis, because of the rarity of this condition.

Doppler Ultrasound is the most reliable study for the diagnosis in case of asymptomatic WS or when mild symptoms are present. CT scan instead is more useful in acute situations.⁸ In our patient the CT scan suggested the diagnosis without demonstrating clear signs of vascular impairment.

Laboratory values are generally non specific, however in case of acute torsion, sequestration of platelets may occur. In our patient, thrombocytopenia appeared soon after appendectomy and a few hours before the detorsion of the spleen. The hypersplenism may be reversible after detorsion of the pedicle.⁹

The treatment of choice of patients with non acute WS is splenopexy.³ Patients with chronic abdominal pain present a sort of compensative mechanism in blood vascular supply which justifies a conservative treatment.⁸ Also in symptomatic patients laparoscopic procedure is recommended.^{3,5,8} Splenectomy is almost always recommended in adults when operative findings suggest an acute twisting with possible infarct.^{5,8} In children presenting acute abdomen, however, the best surgical approach is still debated, bearing in mind the serious risks of sepsis after splenectomy. Some authors state that splenectomy should be done only when there is no evidence of splenic blood flow after detorsion,⁴ but in the absence of clear pre- and intraoperative signs of infarction, a splenopexy remains a recognized surgical option.

The presented case shows possible pitfalls in the diagnostic work up for a WS with an acute abdomen, and the awareness of the existence



Figure 1.
CT scan demonstrated a 14 cm intra-abdominal soft tissue mass, resembling an enlarged spleen for its shape and density

of this condition in children can allow to obtain a prompt diagnosis. Once the diagnosis is obtained, surgery is always recommended, though the best surgical option is difficult to choose. In our case, the absence of clear findings of infarction lead us to preserve the spleen, however a subsequent splenectomy was inevitable.

In conclusion, in case of WS acute torsion, the decision making in children is difficult. The option to preserve the spleen would seem preferable to avoid the risk of sepsis, however it has to be balanced with the risk of prolonged thrombocytopenia, multiple transfusions and a possible second procedure to remove the spleen.

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