Use of a silicone patch in the management of severe ischemic small bowel volvulus

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Clinical practice

A newborn was transferred to our unit for a suspicion of volvulus. An emergency laparotomy showed, in the context of malrotation, a 540° volvulus, with the totality of the small bowel dark purple. There was no improvement more than 30 minutes after the bowel was detorsed (Fig. 1). It was highly suspected that no viable small bowel was present, and we decided to give supportive care for 48 hours and then reassess the situation. To close the laparotomy, we used an abdominal patch consisting of a transparent silicone foil (Perthese, Laboratories Perouse Implant, Borel, France) stitched to the muscular sheath, in order to allow observation of the evolution of the small bowel and decompression of the abdominal cavity (Fig. 2). Against all odds, the neonate improved clinically, with a progressive better coloration of the bowel visible through the silicone foil, thus the planned second look at day two was postponed. Seven days after the first operation, re-exploration was undertaken: the small bowel was completely viable (Fig. 3). A Ladd's procedure with appendectomy was performed. Recovery was complete and uneventful. A follow-up of two years have shown no complications and an excellent evolution of a well thriving boy.

Discussion

This newborn with small bowel volvulus and with an appearance of severe ischemia of the totality of the small bowel was considered to have a very poor

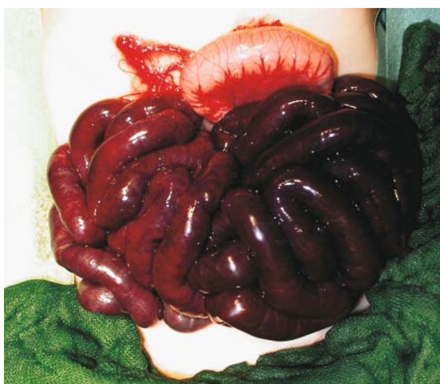

Fig. 1. Appearance of the ischemic intestine after more than 30 minutes of detorsion during the first laparotomy.

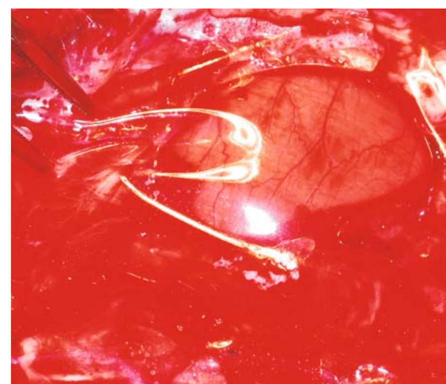

Fig. 2. The small bowel visible through the patch.

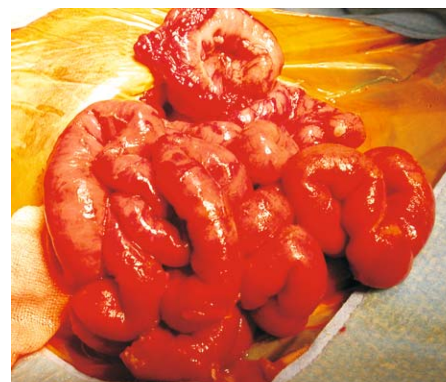

Fig. 3. Appearance of the small bowel on laparotomy 7 days later.

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prognosis.[1] How could we have identified whether the bowel was still viable and would recover? There have been a few attempts to find a per-operative sensitive and specific marker for gut viability. Intravenous fluroescein and Wood's lamp illumination have been used to assess bowel viability after aortic reconstruction.[2] Some studies in animals[3] and some in human colon during aortic surgery[4] have used mucosal oxygen saturation as a measure of ischemia. Visible light spectroscopy oximeter was used to measure mucosal capillary hemoglobin oxygen saturation.[5] None of these methods is used routinely on a wide scale yet, but they seem to be promising. For the moment the surgeon uses his own experience to judge the viability of the intestine. He may decide to perform a second look approach to evaluate the need to further resect bowel when there is suspected disease progression, as in acute mesenteric ischemia.[6] Yet, few studies have related the second look approach in patients with bowel obstruction.[7] The timing of the second look operation might be difficult to determine. We advocate the use of a transparent silicone foil as a practical visual aid, through which the intestinal evolution can be observed. A further advantage of the silicone foil is the associated enlargement of the abdominal cavity and thus the prevention of a possible abdominal compartment syndrome.[8]

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