

Efficient and Safe Small-Bowel Adhesiolysis

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Key Words

Small-bowel perforation · Peritoneal adhesions · Adhesiolysis

Abstract

Small-intestine adhesiolysis can be very time consuming and may be associated with bowel wall damage. The risk for injuries to the small or large bowel resulting in increased morbidity and costs is considerable. Both efficient and gentle dissection of adhesions is important in order to avoid intraoperative perforation or, worse, postoperative intestinal leaks. We present a technique using drops of body-warm isotonic saline solution to create an edematous swelling of the adhesions. This procedure not only protects the bowel from cooling and drying, but also simplifies the dissection and, thus, lowers the risk of intestinal lesions.

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Introduction

Abdominal peritoneal adhesions are a well-known but underestimated problem in abdominal surgery. Unspecific abdominal pain, dysfunctions of the transit, or even an ileus are potential complications of adhesions. In total, 49–75% of small-bowel obstructions are caused by peritoneal adhesions [1, 2]. In elective abdominal surgery, adhesions are a problem, too. Laparoscopic techniques may not be applicable due to a limited view and the associated increased risk of bowel injury. The surgical procedure is more time consuming, intraoperative small- or large-bowel lesions may occur, and postoperative recovery is prolonged. Furthermore, the costs are higher [3–5].

Insufficient healing of inadvertently caused and overlooked or even sutured enterotomies or serosal lesions of the bowel wall may be life threatening since they may lead to perforations with secondary peritonitis and sepsis [4, 6]. Also, gastrointestinal-cutaneous fistulas may occur and represent complex complications in middle- or long-term follow-up.

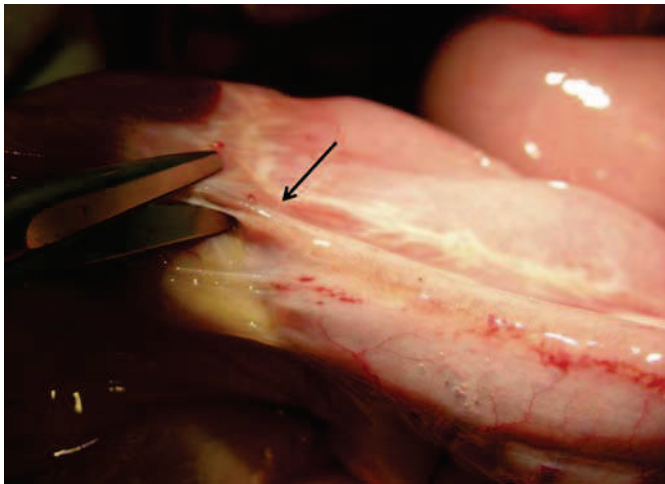
The aim of this paper is to present a safe and efficient technique for removing extended small-bowel adhesions that are not suitable for laparoscopic lysis.

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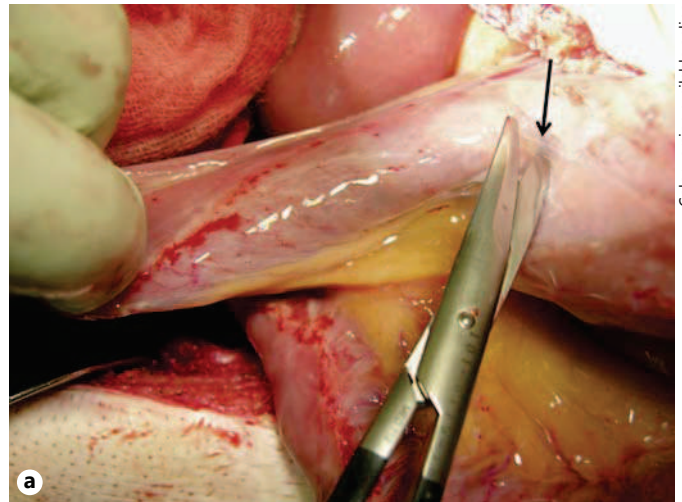
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Fig. 1. Edema after application of body-warm isotonic saline solution. The black arrow points at the edema which facilitates the dissection, thereby reducing the risk for serosal lesions.

Surgical Technique

The patient is placed in a supine position. If there is a suspicion of colon pathology preoperatively, a standard lithotomy position is preferred. The first incision is usually made outside an existing scar and, in most of the cases, this is in the midline above or below the existing scar. Transverse incisions may not allow for an identification of the first jejunal limb as well as a safe release of the fixed jejunum or ileum in the lower pelvis. After adhesions between the anterior bowel wall and the small intestine have been removed, the subsequent dissection aims at isolating the small-bowel limbs.

For an efficient and safe adhesiolysis, the small bowel is gently soaked with warmed isotonic saline solution (Ringer's lactate solution) of 37–39°C (98–102°F), thus leading to an edema between the layers of peritoneal adhesions (fig. 1). The edema occurs instantly and removal of the adhesions can be started without delay. The technique of releasing adhesions is a combined blunt and sharp dissection. Under constant, smooth and gentle tension, the bowel adhesions are cut with a scissor (fig. 2). The assisting surgeon sprinkles the small bowel with warm Ringer's lactate solution. This technique protects the patient from hypothermia due to the large total area of the small bowel. The small bowel is also safeguarded against dehydration which involves the danger of subsequent microlesions. Whether or not a complete adhesiolysis is necessary depends on the local situation in any



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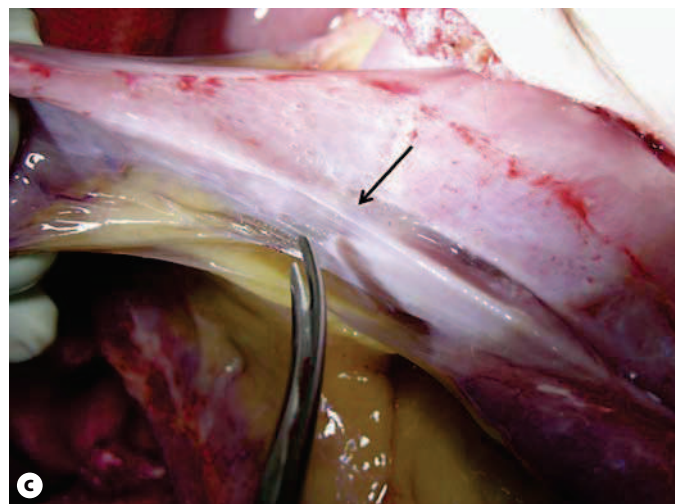
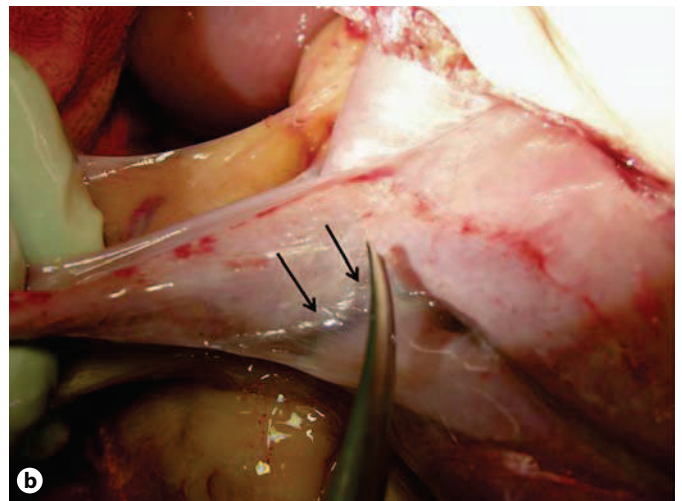


Fig. 2. Gentle tension is applied. The arrows mark the edema enlarging the space between the two bowel loops.

individual patient. An incomplete adhesiolysis may leave a distal obstruction untreated, thereby increasing the risk of postoperative proximal small intestinal leak.

Based on the current data for gastrointestinal surgery, no additives for the prevention of new adhesions are added [2]. Intra-abdominal drains are not routinely used.

Conclusion

We recommend a wet dissection of the small bowel to avoid enterotomies and lesions of the serosa. The described technique is a simple and low-cost procedure to divide peritoneal adhesions.

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