

Editorial

Trocar site hernia after laparoscopy, including robotic-assisted laparoscopy

Laparoscopic procedures have been developed with notable success in recent decades,¹ and all advantages and disadvantages (limitations) of this expanding field have been previously reported.² However, a new technique is still an ongoing development, and one of the most important advances in laparoscopic procedures is the introduction of robotic-assisted laparoscopy.³ Trocar site hernias (TSHs) are one of the well-known complications after laparoscopy, and has a prevalence of 0.5% (ranging from 0% to 5.2%).^{4,5} However, reference to TSHs identified after robotic-assisted laparoscopy has not been found in the literature.⁶ In theory, TSHs can occur in wounds of any size, ranging from 2 mm to 15 mm, although the majority of reported cases are in wounds larger than 10 mm.⁵ Because the TSH occurred in a wound smaller than 10 mm (defined as a small wound), this is extremely rare and sometimes contributes to a catastrophic condition, such as obstruction or incarceration, as noted in an article published by Kilic et al⁶; however, this danger may well be the consequence of an act of omission. Therefore, this comment was generated to improve our understanding of TSHs and minimize the subsequent risk based on our recent published review.⁷

The summary of findings included the following: (1) more than 70% of small wound TSHs occurred after gynecologic laparoscopic surgeries; (2) all cases were left open at the fascial layers; (3) nearly 90% occurred at the lateral abdomen; (4) more than 80% occurred within 14 days, which is defined as an early-onset TSH and an elevated incidence (more than 80%) of early-onset TSHs was found at small-wound trocar sites, suggesting the importance of early identification⁸; (5) the small bowel was the most frequently herniated organ, followed by the omentum. In addition, all of the small-wound TSHs with a herniated small bowel occurred within 2 weeks after laparoscopic surgery, and more than 90% presented as small bowel obstruction. Exploratory laparotomy (more than 60%) was often used to repair the small-wound TSHs. In comparing incarceration and nonincarceration, no risk factors could be identified, although incarceration appeared to occur earlier than nonincarceration.⁷

The reported predisposing factors for TSHs include umbilical location, preexisting fascial defect, compressed air effect, preschool age, older than 60 years, being obese and extended operative time, or comorbidities associated with a

fascial defect—for example, adjuvant chemotherapy for cervical cancer or breast cancer with abdominal metastasis.⁷

To further improve our understanding of small-wound TSHs, three major topics are emphasized: (1) risk factors associated with surgical techniques, such as location (lateral abdominal wall), prolonged surgery, extensive manipulation and stretching the incision for retrieval, trocar types and entry techniques, closing fascial defects, and effects of compressed air; (2) risk factors associated with patients, such as obesity, children, advanced age, preexisting fascial defects, and comorbidity; and (3) closure techniques, which have been extensively reviewed previously.⁹

The incidence of small-wound TSHs is extremely low, as referenced by Kilic et al⁶; however, all small-wound TSHs occurred at wound sites without closure, and we strongly recommend that the small-wound trocar site be closed with a delayed absorptive suture. In addition, we stress that a dangerous incarceration is often identified immediately or shortly after laparoscopic surgery (average: 4 days), for example, 3 days in the report of Kilic et al.⁶ Therefore, patients should be well informed about their postoperative care to minimize the risk of incarceration secondary to small-wound TSHs.

Conflicts of interest

The authors declare that there are no conflicts of interest related to the subject matter or materials discussed in this article.

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