

## Small bowel obstruction at a Filshie clip applicator port site

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**Abstract** Laparoscopic Filshie clip sterilisation remains a common method of permanent female contraception. Worldwide, approximately 190 million couples use tubal occlusion (United Nations world population monitoring. United Nations, 2002). Trocar site incisional hernia has been reported as a complication of laparoscopic surgery where a 10-mm port was employed (Tonouchi et al. Arch Surg 139(11):1248–1256, 2004). It is common practice to repair port sites of 10 mm or more to prevent herniation. Port sites of 5 mm are not routinely repaired by most surgeons because it is thought that such iatrogenic fascial defects are not large enough to predispose to hernia (Reardon et al. J Laparoendosc Adv Surg Tech A 9 (6):523–525, 1999). We report a rare case of early Filshie clip applicator port site intestinal obstruction following laparoscopic sterilisation. The mechanism of hernia formation and a preventive strategy are discussed.

**Keywords** Small bowel obstruction · Port site · Filshie clip applicator

### Introduction

Laparoscopic Filshie clip sterilisation remains a common method of permanent female contraception. Worldwide, approximately 190 million couples use tubal occlusion [1].

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Trocar site incisional hernia has been reported as a complication of laparoscopic surgery where a 10-mm port was employed [2]. It is common practice to repair port sites of 10 mm or more to prevent herniation. Port sites of 5 mm are not routinely repaired by most surgeons because it is thought that such iatrogenic fascial defects are not large enough to predispose to hernia [3]. We report a rare case of early Filshie clip applicator port site intestinal obstruction following laparoscopic sterilisation. The mechanism of hernia formation and a preventive strategy are discussed.

### Case report

A 38-year-old para 4+1 was admitted via the Emergency Department 48 h after laparoscopic tubal Filshie clip sterilisation with severe left upper quadrant abdominal pain of 1 day's duration.

Pneumoperitoneum during sterilisation was achieved via intraumbilical Verres needle insufflation after a Palmer saline test. A 10-mm trocar was inserted intraumbilically and omental adhesion involving the small bowel and the lower anterior abdominal wall, obscuring the view of both adnexa, was noted. The view of the adnexa was only possible after inserting the ancillary lateral ports and retraction of the omental adhesion. The patient's uterus was retroverted and bulky. Her fallopian tubes and ovaries were unremarkable.

Due to lack of access to the fallopian tubes, a 7.5-mm Filshie clip applicator port was inserted at each LIF lateral to the rectus muscle to gain access to the ipsilateral fallopian tube. The Filshie clip was applied across the isthmic part of each fallopian tube. Her immediate post-operative recovery was uneventful and she was discharged home the same day.

On admission, she was afebrile with a temperature of 36.4°C. Her pulse rate and blood pressure were 112 bpm and 118/85 mmHg respectively. She was moderately dehydrated. Abdominal examination revealed tenderness over the left upper quadrant. Bowel sounds were present. Her abdominal X-ray on admission was normal. However, her USS later in the day was suggestive of small bowel obstruction. She then had a CT scan of her abdomen, which revealed dilated loops of the small bowel with an obstructive component. The cut-off point for the obstruction was below the umbilicus at the left lateral border of the rectus abdominis muscle. A small loop of small bowel and its mesentery appeared to be impacted at this site. The bowel wall appeared normal and enhancing in contrast. The rest of the abdomen was unremarkable. Sterilisation clips were noted in the pelvis. The impression was a small bowel obstruction secondary to a left-sided Spigelian hernia.

The patient subsequently underwent a midline laparotomy and repair of the defect of the port hernia. Operative findings were: left port site hernia containing a loop of small bowel. The hernia was reduced and the small bowel was found to be viable with no stricture. The hernia defect was repaired with Prolene® 1/0 and the abdominal incision was closed using a mass closure technique. Her recovery was uneventful and she was discharged on the 4th post-operative day.

## Discussion

The incidence of incisional hernia at the trocar site following laparoscopic surgery has been reported to vary from 0.02 to 3.6% [4, 5]. In a survey by the American Association of Gynecological Laparoscopists, out of 840 trocar site hernias, 23 (2.7%) occurred in sites where ports were smaller than 8 mm [6]. The incidence of Filshie clip applicator port hernia is unknown.

It has been suggested that trocar site incisional hernia may arise secondary to infection, premature suture disruption, failure to adequately repair fascial wound edges or patient obesity [7, 8]. Predisposition to incisional hernia formation may be related to trocar size; and forced dilation of the fascial layer has been proposed as an aetiological mechanism for port site hernias [2]. Several authors have suggested that intrinsic fascial defects made worse by trocar insertion may also contribute to port site hernia [7–10]. An intrinsic fascial defect in this case could have transformed a 7.5-mm breach into a major fascial defect.

Tonouchi et al. [2] described three types of trocar site hernia. These include early onset, late onset and special types of trocar site hernia. Early onset-type trocar herniation, as in this case, presents commonly as small bowel

obstruction within a few days of laparoscopy. They suggest that an early onset trocar site hernia might constitute separation of the anterior and posterior fascial plane and peritoneum [2].

Incisional hernias at the site of entry of a trocar is a serious complication of laparoscopy because most trocar site hernias require further surgery to prevent or treat the complications of the hernia [2]. To confirm the diagnosis, in most cases, the site of incarceration can be located by computed tomography [2] followed by surgical reduction and repair of the fascial defect. We would recommend that whenever active manipulation through a  $\geq 5$ -mm port occurs during prolonged difficult procedures, the fascial defect should be closed to avoid complications.

## Conclusion

There is a need for awareness of Filshie clip applicator port hernia, its relationship to the site of abdominal entry, possible enlargement of the fascial defect during operation, and hence the need for meticulous closure of the fascia to avoid such an occurrence. We would advocate the closure of ports measuring more than 5 mm.

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