

## Case Report

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## Partial Intestinal Obstruction with Laparoscopic Accessory Port Site Hernia: A Rare Complication

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### ABSTRACT

Laparoscopic Surgeries are increasingly popular in modern practice due to their minimally invasive nature. Port site hernia (PSH) is one of the rare complications in laparoscopic surgeries, however, herniation of viscera through 5mm accessory port is even rarer. A 39-year-old previously healthy female underwent laparoscopic myomectomy, and removal of multiple fibroids weighing 830g. She was discharged 24 hours post-operatively, and developed symptoms of intestinal obstruction on day 3. A CT scan revealed herniation of the ileum through the left upper 5mm port site, causing partial intestinal obstruction. The hernia was reduced, and the defect was repaired laparoscopically and discharged within 24 hours. There are multiple risk factors for port site herniation, procedure-related factors like size and the site of the trocar, and the surgical technique, and patient-related factors like obesity, and co-morbidities. This case emphasizes the importance of early detection, and timely intervention of possible rare complications of laparoscopic surgeries.

**Keywords:** *Laparoscopic surgery, Intestinal obstruction, Port site hernia*

### INTRODUCTION

With the rapid increase in the use of laparoscopic surgery across various surgical specialties, particularly in gynaecology, complications unique to these procedures have begun to emerge (1).

Trocar-site hernia or Port-Site Hernia (PSH) is a serious complication after laparoscopic procedures. Although it is a rare entity, it can have life-threatening consequences. A single-centre study done at Peking Union Medical College Hospital from 1998 to 2018 shows that the approximate occurrence of post-operative PSH among gynaecologic laparoscopic procedures

performed at that particular hospital during last 20 years was 0.016% with a significantly higher rate among older patients than younger patients (2). Although PSH is a relatively uncommon complication, it has an estimated incidence ranging between 0.38% and 5.2%, with an overall occurrence of 1.7% (2,3). However, there was another small study of 27 laparoscopic ventral hernia repair that revealed an incidence of 22% (4). The umbilical port was frequently associated with hernia, next in frequency were the epigastrium and left and right hypochondrium. PSHs can be classified into early (dehiscence of fascial planes

and peritoneum), late (dehiscence of the fascial plane with intact peritoneal hernia sac), and special (dehiscence of the entire abdominal wall) (5). Presentation within two weeks is classified as early PSH, while cases occurring later are categorized as late-onset PSH(6,7). Minimal invasive surgeries are considered as gold standard in modern surgical interventions as it offers less bleeding, early mobilization, minimum pain, and faster recovery. However, they also carry risks such as PSH. Herniation through a 5mm accessory port is particularly rare compared to 10mm or 12 mm ports (8,9).

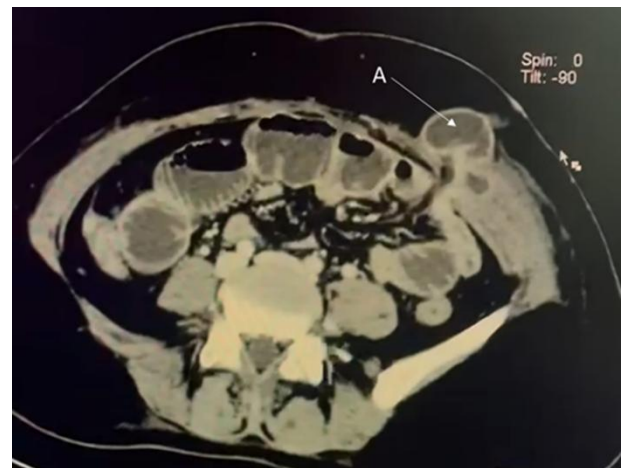
This case report presents a 39-year-old female who developed an early-onset PSH after laparoscopic myomectomy for uterine fibroids. The herniation occurred through a 5mm accessory port, highlighting the diagnostic challenges and management strategies for this uncommon condition.

## CASE REPORT

A 39-year-old female presented to the gynaecology clinic with heavy menstrual bleeding, and underwent a laparoscopic myomectomy for uterine fibroids. She was otherwise healthy with a BMI of 21. The procedure utilized four trocar ports: a 10mm main port for the camera at Le Huang Point and three 5mm accessory ports. Adhesions were separated, and myomectomy was completed, removing myomas weighing 830g. All port sites were sutured with 3.0 absorbable sutures. On postoperative day 1, the patient experienced a single episode of vomiting which resolved spontaneously, and she was discharged within 24 hours.

On day 3, the patient presented with vomiting but no abdominal distention. Examination revealed, a tender, hard area measuring approximately 5x5 cm at the left upper accessory port site. A provisional diagnosis of ileus was made, and supportive treatment provided temporary relief. Initial blood investigations were normal, ultrasonography revealed no free fluid in the pelvis, and an abdominal X-ray ruled out intestinal obstruction. However, on postoperative day 5, vomiting recurred upon reintroduction of oral fluids. A contrast-enhanced CT scan of the abdomen revealed protrusion of the ileum through the left

upper lateral 5mm port site, with gas distension in the subcutaneous space causing partial intestinal obstruction (Figure 1).



**Figure 1: CT scan; Transverse view of the abdomen showing the protrusion of the ileum through the defect in the anterior abdominal wall (A)**

An emergency re-laparoscopy confirmed the herniated ileum. (Figure 2). The bowel was carefully released, with no evidence of ischemia or necrosis. The port-site defect was closed using the needle closure technique. The patient recovered uneventfully and was discharged 24 hours later. This case highlights the potential for serious complications, even from small 5mm accessory port sites, and the importance of early diagnosis and timely surgical intervention.

**Figure 2: Laparoscopic appearance of protrusion of the**



**ileum through the port site defect**

## DISCUSSION

The laparoscopic approach has the unique advantage of being minimally invasive resulting in an early recovery. In contrast, it is also

accompanied by specific complications related to abdominal access by laparoscopic trocars such as PSH (4,10). PSH is classified according to the onset and the degree of dehiscence as suggested by Tonouchi et al (11). The early onset type is considered within two weeks with dehiscence of the fascial plane and peritoneum. Herniated contents include bowel loops. After two weeks the late-onset type is considered with dehiscence of the fascial plane with a sac consisting of a peritoneum. The third category includes having a dehiscence of the whole abdominal wall (7,11).

The trocar size used for port creation is an important factor for PSH. A survey done by American Association of Gynaecologic Laparoscopic Surgeons revealed that the incidence of PSH have been shown to decrease from 8% without closure to 0.22% with fascial closure in 12mm bladed trocars (6). PSH commonly occurs through large ports, greater than 10mm as it is quite uncommon to get a hernia through 5mm ports (8,9). There are several case reports of PSH through 5 mm ports. The reported cases include both early and late-onset hernias (12,13). In this case the patient developed early-onset PSH which can be easily misdiagnosed as ileus and therefore poses a challenge for the diagnosis.

PSH commonly occurs through the midline due to the absence of supporting muscles, especially the umbilicus. In a survey by the American Association of Gynaecologic Laparoscopists, umbilical hernias were found in 75.70% as compared to lateral hernias in 23.70% (11). Lateral hernias are uncommon due to the overlapping of muscles and fascia (11).

The underlying causes of the development of PSH can be related to the patient, the surgical intervention, or the instruments. The patient-related factors can be anatomical variations such as pre-existing umbilical defects, obese patients because of the larger preperitoneal space and raised intra-abdominal pressure, and pre-existing diseases like diabetes mellitus, and connective tissue disorders (6,8).

Surgical procedure-related factors include large trocar size, design of the trocar, midline trocars, the direction of the port insertion, use of a drain,

stretching of the port site for organ retrieval, and the effect of a partial vacuum while withdrawing the port (6). Except for the size and trocar site, the rest of the risk factors are common for all types of PSHs.

The non-bladed, radially dilating, and conical blunt trocars can also add risk to develop PSH(13). Most importantly proper closure of the port site including proper fascial approximation even in 5mm accessory ports, in high-risk patients can prevent the occurrence of PSH.

Recovery from anaesthesia should be smooth in high-risk patients. Coughing and bucking in the immediate post-operative period will cause abdominal contents to herniate through non-sutured accessory ports. Similarly, post-operative complications like wound infections and post-operative chest infections with persistent cough can increase the risk.

Excessive manipulation of the instruments through the ports will lead to expansion of the opening particularly from the peritoneal side without being noticed. This is a possibility in our patient as the multiple adhesions made the surgery challenging requiring excessive manipulation of the instruments through the ports. Deflation of pneumoperitoneum before port removal is recommended to prevent omentum and intestines from being drawn into the fascial defect (13). This patient was a previously well lady with a BMI of 21. Low BMI could be a predisposing factor because the thickness of the abdominal wall is less and the support is low.

PSH is a preventable complication with careful techniques especially in patients with risk factors. Royal College of Obstetricians and Gynaecologists guidelines advise closure of 7 mm or larger lateral ports and 10 mm or larger midline ports (12). There are no current recommendations for closure of 5mm sites. The choice lies with the surgeon who can decide on the method of closure. The incidence of PSH in laparoscopic gynaecology surgery is less than 0.2% (14). It is the usual practice, not to close the deep fascia in 5mm ports as the risk of PSH is low.(12) Therefore, generally 5mm entry ports are closed only at the level of the skin without approximating the deep fascia.

The literature review shows no significant difference in the incidence of PSH between surgical and gynaecological procedures. A systematic review reported that the incidence of PSH after laparoscopic gastrointestinal surgeries averaged 0.74%, with the highest incidence of PSHs (1.47%) in laparoscopic colorectal surgeries and the lowest incidence (0.57%) in bariatric surgeries (6). It is evident that the occurrence of PSH is related to the risk factors rather than the procedure itself.

Although its incidence is variable, PSH can cause considerable morbidity requiring surgical intervention. These hernias can be repaired using either primary anatomical repair or mesh repair, performed through open or laparoscopic approaches. Prompt surgical management is required immediately to prevent strangulation of the herniated contents depending on the presentation.

## CONCLUSIONS

In conclusion, this case highlights the importance of recognizing that, although rare, PSHs can occur even through 5 mm accessory ports and may result in serious complications such as partial intestinal obstruction, thereby complicating the postoperative course. Prompt suspicion, accurate diagnosis, and timely intervention are critical in preventing adverse outcomes. Identifying risk factors, implementing meticulous techniques, complete closure of port sites in high-risk patients, and providing smooth recovery from anaesthesia can substantially reduce the incidence of this complication and enhance overall surgical outcomes.

### Author declaration

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The authors declare that there is no financial or non-financial conflict of interest.

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Written informed consent was obtained from the patient before they participated in the case, ensuring their understanding of the purpose, procedures, and potential implications involved.

### Statement on data availability:

All data generated during the study are included

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