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## ABSTRACT

**Introduction:** The incidence of laparoscopic trocar site hernia ranges from 0.1–1.3% in all surgical subspecialties, older age (age >60), female sex, increased body mass index, diabetes mellitus, long operation time, size-type-site of trocar are risk factors for developing a trocar site hernia.
**Case Report:** Herein, a trocar site hernia of a 55-year-old female patient was presented with a history of type 2 diabetes mellitus, chronic obstructive pulmonary disease, left inguinal pain and swelling after laparoscopic bilateral salpingo-oophorectomy.
**Conclusion:** Trocar sites should be examined by imaging techniques following laparoscopic surgery. Procedures like smaller diameter trocars, less manipulated trocars and Z-incision technique may decrease the incidence of this complication, despite the increased number of laparoscopic surgeries.

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**Keywords: Complication, Laparoscopic surgery, Salpingo-oophorectomy, Trocar site hernia**

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## INTRODUCTION

Nowadays, the use of laparoscopic surgery increased, as it has significantly reduced the morbidity by decreasing duration of hospitalization and time to patient recovery. However, the increasing use of laparoscopic surgery has resulted in an increasing incidence of complications [1–10].

The incidence of laparoscopic trocar site hernia ranges from 0.1–1.3% in all surgical subspecialties [1–7].

Older age (age >60), female sex, increased body mass index, diabetes mellitus, long operation time, size-type-site of trocar are risk factors for developing a trocar site hernia [2].

Early, late, and special types of trocar site herniations have been seen [1]. Early-onset hernias are apparent within 2 to 12 days after surgery often with small bowel obstruction and re-operated. Late-onset hernias present with a bulge several months after surgery. The rate of reoperation is low and these types of hernias are usually managed conservatively. Special type is seen just after the operation and even during operation.

Most of the trocar site hernias are 10 mm or greater in diameter. There are few reports about trocar site hernia 5 mm or less in diameter [4].

## CASE REPORT

A 55-year-old female (body mass index 30 kg/m²) with a history of type 2 diabetes mellitus and chronic obstructive pulmonary disease presented with left inguinal pain and swelling after laparoscopic bilateral salpingo-oophorectomy 14 months ago. For laparoscopic salpingo-oophorectomy operation 10 mm bladed trocar was used, this operation duration was approximately 60 minutes.

On physical examination there was scars secondary to laparoscopic surgery on umbilical and right lower quadrant. There was swelling area on left lower quadrant in diameter 3x4 cm.

Physical examination findings suggested trocar site hernia and abdominal computed tomography was performed. Computed tomography scan of the abdomen and pelvis with an intravenous contrast medium demonstrated mesenteric fat tissue herniation through a defect of the internal and external oblique fascia and peritoneum at the port site (Figure 1).

The medical history of the patient revealed that 10-mm trocar was used at the operation. She was scheduled for surgery.

With general anesthesia, the fascial defect was repaired primarily by using 1-0 Prolene suture. Surgery was done successfully and the patient tolerated the procedure well. She was discharged home on the fourth postoperative day. On control examination she had no problem about surgery.

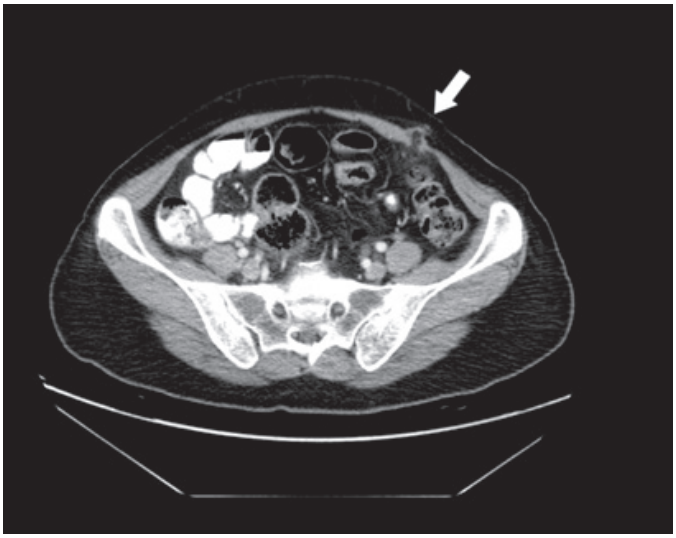

Figure 1: Trocar site hernia, located in the left lower quadrant was shown in axial computed tomography image.

## DISCUSSION

With the expand of usage of laparoscopic surgery the incision-related complications were reduced [10]. But trocar site hernia was noted as a new complication due to laparoscopic operation [1, 7, 10].

The risk factors for trocar site hernia were reported as follows [3, 5, 6, 10] :

- pre-existing umbilical hernia
- chronic obstructive pulmonary disease
- diabetes mellitus
- arterial insufficiency
- immune deficiency
- malnutrition
- smoking
- infection
- obesity
- sex

Our patient had as risk factors, chronic obstructive pulmonary disease, diabetes mellitus, obesity (body mass index: 30 kg/m²) and female sex.

In computed tomography scan, a trocar site hernia was seen in left lower quadrant. A mesenteric omental fat tissue was herniated from the fascial defect. The patients were generally admitted to the hospital with the complaints of pain due to herniation, incarceration and obstruction symptoms. In our patient, 3x4 cm mass was evident in the left lower quadrant, pain and the other general symptoms were almost absent

To our belief, this herniation was recurred due to the inappropriate surgical closing of the entrance site of trocar.

In general, surgeons do not attempt to close the fascia of ports and trocars less than 10 mm. Recent studies recommend the closure of all bladed trocar sites >5 mm [1–7].

When trocar is inserted tangentially through the abdominal wall and both the fascia and the peritoneum are closed, when the incision is greater than 5 mm, trocar site hernias may be prevented. Some researchers suggest that to use absorbable hemostats or omental plug for prevention of trocar site hernia instead of fascial closure [8]. To close the trocar defects with surgical sutures, is the widely known and performed method, we also advise to manipulate the trocar defect with primary sutures in order to overcome the risk of herniation of trocar sites.

## CONCLUSION

In conclusion, trocar sites should be examined by imaging techniques following laparoscopic surgery. Smaller diameter trocars, less manipulated trocars, Z-incision technique, closing fascial defect, direct vision of deflation air and removing of trocars may decrease the incidence of this complication, despite the increased number of laparoscopic surgeries.

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## Author Contributions

Kemal Arda – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Kansav Tunc Kizilkanat – Acquisition of data, Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Hasan Aydin – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

Halil Ibrahim Serin – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

## Guarantor

The corresponding author is the guarantor of submission.

## Conflict of Interest

Authors declare no conflict of interest.

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