



Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

A case report of a double port site hernia and their laparoscopic repair with intra corporeal suturing of the hernia necks and an underlay mesh repair

Jenny Marie Duke^a, Yagan Pillay^{b,*}

^a Rural Family Medicine Resident (PGY2), University of Alberta, Box 22 Site 18 RR#1, Sundre, Alberta, T0M 1X0, Canada

^b Department of General Surgery, University of Saskatchewan, Saskatchewan, S7N 0W8, Canada

ARTICLE INFO

Article history:

Received 11 July 2018

Accepted 31 July 2018

Available online 9 August 2018

Keywords:

Port site hernia

Laparoscopic herniorrhaphy

Intracorporeal suturing

ABSTRACT

INTRODUCTION: Port site hernias (PSH) are a potential postoperative complication in laparoscopic surgery. It is difficult to estimate their true incidence given the discrepancy in published reports.

PRESENTATION OF CASE: This is a case report of a 42-year-old lady who developed two separate PSH requiring a laparoscopic repair. This is also the first reported case of multiple PSH in a single patient in the English literature.

DISCUSSION: This report highlights the need for further research in establishing well defined incidence rates in order to properly discuss future surgical risks when consenting a patient for laparoscopic surgery. It is our belief that future research should be directed towards determining the risk associated with different trocar types, in the setting of various pre-morbid patient factors, to help surgeons decide on relevant instrument use and the most appropriate closure for port sites.

CONCLUSION: The growing incidence of PSH has brought about significant changes in the practice of laparoscopic surgery which behoves us as practicing clinicians to stay abreast of these changes so as to decrease the incidence of PSH.

© 2018 The Authors. Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Laparoscopic surgery is now sine qua non in the majority of abdominal surgical procedures. Laparoscopy allows quick access to the abdominal cavity, while avoiding large incisions, which often require a lengthy recovery period. A potential late complication of any abdominal surgery is a port site hernia (PSH). Despite smaller incisions with a laparoscopic approach, the fascia is breeched and there remains the risk of future herniation through the fascial defect. PSH are relatively uncommon, with reported incidences in the English literature of 5.4% [1]. They may result in poor cosmesis, such as an unappealing bulge on the abdominal wall or have the potential for serious complications such as incarcerated or strangulated bowel. Risk factors for PSH include the increased port size, patient's age, body mass index (BMI), excessive tissue manipulation and operative time [1].

2. Case report

A 42-year-old female, was referred by her family physician with two PSH as a result of a laparoscopic cholecystectomy performed 15 years previously. She reported vague periods of right upper quadrant pain with an intermittent bulge over the past two years. Clinical examination revealed a palpable mass in the right upper quadrant, just to the right of midline, as well as a second mass over the umbilicus with concomitant scar tissue from the previous laparoscopic cholecystectomy. She had recently lost 25 kg of weight intentionally and noticed that the swellings over the two incision sites had become more clinically apparent. There were no other hernias noted. Her surgical history included a laparoscopic cholecystectomy, laparoscopic hysterectomy, open appendectomy, and an exploratory laparotomy to investigate her chronic pelvic pain. Medical history included fibromyalgia, idiopathic angioedema, and gastroesophageal reflux disease. She is an ex-smoker with a 10-pack year history but had not smoked for the past decade.

A computerised tomography (CT) scan of her abdomen was performed to assess the location and extent of the abdominal wall hernias (Figs. 1–4). After an extensive discussion of the risks and benefits of hernia surgery she consented to a laparoscopic repair under general anesthetic. A four-port technique was employed as the distance between the hernia necks on the abdominal wall

* Corresponding author.

E-mail addresses: jenny.marie.duke@gmail.com (J.M. Duke), yagan2pillay@yahoo.ca (Y. Pillay).



Fig. 1. CT Scan sagittal view of the umbilical hernia (blue arrow).

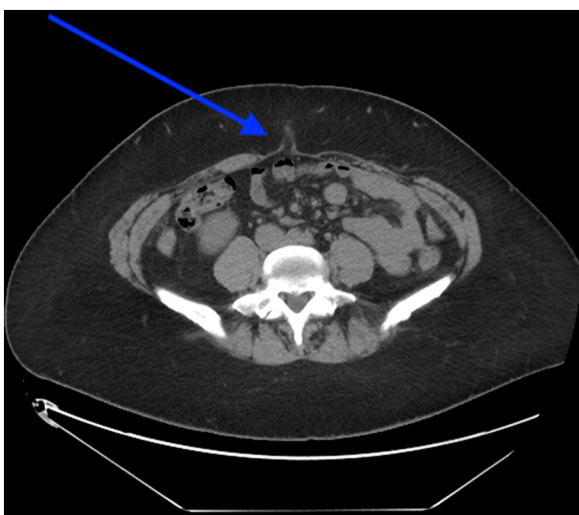


Fig. 2. CT scan axial view of the umbilical hernia (blue arrow).

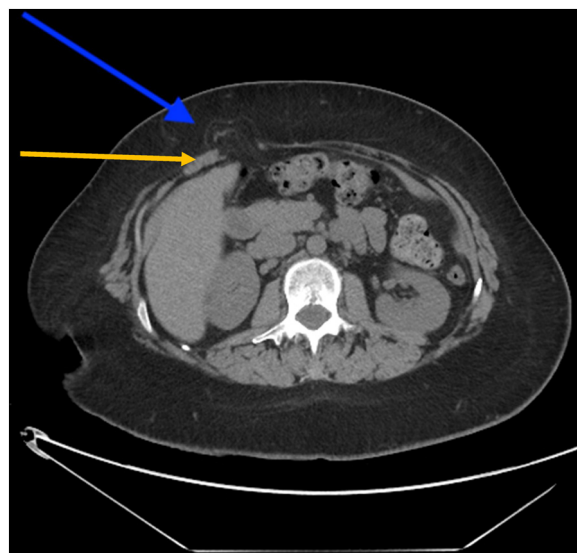


Fig. 3. CT scan axial view of the right upper quadrant incisional hernia (blue arrow) through the right Rectus abdominis muscle (orange arrow).



Fig. 4. CT Scan sagittal view of the right upper quadrant incisional hernia (blue arrow).

was greater than 30 cm. The right upper quadrant hernia was initially identified (Fig. 5) and the hernia neck exposed (Fig. 6). A V-Loc[®] non-absorbable suture was used to close the hernia neck laparoscopically and the suture was subsequently secured to the abdominal wall with gallbladder clips (Fig. 7). A 10 × 15 cm dual layer Ventralite[®] mesh was then applied to cover the tissue repair. It was secured to the abdominal wall using AbsorbaTack[®] absorbable tacks (Fig. 8). The umbilical hernia was subsequently visualized (Fig. 9) and the neck closed with a V-Loc[®] suture. The suture was also secured to the abdominal wall with gallbladder clips (Fig. 10) to prevent suture slippage. A Ventralite[®] mesh was applied over the tissue repair with AbsorbaTack[®] sutures (Fig. 11). Postoperatively, the patient made an uneventful recovery and was discharged home the same day.

3. Discussion

Following an extensive PubMed and Medline search this appears to be the first case report in the English literature of a patient with two simultaneous PSH. PSH are a late complication that may require symptomatic patients to undergo further surgery. This complication should be considered in the determination of port placement and trocar type.

We were unable to ascertain whether the two PSH developed simultaneously or at different times in the post-operative period following the laparoscopic cholecystectomy. The patient could not furnish us with this information as she was unable to remember. Simultaneous PSH formation may indicate that the patient has a connective tissue defect which may impair wound healing leading to the PSH. She did not develop hernias from her other abdominal

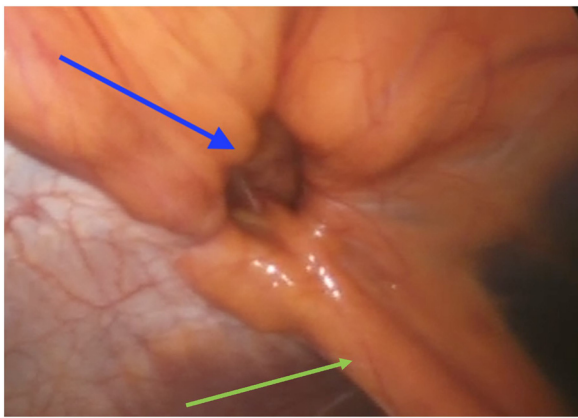


Fig. 5. Right upper quadrant incisional hernia (blue arrow) in relation to the falciform ligament (green arrow).

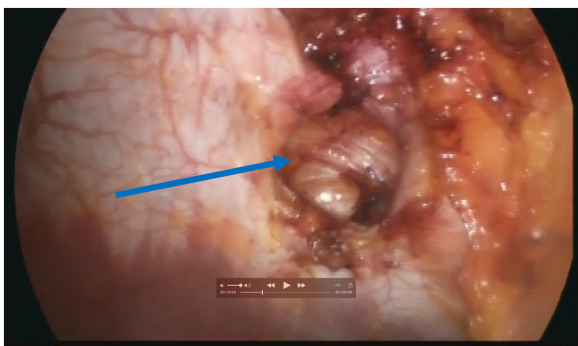


Fig. 6. Exposure of the hernia neck (blue arrow) after peritoneal mobilization.

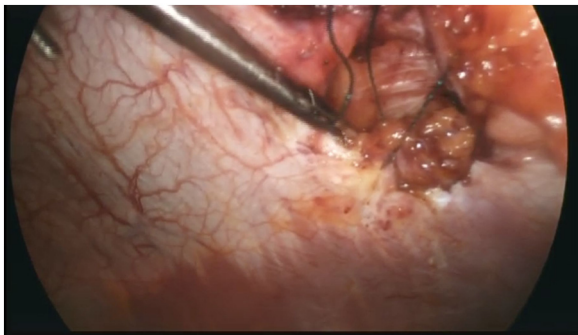


Fig. 7. Intra corporeal suturing of the hernia neck with a v-loc® non absorbable suture.



Fig. 8. Ventralite® dual layer mesh over the right upper quadrant tissue repair.

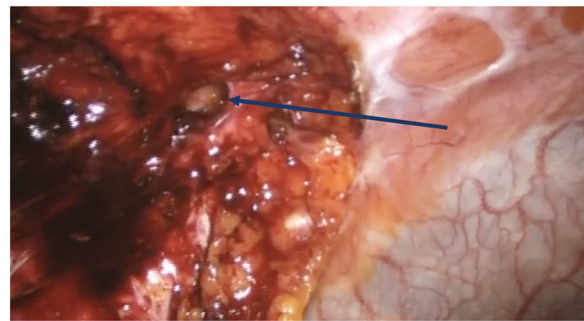


Fig. 9. Umbilical hernia neck exposure (blue arrow).

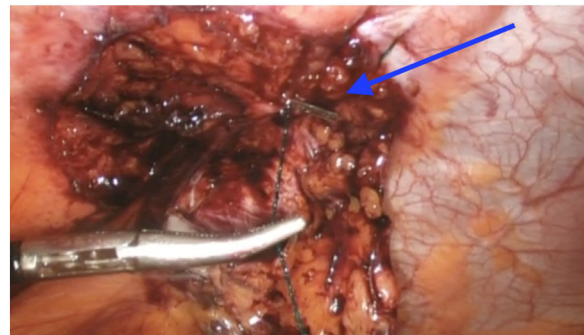


Fig. 10. Closure of the umbilical hernia neck with a V-loc® suture and gallbladder clips (blue arrow) used to secure the suture to the abdominal wall.

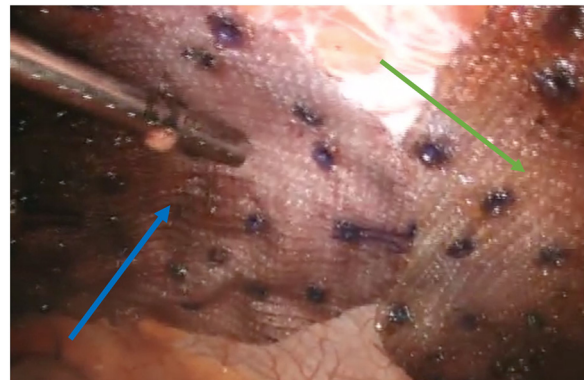


Fig. 11. Two separate Ventralite® meshes over umbilical defect (blue arrow) and right upper quadrant defect (green arrow) showing the completed repair. The right upper quadrant mesh was placed horizontally and the umbilical mesh vertically on the abdominal wall.

surgeries, so we remain skeptical of this scenario. The two herniae did not develop in the midline as envisaged by the CT scan. The epigastric hernia is clearly evident penetrating the right Rectus Abdominis muscle. This leads us to believe the PSH development were independent of each other in the post operative period and not due to any connective tissue defect.

Trocars greater than 10 mm have the greatest risk of future herniation and appear to be more common around the umbilicus [2]. There has been controversy as to the incidence rate of PSH and a recent study found that this could be as high as 40% for ports greater than 10 mm [3]. The operative report for the original laparoscopic cholecystectomy is no longer available, and we are unable to determine the port size used for this particular case. The two PSH occurred in the location where surgeons regularly insert 10 mm ports during a laparoscopic cholecystectomy i.e. the epigastrium and the infra umbilicus. The highest rate of port site hernias occurs with laparo-

scopic ventral hernia repairs due to the use of 10 mm and 15 mm ports. These patients tend to have greater BMI's and it has been recommended to close the fascia with an onlay mesh to reduce the incidence of PSH [4].

The hernia defects were closed in two stages. This involved intra corporeal suturing of the hernia necks with non-absorbable suture and subsequent application of an underlay dual layer Ventralite® mesh. The inner layer of this mesh consists of a hydrogel layer that faces the bowel and reduces the incidence of bowel adhesion. The outer layer consists of prolene which is in contact with the abdominal wall causing fibrosis.

The closure of the hernia neck results in the restitution of the abdominal wall anatomy with superior physiological functioning of the musculature. This data has been extrapolated from the component separation technique, which has resulted in decreased hernia recurrence rates due to an improved Rectus Abdominis musculature function.

Another potential consideration for laparoscopic surgeons is the new technique of single incision laparoscopy (SIL) that reduces the number of skin incisions to a single incision. Current literature suggests there is no difference in PSH incidence or chronic pain post laparoscopy with SIL when compared to conventional four port laparoscopy [5]. Further studies may be required as the SIL technique has not been adopted by the majority of laparoscopic surgeons and we still await the long-term outcomes of this technique.

4. Conclusion

We present a 42-year-old female with two simultaneous PSH that were laparoscopically repaired. A search of the current English literature was unable to locate any case report of two simultaneous PSH in the same patient and we present the first such case report.

Surgeons today are performing more laparoscopic procedures to avoid the long recovery associated with open surgery and it behooves us as clinicians to have a clearer understanding of the pathophysiology of PSH thereby reducing their incidence.

This case report has been reported in line with the SCARE criteria [6].

Conflict of interest

No conflict of interest.

Funding

No funding.

Ethical approval

None required as it is a case report.

Consent

Patient consent has been obtained and is available on request.

Author contribution

Jenny Duke – Data collection/ writing the paper.
Yagan Pillay – study concept/surgeon/paper review.
DR Duke is the first author and DR Pillay is the corresponding author.

Registration of research studies

Not applicable.

Guarantor

Yagan pillay.

References

- [1] A. Pryor, W.J. Mann, G. Gracia, Complications of Laparoscopic Surgery. UpToDate Literature Review, December 07, 2016.
- [2] F. Helgstrand, J. Rosenberg, T. Bisgaard, Trocar site hernia after laparoscopic surgery: a qualitative systematic review, *Hernia* 15 (2011) 113, <http://dx.doi.org/10.1007/s10029-010-0757-x>.
- [3] J.L. Holihan, J.S. Chen, J. Greenberg, D. Hehir, S.M. Johnston, D. Marcus, H. Ryan, S. Tsuda, M.K. Liang, *Surg. Laparosc. Endosc. Percutan. Tech.* 26 (6) (2016) 425–430.
- [4] A. Hussain, H. Mahmood, S. Shuabi, S. El-Hasani, Prevention of trocar site incisional hernia following laparoscopic ventral hernia repair, *J. Soc. Laparoendosc. Surg.* 12 (2) (2008) 206–209.
- [5] M.W. Christoffersen, E. Brandt, J. Oehlenschläger, J. Rosenberg, F. Helgstrand, L.N. Jorgenson, L. Bardram, Bisgaard, No difference in incidence of port-site hernia and chronic pain after single-incision laparoscopic cholecystectomy versus conventional laparoscopic cholecystectomy: a nationwide prospective, matched cohort study, *Surg. Endosc.* 29 (11) (2015) 3239–3245.
- [6] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.

Open Access

This article is published Open Access at sciedirect.com. It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.