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Laparoscopic management of a drain site evisceration of the vermiform appendix, a case report

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ABSTRACT

INTRODUCTION: Peritoneal cavity drainage is not riskless and several publications reported drain induced complications. However, till this day, abdominal drainage is still a subject of divergence between necessity and usual operative practice. We describe in this publication an exceptional complication of drainage, which is the drain site evisceration of the appendix.

CASE PRESENTATION: We report the case of a 47-years-old patient, initially operated for perforated ulcer peritonitis, in whom an evisceration occurred 48 h after the removal of an intraperitoneal drain placed in the Douglas pouch, the physical examination predicated the presence of a herniated omentum fringe, as a precaution a laparoscopic exploration was performed and revealed that the eviscerated organ was the vermiform appendix, then a two trocars appendectomy was performed and the orifice of the evisceration was safely closed.

DISCUSSION: Since the first description in 1995, only seven cases were reported in the literature, we propose a new management of the drain site evisceration of the appendix, including laparoscopic exploration, and both side control of the drain site defect closure, our technique seems safer.

CONCLUSION: The laparoscopic approaches must have a place in the management of the drain site eviscerations.

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1. Introduction

Tube drainage is often used in abdominal surgery, though it is subject of discussion. It is certainly helpful in many situations, but it is not riskless and can induce some complications such as bleeding, digestive loop strangulation or site evisceration.

Since the first description by Riordan in 1995 of appendix drainage evisceration [1], exceptional similar cases have been reported in the world literature, totaling seven reports.

This publication presents the eighth case reported with a different therapeutic approach.

The Evisceration was recognized at 48 h after drain ablation, and the herniated structure was not known as being the appendix before laparoscopic exploration. A laparoscopic appendectomy using two trocars was performed with suture of the orifice of evisceration under laparoscopic control.

This article is written in accordance with the SCARE criteria [2].

2. Case presentation

A 47-year-old north African male, with no significant past medical history except smoking since teen age, was operated in as an emergency case for peritonitis due to perforation of a duodenal ulcer, operated upon by a supra-umbilical median laparotomy. A simple suture of the ulcer was performed with omentoplasty, peritoneal toilet and a 18 F (6 mm) silicone drain was left in Douglas pouch and exteriorized by the right flank.

Postoperative evolution was simple, and patient discharged on the sixth day after removal of the silicone drain, without any incident.

During the control, 48 h later, the clinical examination revealed an epiploic fringe, measuring about 1 cm, protruding through the drain site (Fig. 1). Diagnosis of omentum drain site evisceration was made, and the patient underwent reintervention on the next day under general anaesthesia. An open laparoscopic access technique has been performed, and optic trocar was introduced 1 cm left to the umbilicus.

Laparoscopic exploration showed an appendix stretched and attached by its end to the removed drain orifice (Fig. 2). The fragment of fat visible from outside was finally the appendicular meso.

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Fig. 1. The fragment of fat visible eviscerated through the drain site hole and supposed to be a fringe of omentum.

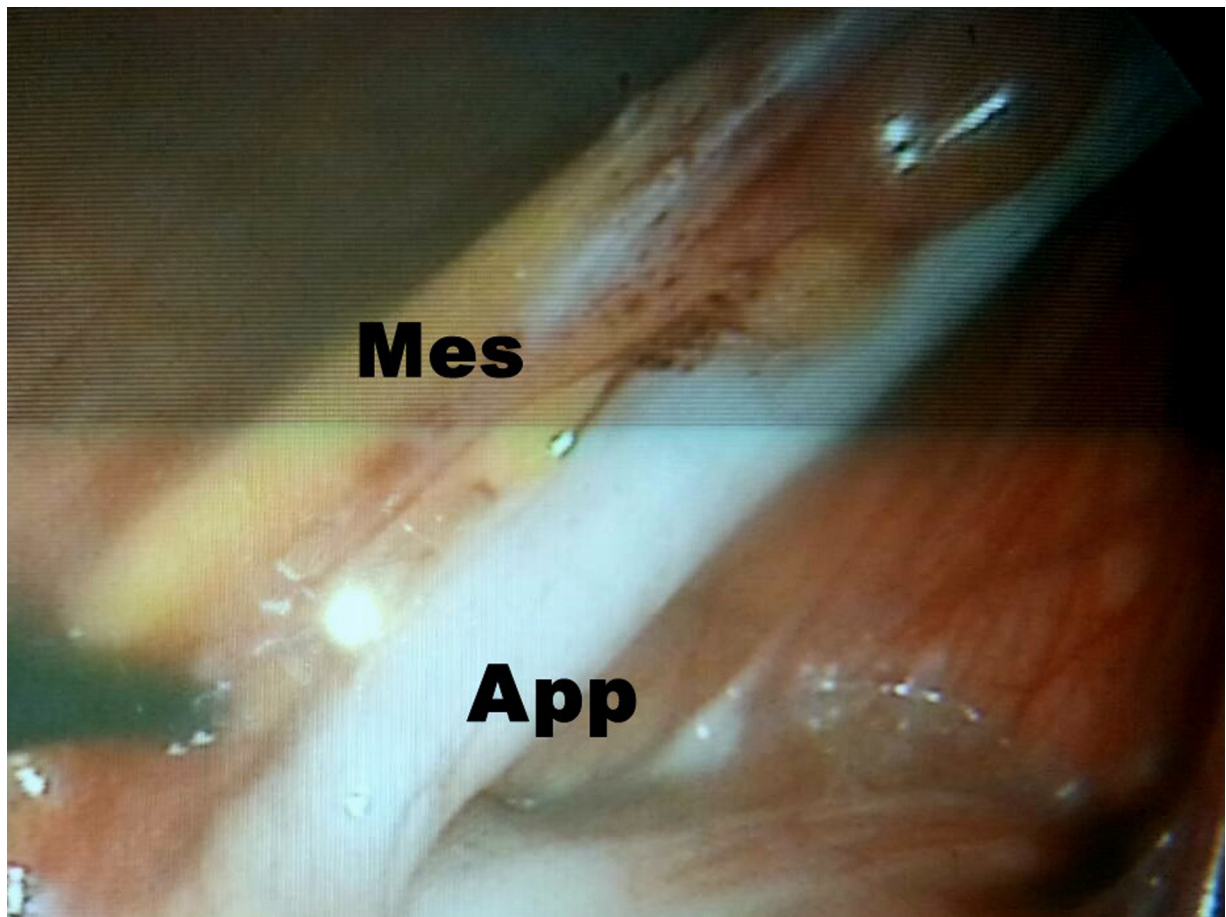


Fig. 2. The appendix attached by its extremity to the orifice of the removed drain (intra-abdominal laparoscopic view). App: Appendix, Mes: Mesoappendix.

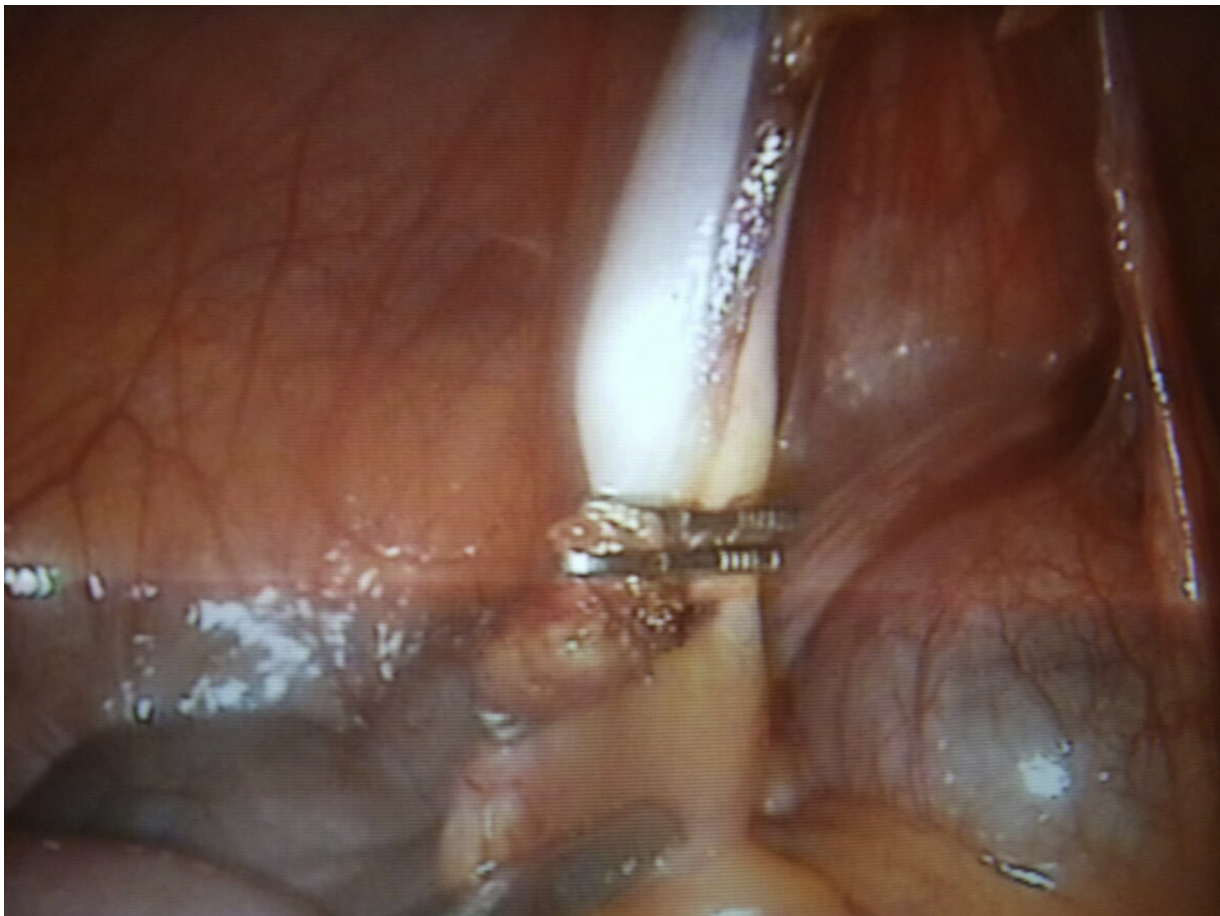


Fig. 3. Laparoscopic appendectomy.

Another suprapubic trocar has been added, and a laparoscopic appendectomy was performed. Appendix extraction was made by simple traction on its exteriorised part, without any enlargement of the drain site (Figs. 3–5). At the end of the procedure the drain site orifice has been sutured under laparoscopic control as well as the open laparoscopic port.

The patient was discharged on next day, and evolution is eventless with a follow-up of two months.

3. Discussion

Drain site evisceration is a rare complication of abdominal cavity drainage. Many organs may eviscerate through: omentum, small bowel, fallopian tube, gallbladder or vermiform appendix [1–5].

Riordan has once reported appendix drain site evisceration in 1995 [1]. Since then, six other publications reported similar cases. Our description is probably the eighth reported one.

This complication is often immediate after removal of the drain, but it may occur several hours or even few days later [1–8], even years after wound healing a drain site hernia may occur.

Its management differed from a case to another. Some authors did respect the eviscerated appendix and pulled it back into the abdominal cavity through an enlarged incision which has been closed at the end of procedure, when others performed an appendectomy through the drain site, with or without enlargement of the hole under general or local anaesthesia [1–10]. However, the drain defect was not closed in all cases [6–10].

In our description laparoscopy permitted to confirm the nature of the eviscerated organ, to perform appendectomy and to control

the drain site closure using mini invasive approach that has many known advantages [11].

In our case the drain used was a 06 mm diameter, smaller than the 10 mm drains described above and accused to cause eviscerations on site when removed [4].

Diameter of the drain is probably not the only factor-influencing occurrence of these complications. The component of the drain, its path through the abdominal wall, duration of drainage, pathology for which the patient is operated, increased intra-abdominal pressure and patient terrain are factors to be considered [4].

Inflammation did probably paste the appendix to the drain orifice, and the abdominal hyper pressure did the rest of work in our case.

Abdominal drainage, its duration, the peritoneal inflammation and chronic smoking, are probably the factors that caused this complication.

We have drawn up a recapitulative table (Table 1), comparing the different cases published in the literature with our case report.

4. Conclusion

Prevention of drain site evisceration should start by abolition of unnecessary drainage and reduction of its duration.

Laparoscopic approach seems to be safe and feasible to treat this rare complication.

Conflicts of interest

None.



Fig. 4. Appendix removal through the drain site orifice.

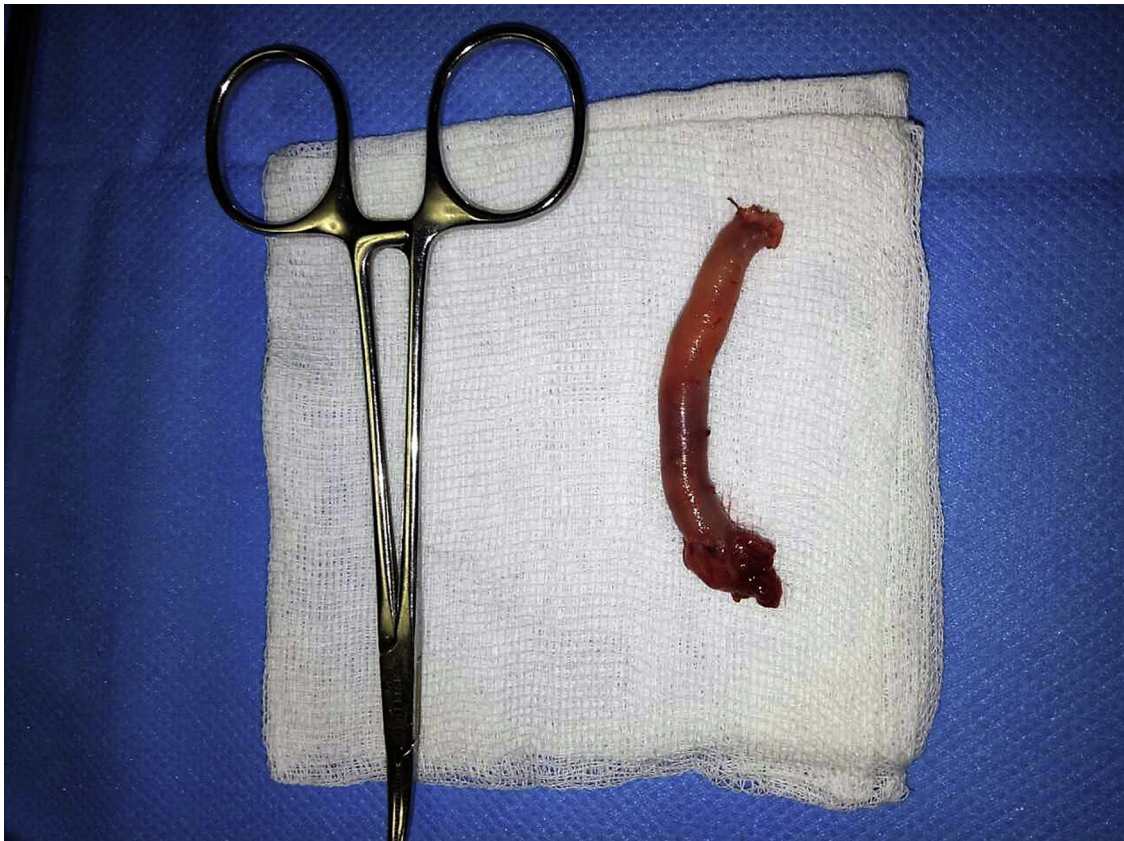


Fig. 5. Appendix.

Table 1

Comparing the different similar cases published.

Authors	year of publication	Gender (Age)	Nature of initial Surgery	Drain	Delays of evisceration	Attitude
Riordan et al.	1995	M (43)	Liver Transplantation	14 mm	Late (30 h)	- General anaesthesia - Enlargement of incision, appendix pushed back to abdominal cavity. - Drain site closed.
Duraker et al.	1997	M (60)	Subtotal gastrectomy and roux-en-Y gastro-jejunostomy "Gastric Cancer"	11 mm	Immediate	- General anaesthesia - Enlargement of incision. - Appendectomy.
Tauro et al. (Abstract)	2011	M (young)	"strangulated diaphragmatic hernia"	NS	NS	NS
Ysla et al	2012	M (54)	Robot prostatectomy "Prostatic cancer"	Silicone	Immediate	- General anaesthesia - Enlargement of incision, appendix pushed back to abdominal cavity.
Ravishankaran, Jr et al	2013	F (12)	Small Bowel resection "Blunt abdominal trauma"	10,67 mm (32 F) inter –costal drain.	Immediate	- Enlargement of incision. - Appendectomy. - Drain site closed.
Spartalis et al.	2015	F (62)	Anterior rectal resection "Rectal cancer"	NS	Immediate	- Local anaesthesia. - Appendectomy.
Kadian et al.	2016	M (09 months)	Colostomy closure "Anorectal anomaly"	07,33 mm (22F)	Late (02 days)	- General anaesthesia - Right transverse Laparotomy. - Appendectomy.
Tidjane et al.	2017	M (47)	Peritonitis/Perforated ulcer "ulcer suture and omentoplasty"	Silicone 06 mm (18 F)	Late (02 days)	- General anaesthesia. - Laparoscopic exploration and appendectomy. - Drain site closed.

NS: unspecified.

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Ethical approval

An opinion of the president of the scientific council "in charge of the scientific and ethical watch" was asked, here is his answer:

About the Ethics approval of the manuscript:

The ethics committee has judged its opinion not necessary, only the existence of an informed consent signed by the patient subject of publication is sufficient to publish this "case report".

Consent

The authors obtain a written and signed consent from patient to publish this case report.

Author contribution

The conception and design of the study, or acquisition of data: Dr A.Tidjane, Pr N.Boudjenan, Dr S. Bensafir, Dr N.Ikhlef.

Drafting the article or revising it critically for important intellectual content: Pr B.Tabeti, Pr N. Benmaarouf.

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Guarantor

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References

- [1] D.C. O'Riordan, L.F. Horgan, B.R. Davidson, Drain-site herniation of the appendix, *Br. J. Surg.* 82 (December (12)) (1995) 1628.
- [2] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, For the SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.
- [3] P. Saini, M.S. Faridi, N. Agarwal, A. Gupta, N. Kaur, Drain site evisceration of fallopian tube, another reason to discourage abdominal drain: report of a case and brief review of literature, *Trop. Doct.* 42 (April (2)) (2012) 122–124.
- [4] B. Vedat, S. Aziz, K. Çetin, Evisceration of gallbladder at the site of a Pezzer drain: a case report, *Cases J.* 2 (July (1)) (2009) 8601.
- [5] A. Loh, P.A. Jones, Evisceration and other complications of abdominal drains, *Postgrad. Med. J.* 67 (July (789)) (1991) 687–688.
- [6] N. Duraker, K. Büyüksak, Y. Helvacioğlu, Drain site evisceration of the appendix: report of a case, *Surg. Today* 27 (July (7)) (1997) 651–652.
- [7] M.P. Yska, P. van Migem, A man stuck to a drain, *Ned Tijdschr Geneesk* 156 (5) (2012) A3038.
- [8] Y.S. Kadian, A. Verma, V. Verma, Appendicular evisceration via drain site—an unusual complication in a child, *Int. J. Contemp. Med. Res.* 3 (9) (2016) 2720–2721.
- [9] P. Ravishankaran, A. Rajamani, Evisceration of appendix through the drain site: a rare case report, *Indian J. Surg.* 75 (June (1)) (2013) 57–58.
- [10] E. Spartalis, P. Tsaparas, E. Antoniou, Urgent bedside appendectomy for drain site evisceration, *Hippokratia* 19 (March (1)) (2015) 96.
- [11] Y.W. Novitsky, D.E.M. Litwin, M.P. Callery, The net immunologic advantage of laparoscopic surgery, *Surg. Endosc. Intervent. Techn.* 18 (October (10)) (2004) 1411–1419.

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