



Case report

Lesson learnt from a migrated drain: A case report

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ABSTRACT

Introduction: Though surgical drainage is used as a safety measure, it's not without complications. Migration of various drains has been described, but very little literature refers to the migration of peritoneal drain.

Presentation of case: A 55-year male underwent anterior Gastro-Jejunostomy for inoperable metastatic carcinoma of the Gastric Pylorus. We found the peritoneal drain missing on the third post-operative day. On further evaluation, we found it to have migrated into the peritoneal cavity. We opened the operative wound for a partial length and retrieved the drain.

Discussion: We did research to find why drain migrates and searched literature on migration of peritoneal drains. The possible etiologies for drain migration are (1) Drain hasn't been fixed properly (2) Cutting through of suture material (3) Relatively low abdominal pressure (4) Pressure over the drain by patient's body weight when he lies on the same side as drain.

Conclusion: Every use of drain should be weighed for its needs and risks. Proper precautions during drain placement avoid unnecessary complications, morbidity and prolonged hospital stay.

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1. Introduction

Surgical drains have been used since time immemorial. Drains are employed routinely after major operations to drain the peritoneal collection, bleeding and anastomotic leak in the sealed cavity [1]. Literatures describing the migration of various drains are available, but migration of peritoneal drain isn't much described. Here we report a case of migration of a peritoneal drain into the pelvic cavity in a patient admitted to tertiary centre. The work has been reported in line with the SCARE criteria [2].

1.1. Case report

A 55-year gentleman underwent Anterior Gastrojejunostomy for inoperable metastatic carcinoma gastric pylorus. A peritoneal drain was placed. On post-operative day-3, the peritoneal drain was found missing (Fig. 1). The drain couldn't be seen or felt at the drain site.

On examination, patient's general condition was fair, vitals were normal. Abdominal examination was normal. He was passing flatus

and stools.

He underwent x-ray abdomen which showed migrated drain in the pelvic cavity (Fig. 2). A lateral x-ray was taken to confirm it (Fig. 3). Ultrasonography of abdomen showed that the drain had displaced 8 cm distal to its site of skin fixation.

He was posted for laparotomy on the same day. The lower part of the previous incision was re-opened for a total of 4 cm length, and the drain was removed. The wound was closed in layers. Patient withstood the procedure well.

The removed drain (corrugated portex drain) was examined, which had the Thread suture material fixed to it (Fig. 2). Post-operative period was uneventful and the patient was discharged on post-operative day-8.

2. Discussion

The practice of postoperative surgical drains by surgeons is a conventional technique and dates back to the period of Hippocrates [1]. The dictum 'when in doubt, drain', from Lawson Tait, is well known to most surgeons.

But the usage of drains is not without complications. It includes drain site sepsis, bleeding from abdominal wall vessels, kinking and knotting of drains, which may require operative removal, incisional

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Fig. 1. Drain missing from the drain site.

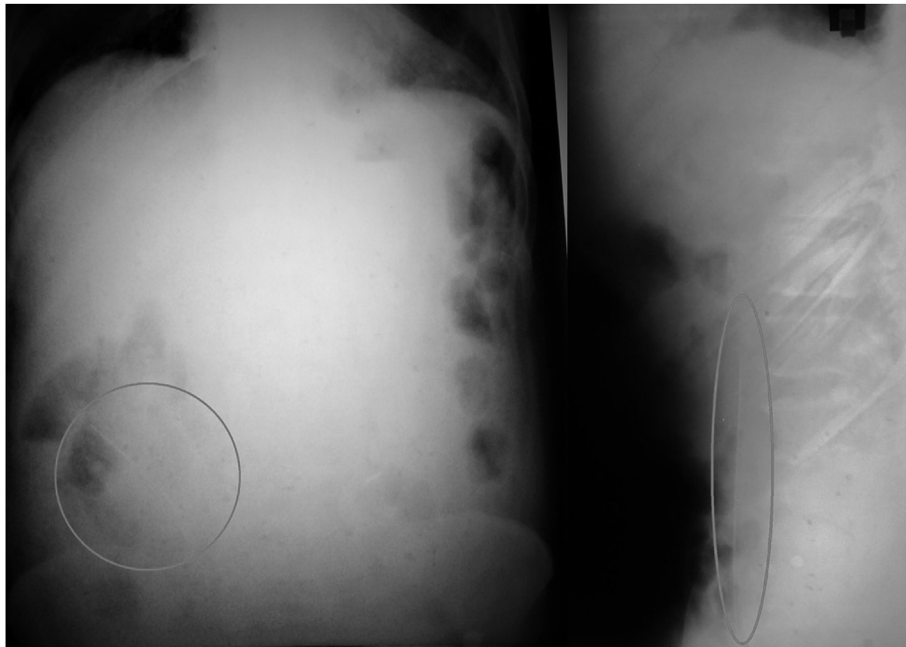


Fig. 2. X-ray erect abdomen antero-posterior and lateral views showing a linear radio-opaque density suggestive of migrated drain in the peritoneal cavity.

hernia which may, in turn, result in intestinal obstruction and small bowel incarceration, erosion of adjacent structures and fistula formation [3,4].

Migration of drain is a known phenomenon with the displacement of ventriculoperitoneal shunts [5]. But the migration of abdominal drains is not a well-known phenomenon. There are only eight cases of intraperitoneal migration of drains that have been reported till date. [Table 1](#) gives brief details of reported cases of migration of peritoneal drains.

Etiologies for drain migration are (1) Drain hasn't been fixed properly (2) Cutting through of suture material (3) Relatively low abdominal pressure (4) Pressure over the drain by patient's body weight when he lies on the same side as drain.

The normal intraabdominal pressure at rest is ~6.5 mm Hg (range 0.2–16.2 mm Hg) [6] while atmospheric pressure is 760 mm Hg. Hence there is always a current from the atmosphere to the abdomen through any opening, which is a causative factor for displacement of drain into the abdominal cavity.

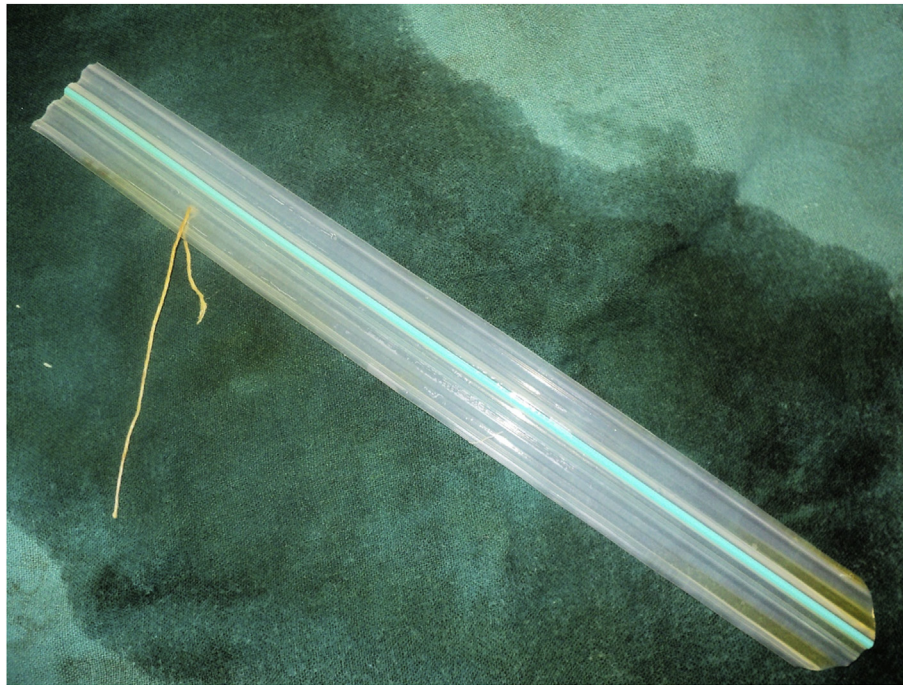


Fig. 3. The corrugated drain which was retrieved from peritoneal cavity.

Table 1
Reported cases of migrated peritoneal drains.

No.	Author	Year	Age	Sex	Drain type	Procedure	Diagnosis	Migrated site	Interventions
1	Hanchanale et al. [7]	2007	62	M	Robinson tube	Left radical nephrectomy	Renal Cell Carcinoma	Intraperitoneal	Retrieved via drain site using a cystoscope
2	Pazouki et al. [8]	2007	47	F	Penrose	Laparoscopic fundoplication	GERD	Defecated via rectum	–
3	Pesce et al. [9]	2011	24	M	Jackson-Pratt	Laparotomy	Gunshot wound	Bronchoperitoneal fistula	Laparotomy
4	Liao et al. [10]	2011	18	F	Penrose	Laparotomy	Appendicular perforation	Intraperitoneal	Laparoscopy
5	Gonenc et al. [11]	2011	64	M	Penrose	Low Anterior Resection	Carcinoma rectum	intraluminal through distal loop of ileostomy	Slow withdrawal
6	Lai et al. [12]	2010	67	M	Penrose	Gastrectomy	Carcinoma stomach	Oesophago-jejunostomy	withdrawal, NG drainage, NPO
7	Irpapgire et al. [13]	2016	40	F	Corrugated drain	Laparotomy	Appendicular perforation	Intraperitoneal	Laparotomy
8	Carlomagno et al. [14]	2012	79	F	Penrose	Laparotomy	Obstructed incisional hernia	Intraluminal small bowel	Laparotomy

In our case, the displacement was due to suture material cutting through the skin, relative negative intraabdominal pressure, and pressure by patient's body weight.

The precautions to prevent are (1) Proper and two-sided securing of the drain (2) To supervise the drain placement as its often relegated to the junior most member of the operating team (3) Teaching patients about the drain care. However, such case studies emphasize the importance of correct drain placement that could avert re-operative complications.

3. Conclusion

Usage of drains isn't without complication and drain migration is not so common but can be a catastrophic event. Every use of drain should be weighed for its needs and risks. Proper precautions during drain placement avoid unnecessary complications, morbidity and prolonged hospital stay.

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Consent

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