

Case Report:

Is abdominal drain a double edged sword?

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Abstract:

Abdominal drains/intra-peritoneal drains are frequently placed to drain the post-operative collection or potential or established collection of blood, lymph, pus and other body fluids. The routine use of drains for surgical interventions is having a decreasing trend as better radiological armamentarium and confidence in surgical techniques including laparoscopic procedures have reduced their necessity. A case of faecal fistula following resection of small bowel for multiple gangrenous foci and strictures of non specific pathology is reported. The abdominal drain prevented the peritoneal contamination due to anastomotic leak, by draining the faecal matter. The unusual thing with this case being, the drain removal after 3 weeks of surgery, led to spontaneous closure of fistula within 24 hours. It is still unclear whether drain itself prevented faecal fistula to close or the drain placement resulted in compartmentalisation of the leak and then formation and maturation of fistula tract. The key factor in the spontaneous closure of fistula was the presence of distal bowel patency. Lastly, drains are not a substitute for good surgical technique.

Key words: Abdominal drain , faecal fistula , spontaneous closure

Introduction:

Abdominal drains are frequently placed to drain the post-operative collection or potential or established collection of blood, lymph, pus and other body fluids ^[1]. They are usually made up of inert silastic material and induce minimal tissue reaction. Drain removes potential sources of infection, guard against further fluid collections, allow the early detection of anastomotic leaks or haemorrhage and leave a tract for potential collections to drain following removal ^[2]. The routine use of drains for surgical interventions is having a decreasing trend because of the better radiological armamentarium and mastery over minimally invasive techniques. Its use following major abdominal surgery remains controversial ^[1-4].

We reported a case of faecal fistula with an abdominal drain in situ, draining the faecal output, following resection of small bowel for multiple gangrenous foci and strictures of non specific

pathology. The unusual thing with this case being, the drain removal after 3 weeks of surgery, led to spontaneous closure of fistula within 24 hours.

Case Report:

A 25-year-old female presented to the emergency with complains of severe abdominal pain and distension with bilious vomiting since 4 days. There was history of high-grade fever since 14 days. Vital examination at the time of admission showed a pulse -104/min, a blood pressure - 130/80mmHg and a respiratory rate-23/min. Abdominal examination revealed generalized tenderness, guarding and rigidity with absence of bowel sounds. Rectal examination was unremarkable.

Investigations showed a haemoglobin of 10.3gm/dl and a total leukocyte count of 5100/cu.mm with a differential count showing 76% neutrophils, 18% lymphocytes.

Erythrocyte Sedimentation Rate (ESR) , Liver function and renal function tests were within normal limits. Abdominal radiographs revealed distended small bowel loops with absence of pneumoperitoneum.

Ultrasonography of the abdomen showed free fluid in the peritoneum and distended bowel loops. After preoperative resuscitation an exploratory laparotomy revealed multiple gangrenous patches in the proximal and mid ileum without perforation, along with two non-passable strictures in the distal ileum. The reactionary ascitic fluid was aspirated and resection of the ileum including the strictured segment and jejunioileal anastomosis was performed. An abdominal drain was kept in the pelvis to allow for the early detection of anastomotic leak [Figure -1]. On 3rd postoperative day the contents of the drain fluid changed from serosanguinous to bilous(50ml) and then to feculent(50ml) on the next day. The feculent drain output increased to 150ml on 6th postoperative day. In view of the stable general condition and absence of abdominal signs suggestive of peritonitis a conservative approach was followed for the fecal fistula to heal spontaneously. Patient was put on hyperalimentation and drain output started decreasing, when an oral challenge was given, which resulted in increase in the drain output(200ml) on 15th postoperative day. Oral intake was further withheld and parenteral nutrition was continued. A decision for removal of the drain was taken on 21st postoperative day inspite of feculent output as the tract of abdominal drain was thought to have matured enough to prevent the contamination of the peritoneal cavity. To our surprise there was no further drainage after 24hours of its removal. The drain removal led to spontaneous closure of fistula and ultrasonography of the abdomen revealed no collection. She was

discharged after 48 hours after drain removal. The patient did well there after and is under follow up.

Discussion:

The use of an abdominal drain finds its first mention in the medical literature when Hippocrates employed an abdominal drain in the case of a gallbladder empyema. Celsus and Galen used it for the treatment of ascites ^[1]. An abdominal / intra-peritoneal drain is used to drain the surgical site for prophylactic, diagnostic and therapeutic purposes ^[1-4]. There are two schools of thoughts regarding usage of abdominal / intra-peritoneal drains. One group recommends the routine use of drain for postoperative collection, bleeding, peritonitis and bowel anastomosis, while the other condemns it ^[5]. Although in certain situations their use is unavoidable and drain may kept in place for one day to weeks depending upon the amount and type of drainage. Patency of the drain must be checked daily and clotted material should be sucked out with a syringe as shown in the Figure-2. Drain should be removed as early as possible if it's not draining ^[5].

The use of abdominal drain, is however having a downside because of the result of their reduced necessity compounded with a view, that, they may hinder recovery by limiting mobility post surgery and the drain itself may allow infection into the wound after they become occluded. In our case, the abdominal drain prevented the peritoneal contamination due to anastomotic leak, by draining the faecal matter. The unusual thing with this case being, the drain removal led to spontaneous closure of fistula within 24 hours. It is still unclear whether drain itself prevented faecal fistula to close or the drain placement resulted in compartmentalisation of the leak and then formation and maturation of fistula tract. The key factor in the spontaneous closure of fistula was the absence of distal

obstruction and presence of distal bowel patency as the patient was passing formed stools daily.

We followed the following criteria for removal of the abdominal drain in our case:

1. Presence of distal bowel patency as the patient was passing formed stools and flatus.
2. Patient was accepting oral feeds well.
3. Fistula tract had matured enough to prevent peritoneal contamination.

We propose that in our case the abdominal drain initially vented the leak from the anastomotic site just like the T tube which prevents extravasation of bile through the choledochotomy incision in the immediate postoperative period. But latter on due to the siphoning action of the drain placed near the anastomosis and also because of the gravity there was constant output from the anastomotic leak inspite of the distal patency of the bowel which may have prevented the faecal fistula to heal. Second possibility is that of the erosion of drain into bowel as reported in the literature^[6,7]. Erosion of drain into bowel may present as either localized or generalized peritonitis and rarely the only complain may be the persistent drainage from the drain^[8].

Conclusion:

There are two well known dictums regarding the use of drains, 'when in doubt, drain', from Lawson Tait, and the other 'no drainage at all is better than the ignorant employment of it' by William Conrad Halsted^[1]. The authors believe that both are appropriate, and valid in different perspectives and on case to case basis. Only good clinical acumen and individualised approach is required. Lastly

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drains are not a substitute for good surgical technique.

Figure-1: Postoperative photograph of the patient showing the abdominal drain secured by adhesive, kept in the pelvis to allow for the early detection of anastomotic leak.

Figure-2: Patency of the drain is being checked on morning rounds and clotted material sucked out with a syringe.



Figure1:



Figure 2 :

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Date of submission: 02 January 2014

Date of Provisional acceptance: 08 February 2014

Date of Final acceptance: 27 February 2014

Date of Publication: 04 March 2014

Source of support: Nil; Conflict of Interest: Nil