'To Drain or Not' in Abdominal Surgery

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Abstract: The use of drains in abdominal surgeries is a matter of debate, especially the prophylactic use of a drain. In present times, the prophylactic use of drain is reducing due to some studies not supporting it. We are, in this study, discussing the pros and cons of using drains in abdominal operations. We are stressing through this study that drain helps in prevention and early detection of complications like bleeding, collection (pus, blood, bile, infected fluids) and anastomotic leaks. It also helps in early detection of the kind of fluid, which would be otherwise difficult even by radiological investigations, if drain has not been placed. Total of 50 cases of various abdominal surgeries, open and laparoscopic, are included in this study where drains were used. Informed written consent was taken. None of the patients had residual collections. Drains helped in prevention of post operative fluid collection. We advise placing a drain routinely, in cases of acute or chronic inflammation, or in cases with extensive dissection, in cases with risk of post op collection is high, cases with pus present in cavity, perforation peritonitis, trauma. Drains can always be removed early if they have a low output. But not placing a drain when it should have been placed, can result in preventable complications and add to the morbidity of the patient, sometimes significant.

Keywords: Abdominal, bile, drain, intestinal leak, operation, peritoneal cavity

Introduction

Surgical drains are in use since the early days of surgery. A surgical drain is a tube used to remove pus, blood or other fluids from a wound1, body, cavity or organ. Drainage of peritoneal cavity after an abdominal surgery helps in removing collected infected fluid, pus, blood, bile or pancreatic fluid. Intestinal anastomosis leakage is another complication where a drain plays a significant role in detecting it early. Though it is considered that drain itself can cause pain and peritoneal irritation leading to serous fluid collection.

'Drain till it drains', is a principle of how long a drain should be left. It was Lawson Tait who wrote, 'When in doubt, drain', which we feel still stands the test of time, specially for young surgeons. Hippocrates, Father of Medicine described the use of tubes to remove ascitic fluid from the abdominal cavity[2,3]. In the 19th century, Theodore Billroth believed that drainage of the peritoneal cavity was essential for saving the lives of patients after gastrointestinal surgery.4

Through this study we recommend that in cases of acute or chronic inflammation, or in cases with extensive dissection, in cases with risk of post operative collection is high, cases with pus present in cavity and perforation peritonitis a surgical drain should be placed. The modern surgeons may not agree for introduction of a surgical drain after an abdominal operation due to rare complications caused by the drain. We feel more complications arise out of not placing a drain than by placing one.

Material and methods

This study includes 50 cases of abdominal surgery both open and laparoscopic. Informed consent was taken from all patients. Demography of the patients showed that 35 cases (70%) were male and 15 cases (30%) were female. Age of patients varied from 27 to 62 years. Commonest age group of patients was between 40 to 50 years (Table 1). Ten (20%) cases were of laparotomy for a variety of reasons like perforation peritonitis,

trauma, Laparoscopic converted to Open Cholecystectomy due to Empyema gallbladder with dense adhesions and Laparoscopic converted to Open Appendicectomy due to perforated appendicitis, gangrenous appendicitis with dense adhesions, etc. Twenty-six (52%) cases were of Laparoscopic Cholecystectomy for Acute cholecystitis, acute on chronic cholecystitis with or without adhesions. Fourteen (28%) cases were of Laparoscopic Appendicectomy for Acute Appendicitis, Acute on chronic appendicitis with or without adhesions (Table 2).

Results

All of the 50 patients had drains placed intraoperatively. None of the cases developed residual collections requiring further management. Most of the drains were removed on 2nd to 5th post operative day. Earliest drain removal was on first post op day. Longest period of post op drain removal was 21 days, for a case of Laparoscopic Converted to Open Cholecystectomy for Empyema gall bladder with dense adhesions, patient recovered uneventfully. Patients are typically discharged home with a drain after being educated on proper drain care and the reasons behind the placement. Patients are regularly followed up in OPD for dressings of the drain sites. Drains were removed when the output was less than 20 ml/day.

Discussion

Controversy of use of abdominal drain after gastrointestinal surgery is very old.[5] We place drains to evacuate pus, blood, infected fluids and avoid their collection post operatively, leading to spread of infection in peritoneal cavity and development of complication and morbidity post-surgery. The use of drain should be left to the discretion of the surgeon. Peters et al, noticed on review of the 924 patients enrolled, the presence of one or more pelvic drains after surgery was associated with a lower leakage rate, 9.6% of the patients with pelvic drainage had leakage, compared with 23.5% without a drain; which was statistically significant.[6]

It is also noticed by authors that in case of difficult dissection or more than normally required dissection or excessive bleeding during operation, better to place a drain. Some researchers feel that pelvic drain may act as an early indicator of anastomotic leak and that placement of a drain may decrease the need for surgical intervention for an anastomotic leak.[7]

Ciacomo Calini etal reported that, “Among the clinical conditions, the choice to place surgical drain correlates with the greater severity of the disease, particularly with the diagnosis of cholecystitis.” This evidence is in agreement with what has been reported in meta-analysis by Picchio et al.[8,9]

We, the authors also follow our principle that routinely place a drain in every case of complicated appendicitis and complicated cholecystitis to prevent and identify post-op complications.

Conclusion

Use of drains in abdominal surgery is still a controversial topic. We have discussed the topic of drain or no drain and have explained our principle that we do not put a drain routinely in every case of abdominal surgery but do so in cases associated with acute inflammation, acute on chronic inflammation, extensive dissection, in cases with risk of post-op collection is high, cases with pus present in cavity, perforation peritonitis and trauma.

S.No.	Demographics	Number of patients	Percentage
1.	Age – Below 30 years	10	20%
2.	Age – 30-40 years	16	32%
3.	Age – 40-50 years	17	34%
4.	Age – More than 50 years	7	14%
5.	Sex – Male	35	70%
6.	Sex – Female	15	30%

Table 1: Demographics of patients

S.No.	Type of procedures	Number of patients	Percentage
1.	Open abdominal surgery (Laparotomy)	10	20%
2.	Laparoscopic appendicectomy	14	28%
3.	Laparoscopic cholecystectomy	26	52%

Table 2: Type of Procedures

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