

Securing Surgical Drains: “Mesentery Dressing” A Novel Technique

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Keywords:

Surgical drains; Dressing

Abbreviations:

CVP: Central Venous Pressure; TPN: Total Parenteral Nutrition; BPH; HTN; LIF; Left Iliac Fossa; SBO: Small Bowel Obstruction; CT: Computerized Tomography Scan

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1. Abstract

Surgical drains are utilized as an adjunct to surgery, drain security is important to reduce drain dislodgement complications. We describe a simple novel dressing technique to enhance drain security.

2. Introduction

Surgical drainage has been utilized throughout history in most types of surgery, provides benefits in the post-operative period to “prevent or evacuate accumulations of fluid or gas” [1]. Surgical drains are used to eliminate dead space, evacuate accumulation of fluid, remove fluid (pus, blood, serous exudate, chyle or bile), prevent the accumulation of fluid, decrease infection rate. Surgical drains are used in a therapeutic, diagnostic prophylactic, monitoring & palliative setting.

Surgical drains can be characterized as open or closed drains, and active and passive drains [2]. Open drains (include corrugated rubber or plastic sheets) drain fluid on to a gauze pad or into a stoma bag, but increase infection rate. Closed drains are formed by tubes draining into a bag or bottle (abdominal or thoracic cavity), but infection rate is low [3]. Active drains are maintained under suction (low or high pressure). Passive drains have no suction and work according to the differential pressure between body cavities and the exterior. Surgical drains are usually composed of latex, silicone, polyethylene, polyvinyl chloride, and rubber. Silastic drains are relatively inert and induce minimal tissue reaction than rubber or latex.

Surgical drain complications include fragmentation of the drain in

the abdomen, pain, infection, loss of function due to obstruction, perforation of visceral organs and probable problems regarding drain withdrawal [4].

Premature surgical drain dislodgement or retraction can adversely affect the post-operative outcomes in patients. Surgical drain fixation is therefore important, and several methods of drain fixation have been described including: suture based internal and external fixation techniques (knot tying anchor sutures with silk), adhesive based method (using dressings) and other methods (eg staples, plastic devices) [6, 7]. The security of the surgical drain depends on snugness of the drain around the wound, individual preferred fixation method employed, external pull of the drain (weight of drain bag, contents), lack of adhesive around drain site and patient mobility around the drain [4].

We describe a novel technique, termed the “drain mesentery” technique, using sterile clear film dressings (Tegaderm, C-view) in our institution, started by one consultant surgeon since 2005

3. Materials and Methods

3.1. Patient

A 78 year old male patient with past history of nephrolithotomy for renal stones, aortic aneurysm, HTN, hiatus hernia, BPH, diverticulosis presented with features of SBO, abdominal tenderness, constipation of 2 days and peritonism. An urgent intravenous contrast CT scan which demonstrated high grade SBO with severe diverticulitis. He underwent a subsequent laparotomy, but pre-operatively dictated that he was adverse to a stoma formation. At laparotomy

a thickened diverticular sigmoid mass was seen with extensive intra-abdominal abscesses. A diagnosis of sealed sigmoid diverticular perforation with abscess was made (Hinchey classification III – purulent peritonitis). Washout with copious warm saline and a pelvic (Size 24 G Robinson's) drain was placed (LIF site). Post operative care included bowel rest, antibiotic therapy, and TPN. The pelvic drain was placed therapeutically and to monitor the pelvic sepsis. Therefore it was crucial there was no surgical drain dislodgement during the patient's post-operative care.

3.2. Technique

Surgical drain “mesentery dressing” evolved from an idea of observing complications of CVP line dressings since 2010. Drain catheter is inserted with trocar piercing under the skin with counter-pressure applied above the skin surface. Care is taken to avoid puncturing nerves and vessels. The catheter is pulled through till all holes are just inside the wound (trimmed to appropriate length. Suture based fixation is applied with an anchoring suture (silk). Surgical drain site is prepared, cleaned and dried. Two sterile clear film dressings (10x15cm C view) are applied around the surgical drain (one on each side). Half of the length of the dressing is applied to the skin, and the other half around the drain. Both dressings are made to stick to each other around the drain, thus holding the drain firmly, but at the same time allowing complete flexibility (Figure 1). Care is taken to prevent moisture ingress during the mesentery application.



Figure A: Robinson tube drain anchored with silk suture



Figure B: Clear film dressing – top dressing



Figure C: Clear film dressing – both applied(above/below drain)



Figure D: Clear film dressing both applied (above/below drain)



Figure E: Clear film dressing (non adhesive application removed)



Figure F: Clear film dressing (non adhesive application removed)

4. Discussion

This is a simple and secure method of drain fixation, easy to apply which can remain in situ for prolonged periods. It is cost effective and do not require additional skills or expensive dressings. The mesentery drain also provides patient comfort, i.e. less pulling, tugging and discomfort from drain movement. Therefore allows patient to mobilize with drain comfortably. The only drawback is moisture accumulation around the drain exit site, but the mesentery dressing can therefore be re-applied in any setting.

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