

A Lifesaving Manoeuvre: Pelvic Packing in the Presacral Bleeding

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Abstract

Presacral bleeding is not uncommon in case of blunt abdominopelvic traumas and abdominal surgery including rectal mobilization. It can rapidly destabilize a patient, so effective hemostasis is critical in severe presacral hemorrhage due to the fatal course. Among the reported methods of packing, thumbtacks, local hemostatic agents, bone wax, diathermy, inflatable devices, muscle tamponade, muscle fragment welding and application of endoscopic staplers; pelvic packing with intraoperatively used sterile abdominal pads looks the most safe and effective treatment choice. The aim of this study is to review and compare all described methods used in the treatment of life-threatening presacral bleeding.

Keywords: Presacral Bleeding; Presacral Packing; Abdominal Packing; Damage Control Surgery

Presacral hemorrhage is a bleeding resulting from injury to the presacral venous plexus. It occurs rarely during dissection of the pelvic viscera from the sacrum, especially in rectal surgery or gynaecological surgery. However, it is seen more commonly in trauma patients. Presacral fascia is a minimally vascular protective layer and haemostasis is usually easy however, in case of a dissection deeper and away from this fascia, presacral venous plexus can be injured and bleeding can be fatal. An incorrect mobilization of the rectum outside of Waldeyer's fascia, can tear the lower presacral venous plexus or sacral basiventral veins. This is commonly encountered in pelvic surgery with reported incidence of 3% to 9.4% [1].

Conventionally, there are several ways used to achieve haemostasis such as electrocautery, suture ligation, thumbtacks, bone waxes, hot packs, ligation of internal iliac artery, application of absorbable gelatin sponge or microfibrillar collagen, inflatable devices, muscle tamponade, muscle fragment welding and endoscopic staplers [2,3].

Whenever presacral bleeding occurs, the first temporary manoeuvre is direct pressure at the point of bleeding together with aspiration of the accumulated blood. In case of abundant bleeding volume, most of the instruments including cautery, bone wax, sponges and collagen adhesives, tamponades and stapler methods will be ineffective. Ligation of the internal iliac artery is seen to be ineffective and cause bladder and gluteal necrosis, while ligation of the internal iliac vein obstructs the drainage of the tributary veins, increasing the pressure in the presacral vein plexus and exacerbating the bleeding.

Sterile titanium thumbtacks seem as logical alternatives but should be available in all operating rooms where trauma victims are commonly operated or abdominoperineal resections are done. Thumbtacks are a foreign body; therefore, it would cause local tissue irritation leading to adhesions and it may also act as a septic focus. When it is used for haemostasis, it is usually permanent and would not be removed. Anastomosis dehiscence is also reported [4]. Thumbtacks are sharp; if improperly placed, they may be dislodged and cause injury to the surrounding viscera. A dislodged

thumbtack can also cause an intraabdominal organ injury. Thumbtacks can also be unavailable in the operating room or surgeons can feel uncomfortable in using these sharp foreign objects.

All though some success rates mentioned above, presacral venous bleeding is a potentially life-threatening complication, and its rapid control is important to prevent a fatal outcome. Therefore, it is imperative to consider the stability of the patient when using potentially time-consuming techniques to control such haemorrhage. When a patient begins developing the lethal triad of acidosis, coagulopathy and hypothermia, the surgeon must always consider packing of the pelvis to rapidly control haemorrhage and prevent further deterioration.

The success of surgical pelvic packing as a means of controlling massive intraoperative bleeding during pelvic posterior exenteration has been reported [5]. Packing technique was adopted initially from Pringle when he described liver packing for haemostasis of hepatic injury in 1908 [6]. This technique was then modified further by Halsted in 1913 [7]. In 1926, Logothetopoulos first described in full extent the ways of pelvic packing for massive haemorrhage with gauze [1,8]. His technique was further improved by Parente (1962), by replacing the gauze veil with polyethylene sheet for packing to achieve less adhesions and to facilitate the removal of the pelvic pack during re-exploration [1,5]. It is clear that pelvic packing can be done in seconds. It controls presacral bleeding effectively and can be lifesaving. It is also very easy to do and do not require an experience. Multiple laparotomy pads are applied over bleeding sites and the abdomen is closed under tension. Packing has the disadvantage of requiring reoperation for removing the packs 24 to 72 hours later, and risk of rebleeding. Furthermore, pelvic packing involves the implantation of a foreign material, which may increase the risk of pelvic sepsis.

Conclusion

In conclusion, pelvic packing technique is still the best method in controlling presacral bleeding, preventing fatal complications.

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