CASE REPORT

PRE-SACRAL VENOUS PLEXUS BLEED DURING LAPAROSCOPIC/OPEN APR: A RARE CASE REPORT

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ABSTRACT: Massive presacral bleeding is a potentially life-threatening complication of rectal surgery and remains one of the most challenging intraoperative emergencies to colorectal surgeons.^[1,2] However, massive presacral bleeding remains inevitable, especially in recurrent rectal carcinoma or in operations performed by junior colorectal surgeons. Some techniques fail to arrest the bleeding resulting in shock and even death.^[3] Based on the anatomy of presacral venous system, massive bleeding can be divided into two different types-presacral bleeding, sacral foramina bleeding. It is necessary for us to understand the type of bleeding so as to enable us to control the bleed properly.

KEYWORDS: Presacral bleeding, presacral venous system, rectal carcinoma.

INTRODUCTION: Presacral haemorrhage is bleeding resulting from injury to the presacral venous plexus during the dissection of the pelvic viscera from the sacrum. The incidence and the mortality have been reported as high as 9.4% and 4.3%, respectively.^[4] Several haemostatic techniques for controlling this intraoperative emergency proposed.

Here, we report a case of lower rectal adenocarcinoma planned for laparoscopic APR, but converted to open because of pre-sacral bleeding which was successfully managed by bilateral internal iliac artery ligation & pelvic packing.

CASE REPORT: A 58 years old lady already diagnosed case of low rectal adenocarcinoma was planned for laparoscopic APR (Fig.1) but have to be converted to open surgery due to uncontrolled massive haemorrhage (Fig. 3). Perhaps it was due to the lack of meticulous dissection around rectum in a very limited space as in laparoscopic procedures, leading to injury to the pre-sacral venous plexus during the dissection of the rectum from the surrounding structures. The bleeding was controlled by ligating internal iliac arteries (bilateral), even after which there was still continuous oozing of blood from the surrounding area.

In order to secure complete haemostasis, tight packing was done by surgical gauge (Fig. 4). the tail of which was brought out through perineal wound. After 48hrs, when the pack was removed, there was no fresh bleed & thus haemostasis achieved (Fig. 6). Thus, in this case proper haemostasis was achieved by both (b/l) internal internal iliac artery ligation along with tight pelvic packing. The patient was discharged home on post-operative day 5. On follow-up after one month, the patient was doing well, the ileostomy was functioning properly, the perineal wound has healed up completely.

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Fig. 1: (Port placement)

Fig. 2 (lap view of rectal dissection)

Fig. 3 (uncontrolled pre-sacral bleed)

Fig. 4 (local pelvic packing)

Fig. 5 (Pack removal after 48hrs)

Fig. 6 (Haemostasis achieved)

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DISCUSSION: Massive presacral bleeding is considered to be an intraoperative emergency during rectal surgery. It rapidly destabilises patient. The anatomical basis is important in prevention and management of the bleeding. The pre-sacral venous plexus is formed by the two lateral sacral veins, the middle sacral vein, and the in-between communicating veins. The veins are avascular and communicate via the basivertebral veins with the internal vertebral venous system. (Fig. 7) The plane of dissection is between the fascia propria and presacral fascia which is also known as the “holy plane” of Heald (Fig. 8). The incidence is more common during difficult operations in patients with large and fixed tumours, neoadjuvant radiotherapy, and recurrent rectal carcinoma than in index rectal carcinoma (9% vs 0.12%).^[5,6]

Several methods for controlling such bleeding described - Pelvic packing described by Wydra et al, effective but risks infection and requires removal. Thumbtack technique described by Wang et al (1985)^[2] involves application of sterile autoclaved thumbtacks on the top of the bleeders presuming that it is the sacral foramina from which the basi-vertebral veins perforated through. Michael WK et al^[7] described its use successfully in recurrent Ovarian malignancy. Muscle welding technique was first described by Xu and Lin in 1994.

Harrison et al (2003)^[8] reported their experience with this technique which involves excising a small piece of rectus muscle & holding it to a forceps, & pressing against the bleeding sites, followed by electrocautery of the forceps to char the muscle piece & weld on to the bleeding sites. Zheng Lou et al. used epiplioic appendix instead of muscle (2013).^[6] Zheng Lou et al differentiated bleeding from basivertebral veins from presacral venous plexuses & advocated surrounding suture ligation for the latter. Other techniques so far described includes- use of Bone Wax Civelek A et al. 2002,^[9] Cyanoacrylate adhesives, Haemostatic sponges, Endoscopic Stapling (Tackers) (Van der Vurst TJ et al. 2004).^[10]

Fig. 7: (Pre-vertebral venous plexus)

Fig. 8: (Holy plane of herald)

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CONCLUSION: Massive presacral bleeding is rare complication of pelvic surgery. It may rapidly destabilise the patient. Several methods have been described for its management but understanding the vascular anatomy and maintaining the plan of dissection in the “Holy plane” serves the best preventive measure.

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