

CASE REPORT

Edematous and painful external hemorrhoids following intersphincteric resection for low rectal cancer

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Intersphincteric resection (ISR) is the ultimate sphincter saving procedure for low rectal cancer. Hemorrhoids are a common benign condition. We present and discuss a case of ISR which developed painful edematous hemorrhoids after ISR. A 62-year-old female with low rectal cancer received neoadjuvant chemoradiotherapy with successful down staging of tumor before undergoing robot assisted ISR with coloanal hand-sewn anastomosis. She had pre-existing external hemorrhoids which were not excised. She developed painful and edematous external hemorrhoids 4 days after surgery. These were treated conservatively before discharge. Many colorectal surgeons performing ISR have experienced similar situations in their patients, but none have reported on this phenomenon. We discuss the possible factors that may contribute to this situation. A possible solution is prophylactic excision of the hemorrhoids during coloanal anastomosis. Painful hemorrhoids may occur after ISR and if managed conservatively, the outcome is skin tags.

Key Words: Hemorrhoids, Intersphincteric resection, Rectal neoplasms

INTRODUCTION

The incidence of rectal cancer is rising [1]. With the introduction of neoadjuvant chemoradiotherapy for locally advanced rectal cancer, more sphincter saving procedures are being performed [2]. Open intersphincteric resection (ISR) is described by Teramoto et al. [3] as the "ultimate sphincter saving procedure" for low rectal cancer. Recently, laparoscopic ISR has been shown to be oncologically safe with comparable long-term results as open ISR

[4]. Some surgeons have begun performing robot assisted ISR which can offer the benefits of minimally invasive surgery whilst harnessing the benefits of the EndoWrist's function of the da Vinci system [5]. Regardless of the method of ISR, the perineal dissection of the intersphincteric plane is performed in the open method, usually with a coloanal hand-sewn anastomosis.

The incidence of hemorrhoidal disease is common and estimated to be between 4.4 to 24.5% [6]. However, this may be an underestimate, as many patients may have the

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Fig. 1. Painful edematous external hemorrhoids postoperative day 4.



Fig. 2. Skin tags post intersphincteric resection.

disease but do not consult a physician. We describe a case of painful edematous hemorrhoids after robot assisted ISR and coloanal anastomosis for low rectal cancer (<3 cm from anal verge).

CASE REPORT

A 62-year-old woman previously known to have hypertension was referred by her personal physician to hospital for hematochezia. On physical examination, a rectal mass approximately 2.5 cm from the anal verge was felt on digital rectal examination. A diagnosis of rectal cancer was made after the colonoscopy revealed an ulcerative mass 2.5 cm from the anal verge. Histological examination of the colonoscopy biopsy indicated moderately differentiated adenocarcinoma. The preoperative computed tomography scans showed no distant metastasis to the liver or lungs, with a clinical staging of T3N1. The positron emission tomography scan did not reveal any distant metastasis. She underwent a six weeks course of neoadjuvant chemoradiotherapy. Six weeks later, a repeat sigmoidoscopy revealed a significant tumor regression with only scar tissue remaining. According to the findings above, robot assisted ISR with coloanal hand-sewn anastomosis and defunctioning ileostomy were performed after obtaining informed consent. During surgery, external hemorrhoids were detected but not excised. Her recovery was uneventful except that she complained of bothersome

perianal tenderness and a lump at the anus on postoperative day (POD) 4. On examination, the patient's external hemorrhoids were engorged and very tender on palpation (Fig. 1). She was given analgesics and encouraged to have regular sitz baths. The final histology showed that there was no remnant tumor, with 11 negative lymph nodes harvested. The distal resection margin was 0.7 cm from the tumor scar. She was discharged on POD 6 with oral analgesia and instructions for regular sitz baths.

In another case 6 months prior, a 38-year-old man with a low rectal cancer, who underwent neoadjuvant chemoradiotherapy followed by robot assisted ISR, also developed edematous painful external hemorrhoids on POD 4. The edema and pain took approximately 3 months to subside, resulting in the formation of skin tags (Fig. 2).

DISCUSSION

ISR is the ultimate sphincter saving procedure for low rectal cancer [3]. The creation of a direct coloanal anastomosis in close proximity to the external hemorrhoids can aggravate the hemorrhoids and even cause engorgement of the hemorrhoids resulting in pain, edema and anal spasm. When discussed with other colorectal surgeons who perform ISR, many surgeons encounter a similar problem although none of them have reported this complication.

Several steps during ISR can aggravate the external

piles. During pelvic dissection, the middle rectal veins are transected as they emerge from the lateral pelvic walls. The middle rectal veins are a known contributor of venous return for the proximal anal canal. The perineal dissection begins at the level of or above the dentate line, and proceeds proximally into the intersphincteric plane, transecting the subepithelial vessels and sinuses above the dentate line, which constitute the internal hemorrhoid plexus and are drained by way of the middle rectal veins to the internal iliac veins. Therefore, the surgery creates an area of relatively poor venous drainage in the proximal anal canal. The venous plexus and sinusoids below the dentate line, which constitute the external hemorrhoid plexus, drain primarily via the inferior rectal veins into the pudendal veins, which are branches of the internal iliac veins. Hence the presence of external hemorrhoids represents an abnormal venous drainage in the distal anal canal [7].

Our patient received neoadjuvant chemoradiotherapy to the rectum with significant clinical down staging of the tumor. Studies have shown that angiogenesis decreases in irradiated tumors as well as the normal surrounding tissues in the rectum [8]. The decrease in angiogenesis corresponds to a response to chemoradiotherapy [9]. Therefore, in view of the significant down staging of the tumor, the distal rectum and anal canal should be relatively ischemic after chemoradiotherapy. The coloanal anastomosis is created with a segment of well-vascularized sigmoid colon to an area relatively ischemic with poor venous drainage. An essential step in the healing of any anastomosis is the formation of neovascularization and angiogenesis at the site of anastomosis. Seifert et al. [10] showed a significant increase in vessel growth at colonic anastomosis from days 3 to 7, postoperatively. An increase in arterial vasculature at the relatively ischemic anastomotic site and a pathological remnant venous drainage in the distal anal canal can result in edematous, engorged and painful external hemorrhoids. However, when this occurs, it can take several months to resolve and the likely outcome is skin tags. A possible solution to this painful complication is to perform prophylactic hemorrhoidectomy during coloanal anastomosis formation.

In conclusion, ISR is the ultimate sphincter saving procedure for low rectal cancer, while external hemorrhoids

are a common benign condition. Painful edematous hemorrhoids can occur after coloanal anastomosis for ISR. Surgeons who perform ISR should be aware of this potential problem. Prophylactic hemorrhoidectomy during coloanal anastomosis may prevent this problem, when the patient has a pre-existing external hemorrhoid.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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