

COMPREHENSIVE ASSESSMENT FOR ANASTOMOSIS AND DOUBLE PURSE-STRING SUTURES FOR SINGLE STAPLING TECHNIQUE FOLLOWING TRANSANAL TOTAL MESORECTAL EXCISION FOR RECTAL CANCER.



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INTRODUCTION

Patients who had experienced anastomotic leakage in the treatment of rectal cancer showed reduced neorectal capacity, more evacuation problems, and a trend towards more faecal urgency and incontinence. Moreover, anastomotic leakage has negative short-term outcomes and a prognostic impact on local recurrence after restorative resection of rectal cancer. Recently, the utility of ICG fluorescence imaging for assessing anastomotic perfusion to prevent anastomotic leakage was reported in rectal surgery. The concept of natural orifice transluminal endoscopic surgery (NOTES) has been successfully applied in rectal cancer surgery following laboratory-based experience with this technique in swine and cadavers; this procedure is called transanal total mesorectal excision (TaTME). TaTME is a new surgical technique for rectal cancer and potentially leads to acquisition of intact specimens, low rates of an involved circumferential resection margin, and more sphincter-saving rectal resections. In 1594 patients treated by TaTME from the International TaTME Registry, the overall anastomotic failure rate was 15.7%, including early (7.8%) and delayed leak (2.0%), pelvic abscess (4.7%), anastomotic fistula (0.8%), chronic sinus (0.9%), and anastomotic stricture in 3.6% of cases.

We herein present comprehensive assessment for anastomosis and technical aspects of double purse-string suture (PSS) following TaTME for rectal cancer. The assessment for anastomosis and precisely performed double PSS contribute minimize anastomotic-related morbidity, resulting in good short term outcomes.

OBJECTIVE

The aim of this study was to evaluate short-term outcomes of patients who underwent comprehensive assessment for anastomosis and double purse-string sutures (PSS) for single stapling technique (SST) following transanal total mesorectal excision (TaTME) for rectal cancer.

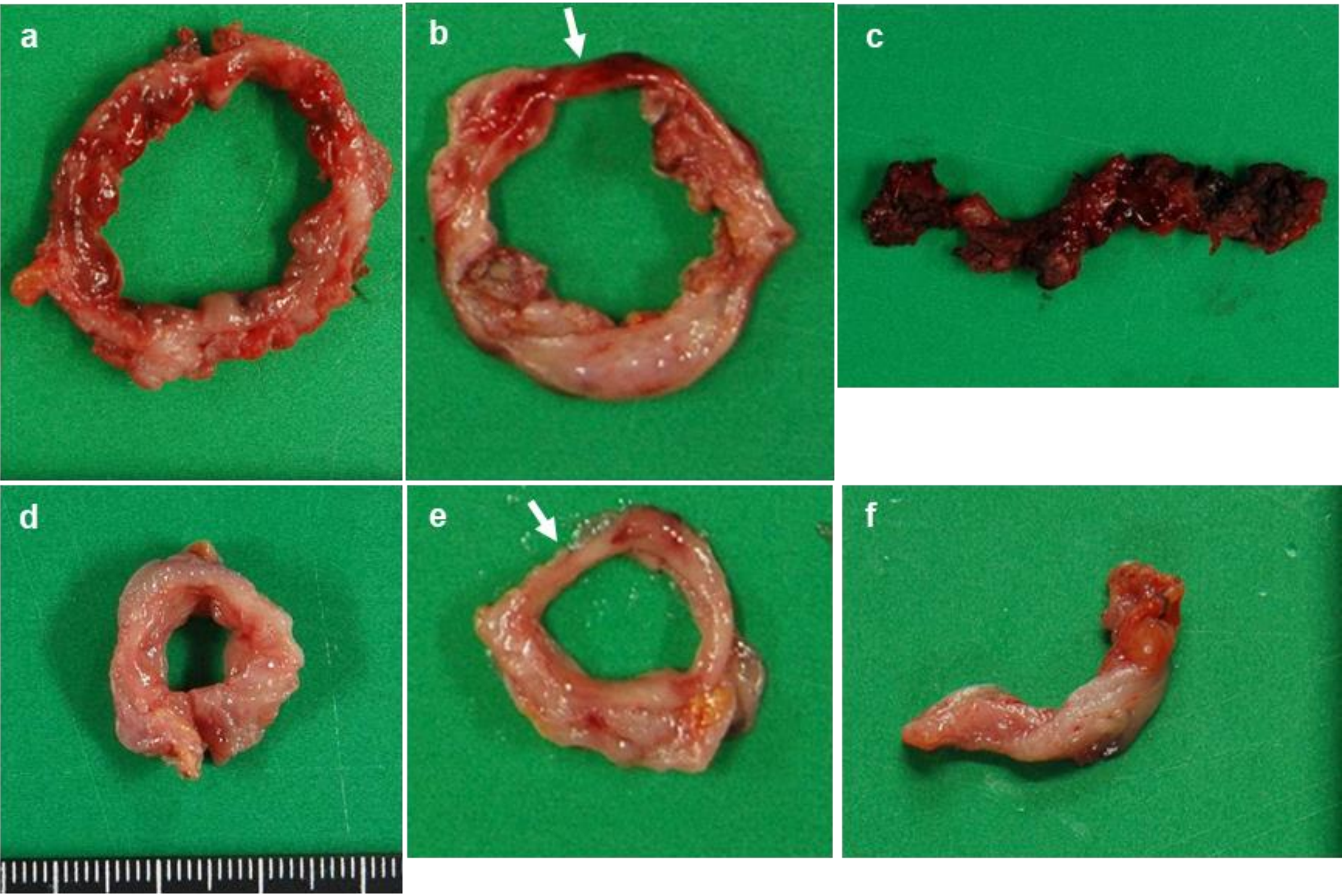


Fig. 1

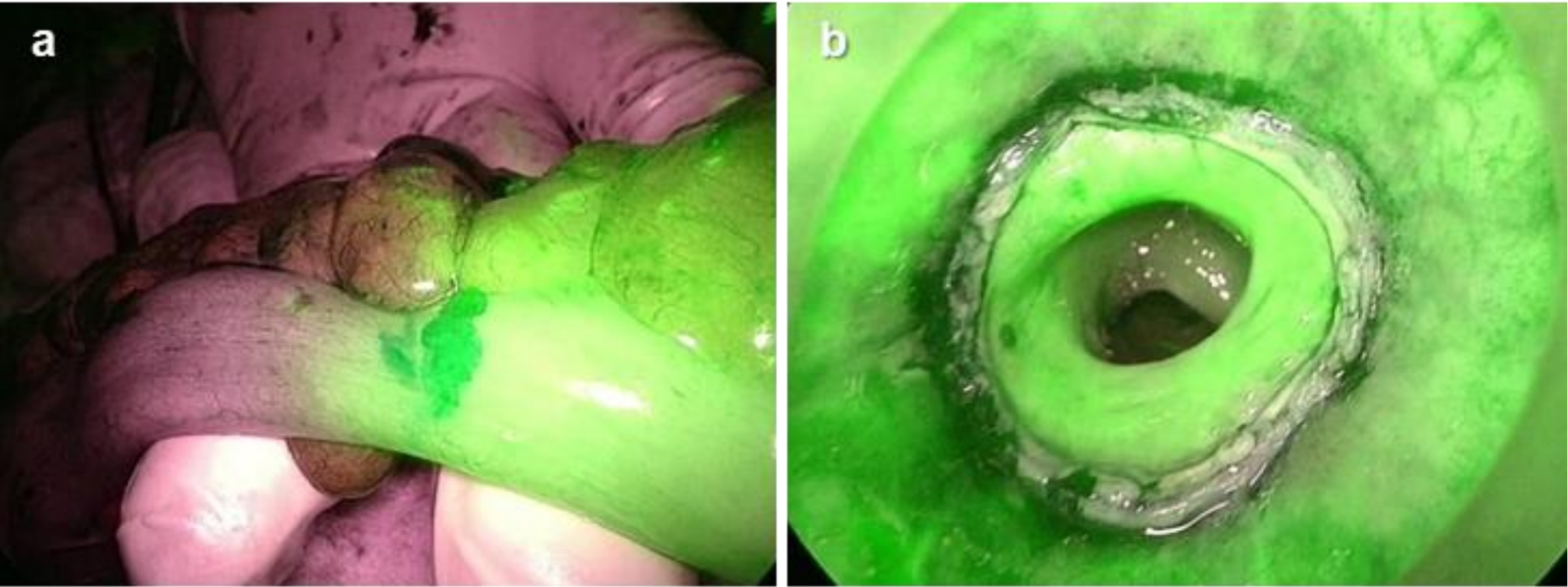


Fig. 2

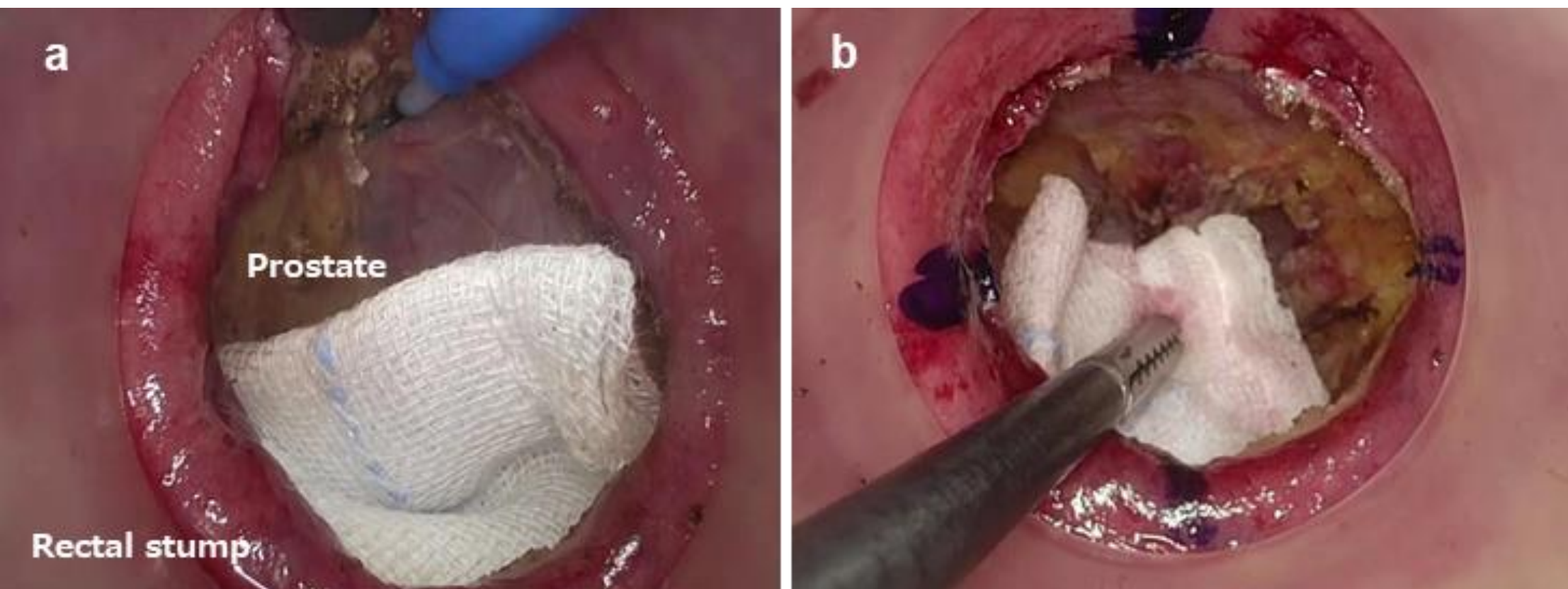


Fig. 3

METHODS

We retrospectively evaluated prospectively collected data of 38 consecutive patients with rectal cancer who underwent TaTME with SST from August 2016 to August 2019. Comprehensive assessment for anastomosis and double PSS for SST were evaluated in term of full thickness of the resected ring of colonic and rectal stump, intestinal fluorescent staining of the proximal colon, the mucosal fluorescent staining of anastomosis, and an air inflation test. We defined the resected ring after cutting 0-0 polypropylene as complete, nearly complete, or incomplete. Intestinal perfusion was assessed via laparoscopic near-infrared camera system using indocyanine green (ICG) injection of 0.25 mg/kg. Just before proximal colonic resection, ICG was injected intravenously. The vascular perfusion using the near-infrared camera system was observed at the level of planned transection. After reintroducing the transanal access device to the rectum, the mucosal fluorescent staining was also assessed using ICG and the near-infrared camera system. We also defined the completeness of the anastomosis as complete, incomplete, or nearly complete. Intraoperative adverse events, blood loss, anastomotic-related morbidity and the other short-term outcomes, length of hospital stay, quality of TME, and pathological findings were assessed.

RESULTS

Comprehensive assessment revealed complete anastomosis in 28, nearly complete anastomosis in 8 and incomplete anastomosis in 2 patients. Poor of the mucosal fluorescent staining of anastomosis occurred in 3 patients. Diverting ileostomy was created in 4 (10.5%) patients before neoadjuvant chemotherapy and in 25 patients during operation. Complete rate of resected ring of rectal stump was 84.2%. Intraoperative adverse events occurred in 3 patients. No other intraoperative adverse events occurred. Postoperative complication occurred in 5 patients. The anastomotic-related morbidity occurred in 2 patients, including one patient with early anastomotic leakage and one patient with pelvic abscess. The mean operative time and intraoperative blood loss were 325 min and 49 g, respectively. The mean length of hospital stay was 15 days. The mean number of retrieved lymph nodes was 19.6. No patient had involvement of the circumferential resection margin. Thirty-seven and one patient underwent complete and near-complete TME, respectively.

CONCLUSIONS

Comprehensive assessment for anastomosis and double PSS for SST are quite useful for minimizing anastomotic-related morbidity following TaTME for rectal cancer.

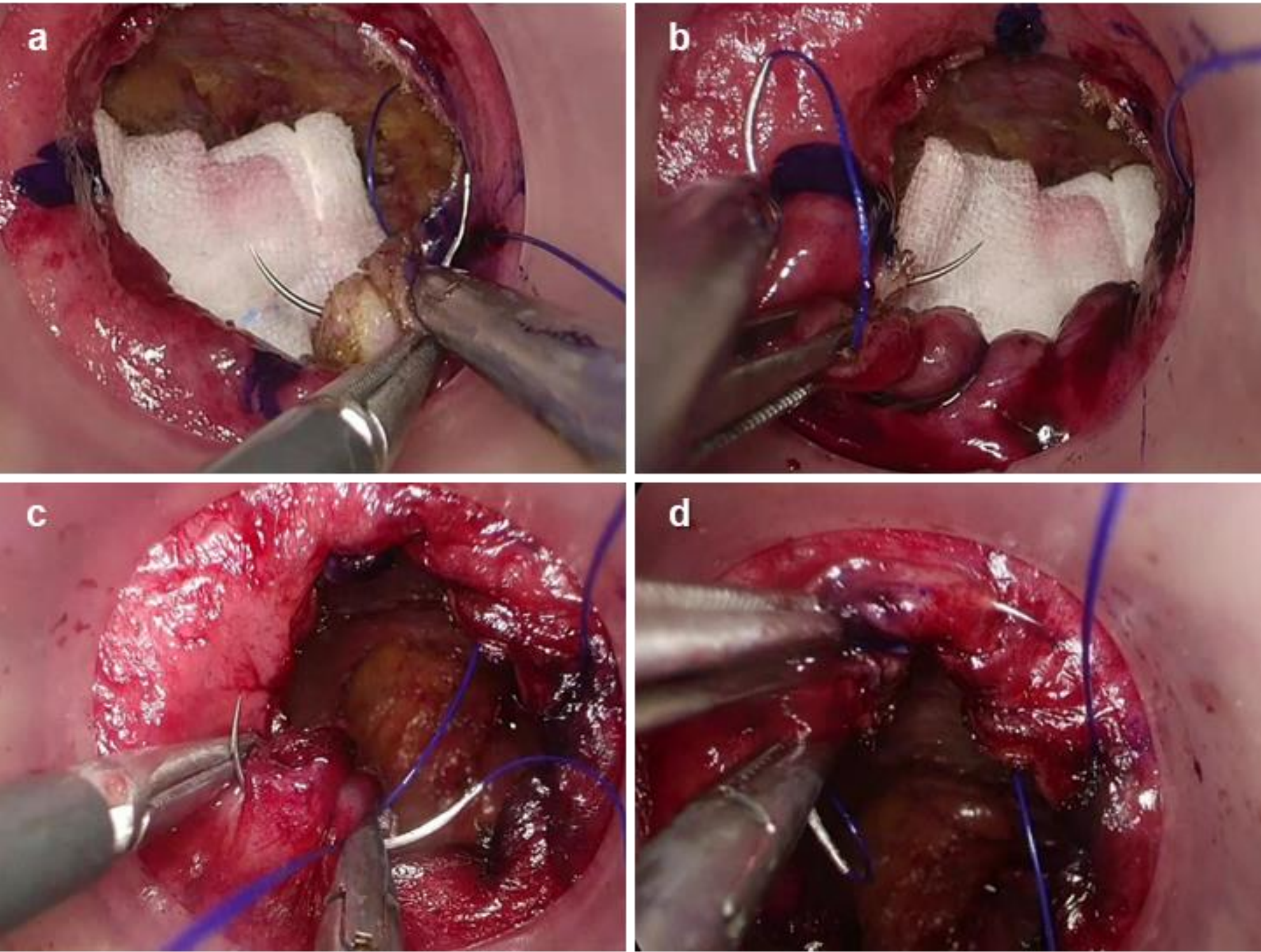


Fig. 4

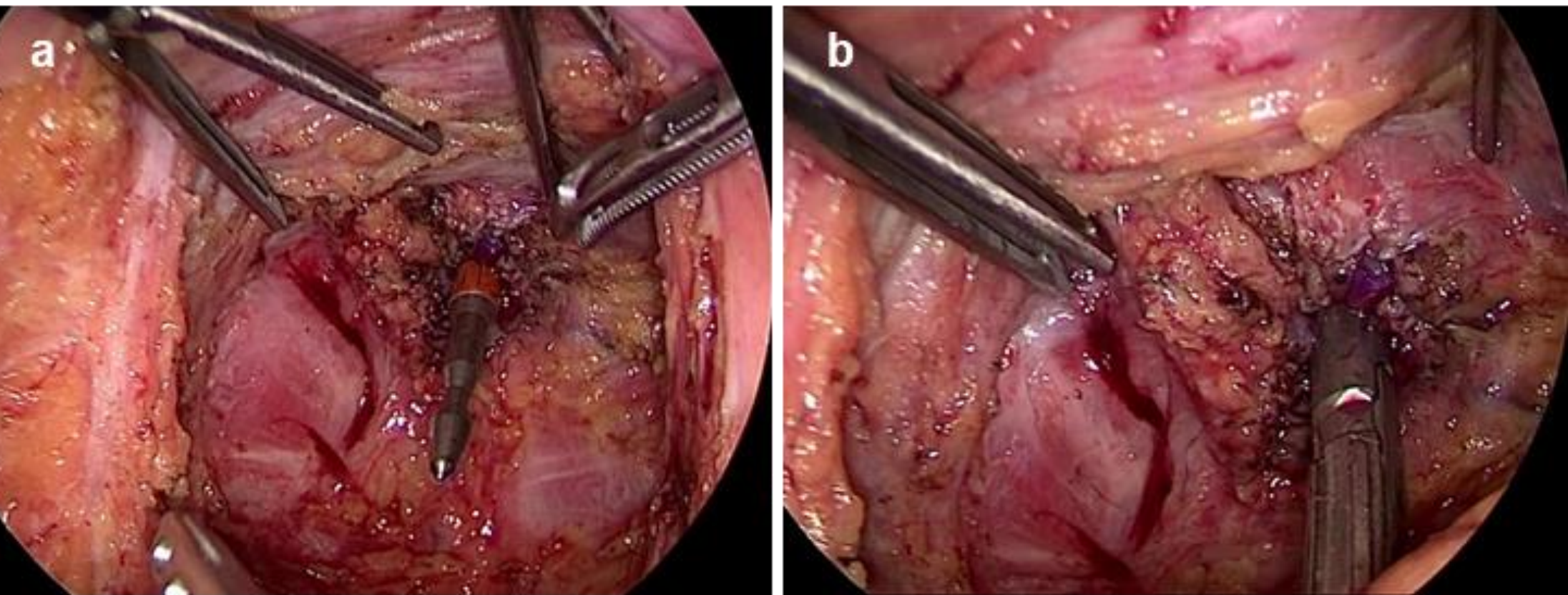


Fig. 5



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