



Case report

Aluminum potassium sulfate and tannic acid (ALTA) sclerotherapy complicating laparoscopic low anterior resection of rectal cancer: Case report

Hiroka Kondo^{a,*}, Ryosuke Nakagawa^a, Tomoko Yamamoto^b, Shigeki Yamaguchi^a

^a Department of Surgery, Institute of Gastroenterology, Tokyo Women's Medical University, 8-1, Kawada-cho, Shinjuku-ku, Tokyo, Japan

^b Department of Surgical Pathology, Tokyo Women's Medical University, 8-1, Kawada-cho, Shinjuku-ku, Tokyo, Japan



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ABSTRACT

Introduction: Aluminum potassium sulfate and tannic acid (ALTA) sclerotherapy is increasingly popular for treating internal hemorrhoids. This injectable compound incites inflammation to dampen hemorrhoidal blood flow and inflict secondary fibrosis. Herein, we detail the implications of ALTA treatment for laparoscopic low anterior resection of rectal cancer.

Patient presentation: A 72-year-old man receiving ALTA sclerotherapy for internal hemorrhoids thereafter required laparoscopic low anterior resection for newly discovered early rectal cancer. Observed changes of anal canal resembled those of radiochemotherapy and proved problematic. There was mural thickening and sclerosis at the planned resection site. To ensure proper removal, the bowel was compressed and stapled slowly. A two-shot resection took place (without straining), anastomosis was performed, and a covering stoma was constructed. Recovery was uneventful, allowing discharge on postoperative Day 10. The ileostomy was closed at a later time.

Discussion: Although little information is available on long-term rectal pathology after ALTA therapy, existing data suggest that sclerosis persists well beyond injection timeframes. Hence, caution is required in dissecting and debriding sclerotic remnants. We have identified only four earlier reports in this setting, the present case providing added perspective.

Conclusion: Colonoscopy is highly advisable prior to ALTA therapy. A thorough work-up before rectal surgery is also essential, documenting any past treatments for anorectal disease, especially ALTA.

1. Introduction

Internal hemorrhoids are the most common anal disease, requiring treatment if bleeding or prolapse develops. Conservative measures are focused on improved bowel movements and drug therapy. Should these fail, aluminum potassium sulfate and tannic acid (ALTA, Zion; Mitsubishi Tanabe Pharma Corp, Osaka, Japan) sclerotherapy is another option widely recognized in Japan and likened to surgical intervention [1]. ALTA therapy incites inflammation to reduce blood flow within internal hemorrhoids and ultimately exert its effects through resultant fibrosis [2]. Injection into mucosa and submucosa is a four-step process aimed at upper poles, deep centers, shallow centers, and lower poles of internal hemorrhoids [3]. However, inordinately deep instillation may cause tissue damage and complications, such as ulceration and rectal stricture.

Herein, we report a patient with rectal cancer who underwent

laparoscopic low anterior resection (LAR) after ALTA sclerotherapy for internal hemorrhoids. This case report has been reported in line with the SCARE 2020 criteria [4] and includes a discussion of other pertinent publications.

2. Patient presentation

The patient, a 72-year-old man, had visited his local hospital 2 months earlier complaining of bloody stools. Given a diagnosis of internal hemorrhoids, he then underwent ALTA sclerotherapy. Colonoscopic biopsy of a mass palpated during subsequent anorectal examination revealed early rectal cancer (Paris classification 0-IIa + IIc) (Fig. 1). This prompted referral to our facility for further diagnostics and treatment. He had a history of atrial fibrillation and was taking anticoagulants.

* Corresponding author at: Tokyo Women's Medical University, 8-1, Kawada-cho, Shinjuku-ku, Tokyo, Japan.

E-mail address: kondo.hiroka@twmu.ac.jp (H. Kondo).

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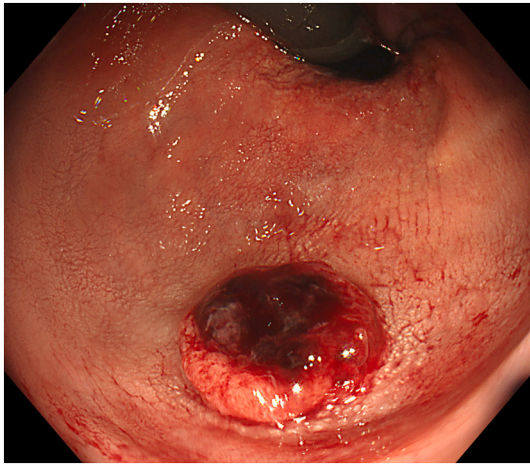


Fig. 1. Colonoscopic appearance of rectal cancer (0-IIa + IIc) located 4 cm from anal verge (note close proximity to anal canal on inverted view).

Endoscopic removal under our care yielded a histologic diagnosis of moderately differentiated tubular adenocarcinoma (Tub2), confined to submucosa (pT1b; SM 2500 μ m) and with minimal lymphatic (Ly1a) but extensive venous (V1c) invasion. We thus consulted the Department of Surgery for additional bowel resection. Once nodal or distant metastases were excluded through computed tomography, magnetic resonance, and other imaging studies, laparoscopic LAR and ileostomy were performed by skilled surgeons.

During the operation, inflammatory changes of lower rectum and anal canal resembled the aftermath of chemoradiotherapy and hampered dissection. The rectococcygeus muscle on dorsal aspect of rectum was thickened and stiff (Fig. 2), requiring great care while dissecting to avoid intestinal injury. Mural thickening and stiffness were also conspicuous in the area of resection at anorectal end. To ensure secure removal, the intestine was first compressed, and stapling was done slowly. We then confirmed intestinal segmentation via two shots of suitably placed, graduated titanium staples (Tri-Staple Purple 30/35/40 mm; Medtronic, Dublin, Ireland) (Fig. 3), using a powered stapler (ECHELON CIRCULAR 25 mm; Johnson & Johnson, New Brunswick, NJ, USA) to complete the anastomosis by double stapling technique (DST). A covering stoma was finally created at terminal ileum.

Histologic examination showed no residual cancer or lymph node metastasis, indicating Stage I (T1bN0M0) disease; yet microscopic features at distal (anorectal) and proximal segments were in stark contrast (Fig. 4). There was marked fibrosis and thickening of anorectal wall, with evidence of vascular occlusion by intimal thickening. The patient recovered without complications and returned home on postoperative Day 10. Closure of the ileostomy was done 4 months after rectal cancer surgery. The patient's wish to avoid a permanent stoma was fulfilled. Since then, the patient has been followed up at our outpatient clinic.

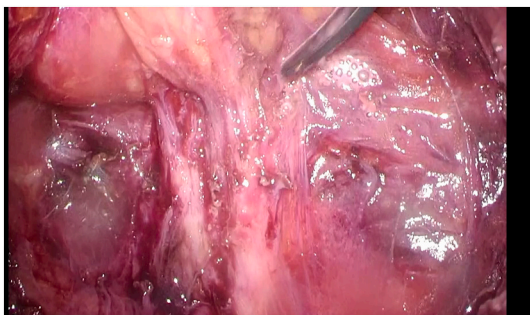


Fig. 2. Thickened, stiff rectococcygeus muscle visible during dorsal rectal dissection (intraoperative photo).

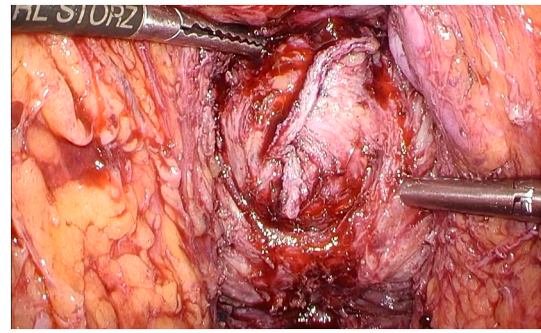


Fig. 3. Planned two-shot rectal resection ensuring proper staple alignment (intraoperative photo).

3. Discussion

ALTA injections incite inflammation, causing declines in hemorrhoidal blood flow and eventual shrinkage due to secondary fibrosis. Consequently, they must be used with caution and with full awareness that the inflicted tissue damage may create problems. Complications of ALTA therapy (i.e., fever, bleeding, anal pain, rectal ulceration, anal stricture, or rectal necrosis) reportedly occur at rates of 3.1–21.4 % [3,5,6]. In this case, the patient experienced no real difficulties, although the rectococcygeus muscle under visual inspection appeared thickened and stiff, perhaps reflecting deep-seated ALTA injection and spread.

It is important that staple lengths and compression times are appropriately gauged in this setting to accommodate tissue-specific characteristics and observed tissue pathology. These are key factors in stapler and cartridge selection [7]. During laparoscopic rectal surgery involving DST, Balciscueta et al. documented a higher rate of anastomotic leakage using two-shot (vs one-shot) approach and sought to discourage this strategy [8]. On the other hand, Otsuka et al. believed that rectal resection using a circular stapler for two planned shots enabled intersection of both, thus limiting further attempts and the risk of anastomotic leakage [9]. We opted for a two-shot rectal resection, taking into account restricted maneuverability in the narrow pelvis.

A search of the literature flagged four earlier reports of rectal cancer surgery after ALTA therapy, making this the fifth reportable case (Table 1). Three of these four patients required unscheduled surgical colostomy or ileostomy procedures, because the altered rectal walls were conducive to anastomotic leaks [10,11]. Colonoscopy is therefore highly advisable in advance of ALTA therapy, and any required rectal surgery should be performed beforehand. Some later interventions may still be unavoidable. In terms of surgical timing, Case 2 (Table 1) registered the longest interval of 1 year after ALTA therapy; but intersphincteric resection was alternatively performed, owing to failed staple alignment.

Although little information is available on long-term rectal changes of ALTA therapy, Miyamoto et al. have claimed a 5-year ALTA success rate of 89.3 % for second degree hemorrhoids, and Golinger has attained 78.2 % success with third degree hemorrhoids, both impressive outcomes [12]. Hence, ALTA-induced sclerosis seems to persist. It is then imperative to thoroughly document past treatments of anorectal disease (such as ALTA) prior to rectal surgery.

4. Conclusion

ALTA therapy for internal hemorrhoids and all treatment for hemorrhoidal pathology must inevitably be preceded by colonoscopy or deferred in anticipation of rectal surgery. Because the lingering effects of ALTA injections may be prolonged, careful preoperative histories of anorectal therapeutics are essential and must be factored into surgical plans.

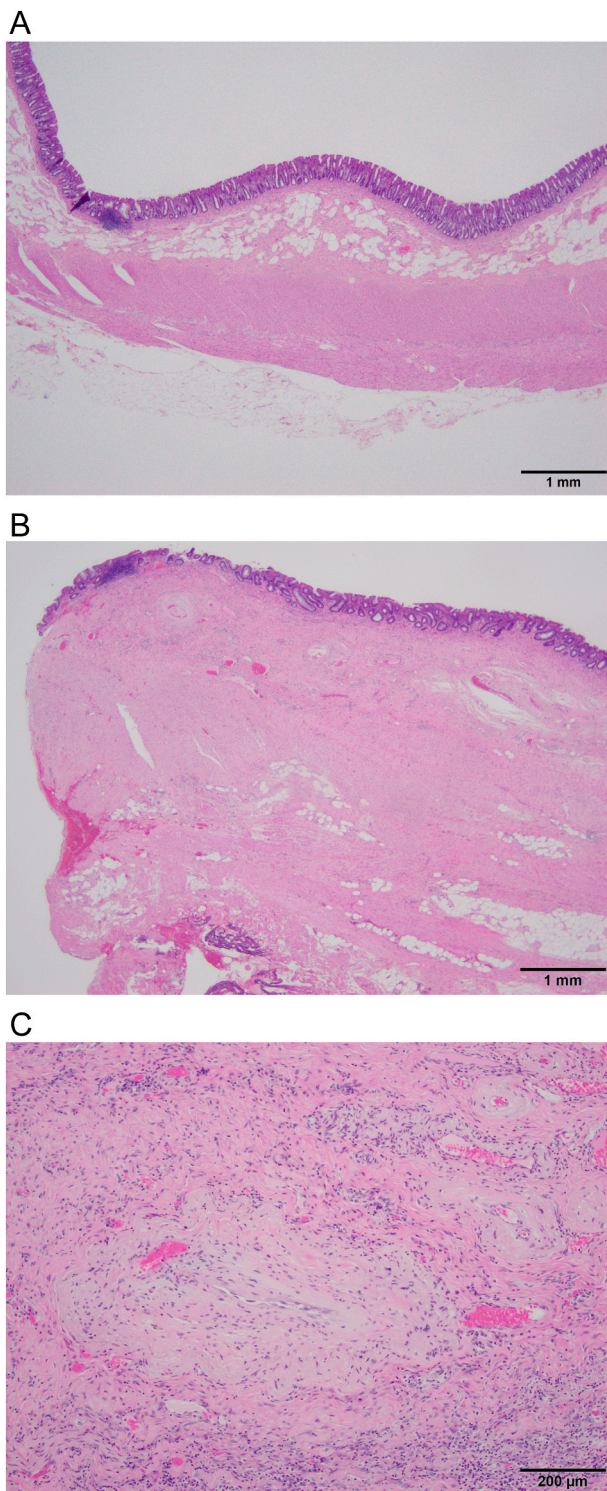


Fig. 4. Histology of ALTA sclerotic changes: Compared with proximal portion (a), anorectal segment (b) shows marked fibrosis and mural thickening, with thickened intima (c) causing vascular obstruction.

Abbreviations

ALTA Aluminum potassium sulfate and tannic acid
DST Double stapling technique

Table 1

Reported rectal cancer resections after ALTA sclerotherapy.

Case	Age	Sex	Timing after ALTA therapy	Planned operation	Operation
1	51	Male	6 months	LAR	LAR + ileostomy
2	44	Female	1 year	LAR	ISR + ileostomy
3	77	Male	6 months	LAR	Hartmann's procedure
4	70	Male	2 months	LAR + ileostomy	LAR + ileostomy
Present	72	Male	2 months	LAR + ileostomy	LAR + ileostomy

ALTA: aluminum potassium sulfate and tannic acid, LAR: low anterior resection, ISR: intersphincteric resection.

Consent for publication

The patient himself consented to publication of this report.

Provenance and peer review

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Ethical approval

As a case report, the Institutional Review Board of Tokyo Women's Medical University has waived ethical approval. Consent to publish was granted by the subject under discussion.

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CRediT authorship contribution statement

HK drafted the manuscript, SY conducted preoperative investigations, and SY offered academic advice. Surgical resection was undertaken by HK, RN, and SY; with TY rendering pathologic input. All authors have read and approved the final submission.

Declaration of competing interest

The authors have no competing interests to declare.

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