A Case of Tailgut Cyst Successfully Resected with Laparoscopic Approach

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Case Report

A Case of Tailgut Cyst Successfully Resected with Laparoscopic Approach

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Tailgut Cyst is a rare lesion occurring in the retrorectal space. A complete resection is necessary for diagnosis and treatment without morbidity. Here we report a case of a Tailgut Cyst successfully resected using the laparoscopic approach. A 63-year-old woman presented to the orthopedic clinic with a complaint of right coxalgia and was referred to our department for treatment of a suspected Tailgut Cyst demonstrated on magnetic resonance imaging. Laparoscopic surgery was performed in the Trendelenburg position utilizing five ports. The mesorectum was mobilized at the level of the levator ani muscle. Upon confirmation, the tumor in the left posterior mesorectum was excised using laparoscopic coagulation shears for sharp dissection around the tumor. The pathological diagnosis was a Tailgut Cyst with no evidence of malignancy. Her postoperative course was uneventful and she had no signs of recurrence 6 months postoperatively. Thus, laparoscopic resection is a safe and feasible method for complete surgical resection of Tailgut Cyst.

Keywords: Tailgut Cyst, retrorectal hamartoma, laparoscopic surgery

Introduction

Tailgut Cysts are rare lesions arising during development from remnants of the embryonic postanal gut that have not fully regressed.[1,2] They are mostly found in women and are more frequently located in the retrorectal space.[2]

Posterior approach[3] or open abdominal approach was the method of choice for surgical resection; however, recently, laparoscopic surgery for Tailgut Cysts has been reported, which allows complete excision with a low morbidity rate. The advantages of the laparoscopic approach include the following: less postoperative pain, short hospitalization duration, less blood loss, fast recovery, less complications, and improved cosmetic outcomes.[4]

Although the laparoscopic approach has been applied in several surgical procedures, limited reports about Tailgut Cyst excision have been published. Therefore, in this paper, we present a case of a retrorectal Tailgut Cyst successfully resected via the laparoscopic approach.

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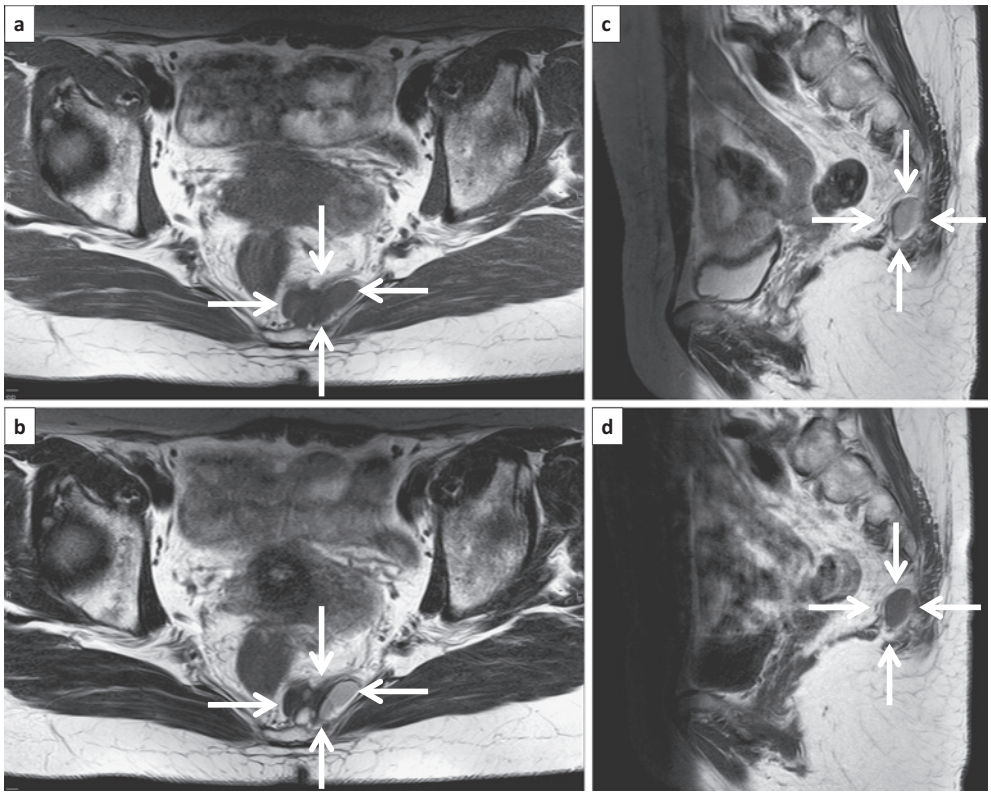

Figure 1. MRI showing the cystic mass approximately anterior to the coccyx.
The cyst contents were a combination of low-signal intensity on T1WI (**a** and **c**, white arrows) and high-to-low signal on T2WI (**b** and **d**, white arrows).

Case Presentation

A 63-year-old woman presented to the orthopedic clinic with a complaint of right coxalgia. Since magnetic resonance imaging (MRI) revealed a tumor anterior to the sacrum, she was referred to our department for further examination and treatment because a Tailgut Cyst was suspected. She reported a history of breast cancer and glaucoma. A lobulated cystic mass approximately 30 × 34 × 16 mm in size was found in the posterior lower rectum and anterior coccyx by computed tomography. Tailgut Cyst was mostly suspected; however, no solid malignant lesion was observed. An MRI showed a cystic mass of approximately 36 × 16 × 22 mm in size anterior to the coccyx. The cyst content was a combination of low-signal intensity on T1WI and high-to-low signal on T2WI (**Figures 1a-d**). Low-intensity cysts in T2 appeared to contain protein-rich content, consistent with the pathology of a Tailgut Cyst.

After confirming the diagnosis of retrorectal Tailgut Cyst, we explained to the patient that surgery is not particularly necessary if the tumor is now small, has no obvious malignant findings, and has no symptoms or signs of infection. After 8 months of follow-up, there was no change in size. Since the malignant transformation in the future cannot be denined, the patient had a strong desire for surgery and we provided detailed information and obtained consent for the surgery.

Laparoscopic surgery with five ports was scheduled, i.e., a 12-mm port into the umbilicus for insertion of the camera, two 5-mm ports on the right side, and two ports on the left side. The patient was placed in the Trendelenburg position to exclude the small intestine. The sigmoid mesocolon was incised and removed from the medial-to-lateral side for mobilization of the rectum and the mesorectum was mobilized at the level of the levator ani muscle. After the tumor in the left posterior mesorectum was confirmed (**Figure 2a, b**), it was en-bloc excised using laparoscopic coagulation shears for sharp dissection around the tumor. At the conclusion of the surgery, a drain was placed in the pelvic cavity. The total time of operation was 129 minutes and the total amount of bleeding was 3 mL. The en-bloc excised tumor was a 50 × 26 × 17 mm round cyst. The tumor opened and became

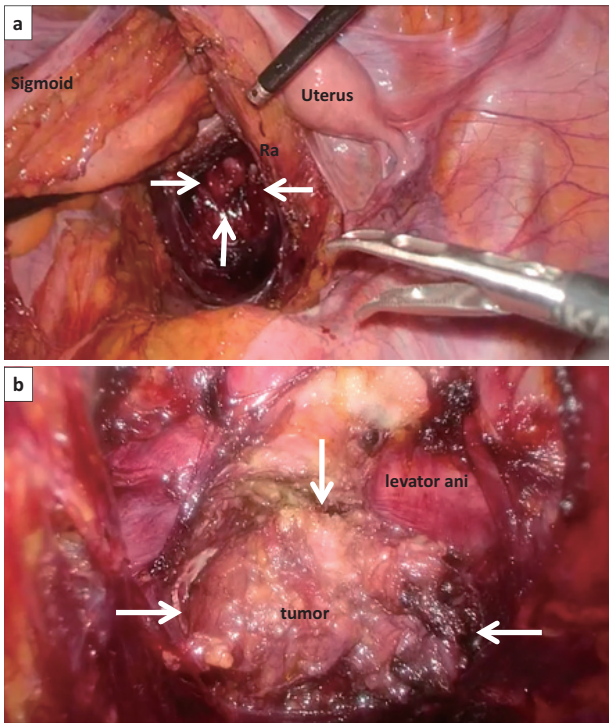

Figure 2. Laparoscopic view.
(**a**) showing the tumor tip on the dorsal side of the mesorectum (Ra) (white arrows).
(**b**) showing the tumor on the dorsal side of the mesorectum and levator ani (white arrows).

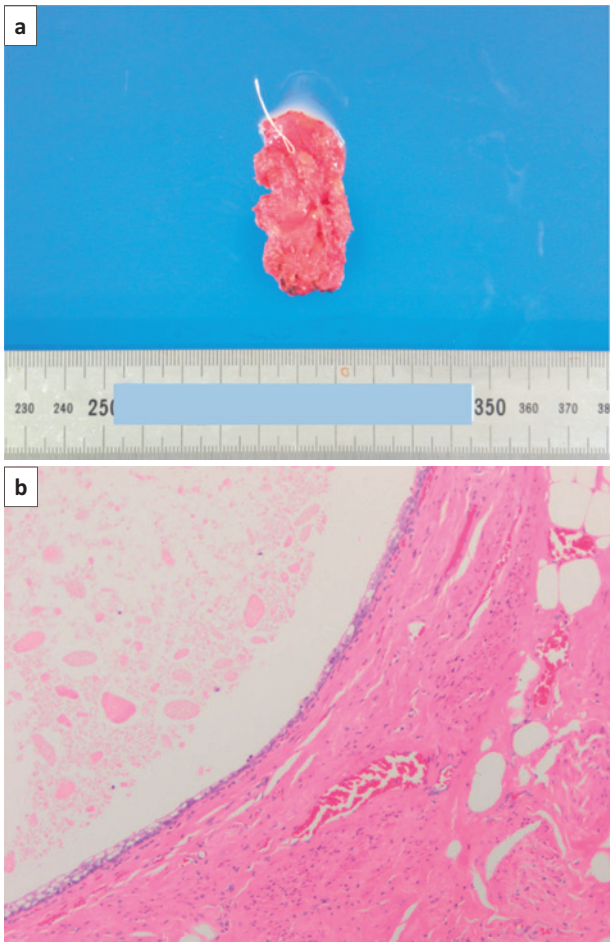

Figure 3. The macroscopic view of the en-bloc excised tumor.
The tumor opened and became smaller after removal from the body.
(**a**) Microscopically, the cyst was filled with protein-like eosinophilic substances and (**b**) the inner surface of the cyst was mainly composed of columnar epithelium with goblet cells.

smaller after removal from the body (**Figure 3a**). On transverse surface, a multilocular cystic lesion with various white- or orange-colored contents was detected. On microscopic evaluation, it was a polycystic cyst filled with protein-like eosinophilic substances. The inner surface of the cyst consisted mainly of columnar epithelium with goblet cells (**Figure 3b**). The pathological diagnosis was a Tailgut Cyst with no evidence of malignancy. Since her postoperative course was uneventful, she was discharged on the 7th postoperative day, with no symptoms of recurrence at 6 months postoperatively.

Discussion

The area surrounded by the rectum, anterior sacrum, and levator ani muscles serves as a contact point between the endoderm, mesoderm, and ectoderm, causing several congenital tumors,[5] known as developmental cysts such as Tailgut Cysts.[2,6]

Hawkins et al.[6] defined a cystic tumor caused by a developmental abnormality in the posterior space of rectum as a developmental cyst, and classified it into three categories: dermoid cyst, epidermoid cyst, and enteric cyst, further classified enteric cysts into cystic rectal duplication and mucinous secreting cysts according to the presence or absence of traffic to the intestinal tract.

Hjermstad et al.[2] recommend that the mucinous secreting cyst is due to the remnants of tailgut and call it Tailgut Cyst.

The posterior space of rectum is the outside the fascia propria recti, Tailgut Cyst is also located outside the fascia propria recti. During our surgery, we stripped the layer of mesenteric resection, as in normal rectal cancer surgery, although in our case the mesentery is preserved. The tumor was found outside the fascia propria recti.

The pathological diagnostic criteria for Tailgut Cyst are some columnar epithelium or transitional epithelium but generally no serosal muscular structure.[2]

Differential diagnosis includes dermoid cyst, epidermoid cyst, and cystic rectal duplication. These can be systematically distinguished, but preoperative discrimination is difficult. In addition, teratoma, double intestinal tract, etc. are also included in the differential diagnosis.[7]

Akbukut et al.[8] reported a malignant transformation rate of 14.1% in a study of 155 Tailgut Cyst cases.

Surgical resection is recommended for patients with infection, pain due to cyst compression, and excretory dysfunction. In our case, no subjective symptoms were observed, but the patient had a strong desire for surgery and we performed surgery.

Tailgut Cysts are rarely associated with malignant findings.[9] Although MRI has a high diagnostic ability,[10] pathological diagnosis is ultimately required. Because biopsy carries the risk of tumor dissemination, bleeding, and infection,[2, 11, 12] a complete resection is recommended for both diagnosis and treatment. It was previously reported that infection with cystic lesions might increase the risk of local recurrence.[13]

The excision route is transsacral or transabdominal.

Laparoscopic resection of a retrorectal Tailgut Cyst was first reported in 2011,[4] and since then this approach has gained increasing popularity and has been widely used.[14-16] The pelvic floor, where the tumor was located, was reached using the laparoscopic approach and the tumor was completely resected. All the reports concurred that accurate mobilization of the rectum rendered by excellent visualization via the laparoscopic approach, despite the large size of the tumor, was extremely necessary for complete excision of the tumor. We should therefore determine the appropriate approach for the complete resection of tumors related to developmental cysts; however, the laparoscopic approach is increasingly employed in cases where Tailgut Cysts are suspected.

Conflicts of Interest: The authors declare that there are no conflicts of interest.

Author Contributions: Teppei Kono: Manuscript overall framework design, data collection, analysis, manuscript writing and editing.

Kazuhiko Yoshimatsu: Manuscript overall framework design, data collection, technical support.

Hideyuki Yokokawa: Data collection, manuscript editing.

Yuji Fukuya: Manuscript review, editing and supervision (especially for diagnostic imaging and surgical indications).

Hideaki Oda: Manuscript review, editing, supervision (especially for pathological diagnosis).

Shunichi Shiozawa: Manuscript review, editing and supervision (especially for surgical treatment).

References

1. Rafindadi AH, Shehu SM, Ameh EA. Retrorectal cystic harmatoma (tailgut cyst) in an infant: case report. East Afr Med J. 1998;75:726−7.
2. Hjermstad BM, Helwig EB. Tailgut cysts. Report of 53 cases. Am J Clin Pathol. 1988;89:139−47.
3. Aranda-Narváez JM, González-Sánchez AJ, Montiel-Casado C, et al. Posterior approach (Kraske procedure) for surgical treatment of presacral tumors. World J Gastrointest Surg. 2012;4(5):126−30.
4. Lim SW, Huh JW, Kim YJ, et al. Laparoscopy-assisted resection of tailgut cysts: report of a case. Case Rep Gastroenterol. 2011;5(1):22−7.
5. Jackman RJ, Clark 3rd PL, Smith ND. Retrorectal tumors. J Am Med Assoc. 1951;145(13):956−62.
6. Hawkins WJ, Jackman RJ. Developmental cysts as a source of perianal abscesses, sinuses and fistulas. Am J Surg. 1953;86(6):678−83.
7. Ito M, Kase H, Shimoyama O, et al. Review of three cases with surgical resection of a coccygeal cyst. J Jpn Soc Coloproctol. 2004;57:28−33. Japanese.
8. Akbulut S. Unusual cause of defecation disturbamce: a presacral tailgut cyst. Eur Rev Pharmacol Sci. 2013;17(12):1688−99.
9. Prasad AR, Amin MB, Randolph TL, et al. Retrorectal cystic hamartoma: report of 5 cases with malignancy arising in 2. Arch Pathol Lab Med. 2000;124(5):725−9.
10. Yang DM, Park CH, Jin W, et al. Tailgut cyst: MRI evaluation. AJR Am J Roentgenol. 2005;184(5):1519−23.
11. Singer MA, Cintron JR, Martz JE, et al. Retrorectal cyst: a rare tumor frequently misdiagnosed. J Am Coll Surg. 2003;196(6):880−6.
12. Sriganeshan V, Alexis JB. A 37-year-old woman with a presacral mass. Tailgut cyst (retrorectal cystic hamartoma). Arch Pathol Lab Med. 2006;130(5):e77−8.
13. Schwarz RE, Lyda M, Lew M, et al. A carcinoembryonic antigen-secreting adenocarcinoma arising within a retrorectal tailgut cyst: clinicopathological considerations. Am J Gastroenterol. 2000;95(5):1344−7.
14. Dalmonte G, Tartamella F, Mita MT, et al. Laparoscopic resection of tailgut cysts: the size is not the issue. Ann Ital Chir. 2016;87:S2239253X16025871.
15. Hove MG, Gil JM, Rodríguez TS, et al. Laparoscopic approach to tailgut cyst (retrorectal cystic hamartoma). J Minim Access Surg. 2019;15(3):262−4.
16. Kwak HD, Ju JK. Laparoscopic resection of a huge retrorectal tumor. Ann Coloproctol. 2020;36(1):54−7.