

Case Report

## Laparoscopic Synchronous Resection for Descending Colon Cancer and Tailgut Cyst

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A 67-year-old woman underwent polypectomy for a tumor at the descending colon. Pathologically, the tumor was diagnosed as adenocarcinoma with an invasion of 2000  $\mu\text{m}$ . Computed tomography showed a swollen paracolic lymph node and a mass lesion in the presacral space. Magnetic resonance imaging revealed a multilocular cystic lesion. On diagnosis of descending colon cancer and tailgut cyst, she underwent synchronous laparoscopic resection. Histopathologically, the colon cancer was diagnosed as pT1bN1M0, pStage IIIa. The presacral cystic lesion was diagnosed as a nonmalignant tailgut cyst with negative surgical margin. The patient is currently doing well without recurrence at 28 months.

**Key words:** anterior approach, laparoscopic resection, tailgut cyst

**T**ailgut cysts are rare congenital lesions that usually develop in the presacral space [1, 2]. These cysts are believed to arise from embryonic hindgut remnants [3]. More than 50% of patients with tailgut cysts are asymptomatic, and the lesions are frequently detected incidentally during radiographic examinations [4]. Tailgut cysts should be resected with appropriate oncological margins, because they present a risk for malignant transformation [1, 4-6]. We describe a patient with a tailgut cyst identified during preoperative examinations for descending colon cancer who underwent simultaneous laparoscopic resection during treatment.

### Case Presentation

A 67-year-old woman presented with fecal occult blood identified in a routine medical examination. She underwent a colonoscopy, and a protruded tumor was

detected at the descending colon. Polypectomy was performed for the lesion. Pathologically, the tumor was diagnosed as moderately differentiated adenocarcinoma with an invasion of 2000  $\mu\text{m}$ . She was referred to Kochi Health Sciences Center for additional surgical resection. Preoperative computed tomography showed a swollen paracolic lymph node and a mass lesion in the presacral space. Magnetic resonance imaging (MRI) revealed a multilocular cystic lesion with high signal intensity on T2-weighted images (Fig. 1). The serum level of carcinoembryonic Antigen (CEA) and carbohydrate associated antigen (CA19-9) were not elevated (CEA 1.3 ng/mL, CA19-9 < 0.3 U/mL). On diagnosis of descending colon cancer with lymph node metastasis and a tailgut cyst, we performed simultaneous laparoscopic resection.

A pneumoperitoneum was created, and 5 ports were used. First, we exfoliated between the mesocolon and renal fascia using a medial to lateral approach. We performed Japanese D3 lymph node dissection while

Received August 11, 2020; accepted February 15, 2021.

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Conflict of Interest Disclosures: No potential conflict of interest relevant to this article was reported.

successively preserving the superior rectal artery<sup>7</sup>. In other words, we ligated the left colic artery in bifurcation, after dissecting the main lymph nodes around the origin of the superior rectal artery. A lateral approach was used, and we finished the mobilization of the sigmoid and descending colon. Then, we exfoliated the presacral space to the levator ani muscle, while keeping the mesorectal layer, and confirmed the presence of the tumor on the pelvic surface of the sacrum. We resected the tumor on the sacrum in an en bloc fashion using

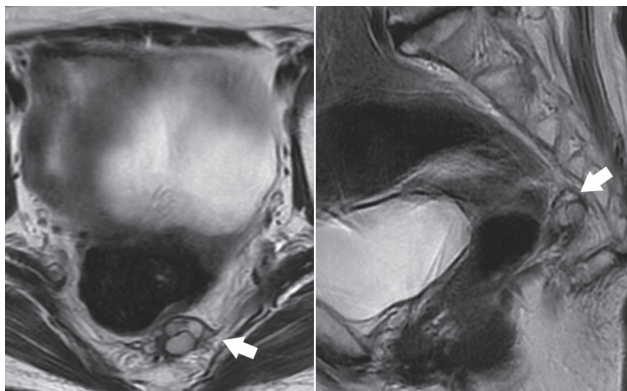


Fig. 1 Magnetic resonance imaging showing a presacral multicystic lesion. The lesion shows high signal intensity on T2-weighted images (arrow).

ultrasonic coagulating shears while attaching some peritosteums. The contents of the tumor were not exposed on resection. Extraction of the descending colon and creation of an external anastomosis was done through extension of the umbilical port to a 4 cm mid-line incision. The duration of surgery was 199 minutes, with small amount of bleeding. (Fig. 2).

Histopathologically, although no tumor cells persisted at the resected colon specimen, one of the dissected lymph nodes had metastasized. The colon cancer was diagnosed as pT1b, pN1, pM0, pStage IIIa, based on the Japanese Classification of Colorectal Carcinoma<sup>8</sup>. The inside of the presacral cystic lesion was covered with stratified squamous epithelium, stratified cuboidal epithelium, and columnar epithelium without dysplasia. Therefore, the cystic lesion was diagnosed as a tailgut cyst without malignancy, and the surgical margin was negative (Fig. 3). The postoperative course was uneventful, and she underwent capecitabine treatment for 6 months as adjuvant therapy for descending colon cancer. She is currently doing well without recurrence 28 months after treatment.

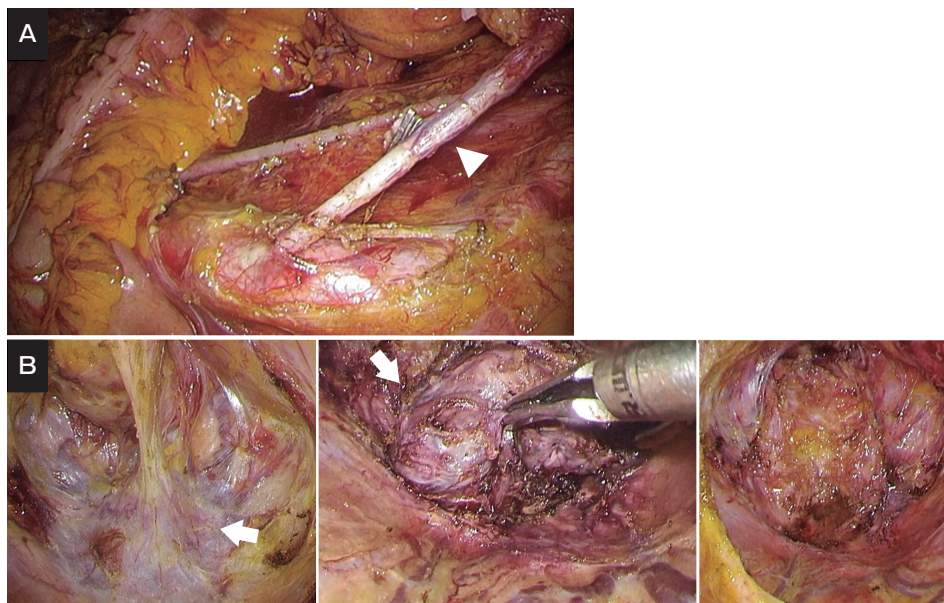
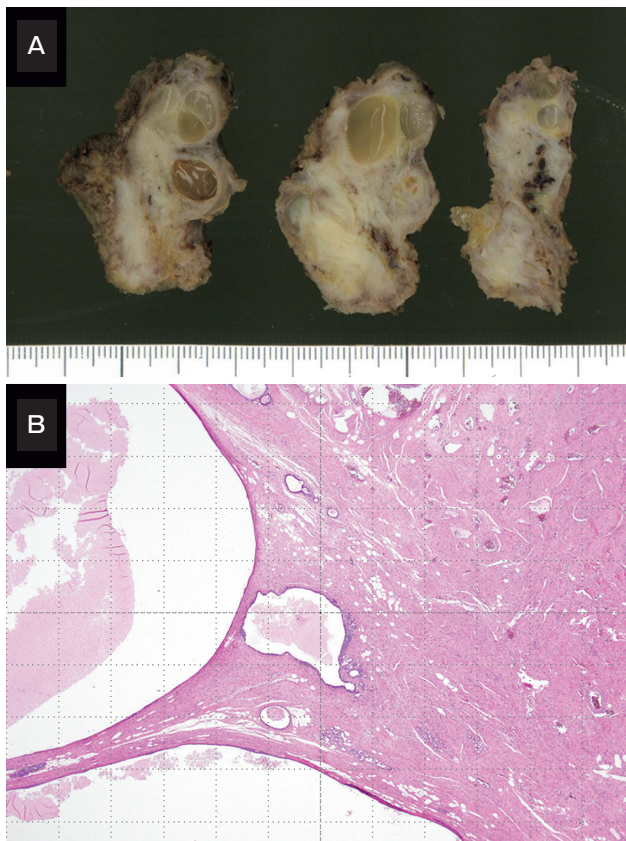


Fig. 2 Intraoperative images after lymph node dissection (A) and before and after resection of the tailgut cyst (B). D3 lymph node dissection while preserving the superior rectal artery (arrowhead) was performed. The presacral tail gut cyst (arrow) was resected in en bloc.



**Fig. 3** Resected specimen (A) and microscopic findings (B). The inside of the cystic lesion was covered with stratified squamous epithelium, stratified cuboidal epithelium, and columnar epithelium without dysplasia, and the surgical margin was negative.

## Discussion

The presacral space is one of the common sites of congenital lesions, such as dermoid cysts, epidermoid cysts, and tailgut cysts [2]. Tailgut cysts arise from the remnants of the embryonic hindgut. During the embryologic process, the hindgut extends to the tail and forms the tailgut. By 8 weeks of gestation, the tailgut normally regresses. Failure to regress leads to the development of a tailgut cyst [3, 6].

More than 50% of patients with a tailgut cyst are asymptomatic, and the cyst is incidentally detected during radiological examinations, as in our case [4]. There are case reports of the occurrence of a tailgut cyst with colorectal cancer [8]. In symptomatic patients with a tailgut cyst, the clinical presentation is usually manifested by the effect of a local mass and may include anal pain, constipation, obstructed defecation,

tenesmus, painless rectal bleeding, dysuria, urinary frequency, lower abdominal pain, back pain, and lower limb neurological problems [1].

Pelvic MRI is a useful radiological examination for diagnosing tailgut cysts. Tailgut cysts have been described as multilocular cystic lesions with low signal intensity on T1-weighted images and high signal intensity on T2-weighted images [9]. Tailgut cysts are associated with a risk for malignant transformation, with an incidence of malignant transformation reported to be 6-13% [4, 6, 10]. A recent systematic review of 196 cases with tailgut cysts revealed that the overall rate of malignant transformation was 26.6% [5]. Some MRI findings of malignant transformation were reported, including nodular thickness of the cyst wall and bloody or mucinous components of the cyst [5, 6, 9]. However, a definite diagnosis of malignant transformation can only be made by surgical resection and histological examination [6]. In case of tailgut cyst is radiologically suspected, complete resection with sufficient margin should be performed.

In general, three approaches are used for surgical excision of a tailgut cyst: an anterior approach, a posterior approach, or a combined approach. Several factors should be considered when choosing an approach, including the location and size of the cyst, the presence or absence of infection, adherence of neighboring structures, and the presence or absence of evidence of malignant transformation [1, 10]. The anterior approach tends to be used for a lesion on the supralelevator ani muscle, whereas the posterior approach tends to be used for a lesion on the intralelevator ani muscle [6]. The combined approach is often selected for larger lesions [6]. A recent large case series of a single institution reported that, when comparing the anterior approach and posterior approach, operation time was shorter with the posterior approach, and the preoperative complication rate was lower with the anterior approach [6]. Regardless, we should determine a surgical approach with the goal of securing a certain margin and avoiding injury to neighboring pelvic organs. In our case, the tailgut cyst of appropriate size was in the presacral space of the supralelevator ani muscle, and was removed during the resection for descending colon cancer. We planned to simultaneously resect both the tailgut cyst and the descending colon cancer in the same surgical position and field, and we selected a laparoscopic anterior approach. After lymph node dissection



and colon mobilization for the descending colon cancer, we started treatment for the tailgut cyst. Laparoscopic surgery using magnification and meticulous dissection was useful for fine manipulation in the narrow space, and we could resect the cystic lesion in the pelvis while securing a certain margin without injuring neighboring organs. There are a few reports of laparoscopic resection for tailgut cysts [6, 11]. In the retrospective analysis of eight cases with laparoscopic resection for presacral tumor, Zhou *et al.* showed promising results without serious postoperative complications nor tumor recurrence [11]. To our knowledge, our case is the first report of laparoscopic synchronous resection for descending colon cancer and a tailgut cyst.

In conclusion, en bloc resection with a certain margin is important for treatment of a tailgut cyst, and an appropriate approach should be selected. A laparoscopic anterior approach may be effective for lesions on the supralelevator ani muscle.

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