Case Report

Early Lower Rectal Carcinoma with Synchronous Isolated Lateral Pelvic Lymph Node Metastasis: Report of a Case

Tomohiro Yamaguchi, Seiichiro Yamamoto, Shin Fujita, Takayuki Akasu,
Yutaka Kobayashi and Yoshihiro Moriya
Colorectal Surgery Division, National Cancer Center Hospital

Abstract

In Japan, lateral pelvic lymph node dissection is generally performed for the treatment of T3-4 lower rectal carcinoma, and not for T1 lower rectal carcinoma, because lateral pelvic lymph node metastasis in T1 lesion is rare. We experienced a rare case of synchronous isolated lateral pelvic lymph node metastasis from T1 lower rectal carcinoma in which preoperative diagnosis was possible. A 67-year-old woman had positive fecal occult blood test in medical examination and pointed out a lower rectal carcinoma by colonoscopy at local hospital. Preoperative pelvic computed tomography and magnetic resonance imaging examination demonstrated isolated lateral pelvic lymph node enlargement. Clinical diagnosis was early lower rectal carcinoma with synchronous isolated lateral pelvic lymph node metastasis, so we performed a total mesorectal excision with an extended left lateral pelvic lymphadenectomy in which internal iliac vessels and pelvic nerve plexus were resected. Pathologically, lateral pelvic lymph node metastasis was confirmed, so adjuvant chemotherapy with 5-fluorouracil was performed for six months. Three years and two months after the operation, the patient is alive and recurrence free. Even for T1 lower rectal carcinomas, preoperative evaluation of the lymph node status is essential. Lateral pelvic lymph node metastasis of early rectal carcinoma was reviewed in the present study.

Key words: T1 rectal carcinoma, isolated lateral pelvic lymph node metastasis, lateral pelvic lymph node dissection

Introduction

The significant impact on survival of lateral pelvic lymph node dissection (LPLND) for lower rectal carcinoma has been reported, mainly from Japan. Many reports have suggested that a beneficial effect of LPLND was achieved in patients with T3-4 lower rectal carcinoma; thus, few surgeons consider T1 as an indication for LPLND¹⁻³⁾. In our institution, LPLND is not indicated for T1 or T2 rectal carcinoma except in patients with preoperative or intraop-

Fig. 1 Colonoscopy finding. A flat elevated lesion in the lower rectum, with large granules, which was clearly demonstrated by indigocarmine dye. The irregular and nodular surface of central lesion was diagnosed as submucosal invasion (white arrow).

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Correspondence to: Seiichiro Yamamoto
Colorectal Surgery Division, National Cancer Center Hospital, 5-1-1 Tsukiji, Chuo-ku, Tokyo 104-0045, Japan

Fig. 2 a MDCT colonography with multi-planar reconstruction findings. Lower rectal carcinoma was demonstrated in the sagittal section (black arrow). b MDCT findings. Enlarged lymph node measuring 11×9 mm in diameter was detected in the left pelvic cavity (black arrow).

Fig. 3 Formalin-fixed resected specimens showed a flat elevated lesion with a central nodule in the lower rectum

erative diagnosis of lateral pelvic lymph node metastasis. Recently, the incidence of lateral lymph node metastasis in patients with T1 rectal carcinoma was reported by a retrospective, multicenter study. Among 371 patients with T1 rectal carcinoma, 42 underwent LPLND and revealed only two patients (0.5 %) with lateral lymph node metastasis⁴⁾.

We experienced a rare case of pathological T1 lower rectal carcinoma with synchronous isolated lateral pelvic lymph node metastasis, in which pre-operative diagnosis was possible by multi-detector row computed tomography (MDCT) and magnetic resonance imaging (MRI), and successful extended LPLND was indicated. In the present report, lateral pelvic lymph node metastasis of early rectal carcinoma is discussed.

Case Report

A 67-year-old woman had a positive fecal occult blood test in a medical examination and lower rectal carcinoma was noted on colonoscopy at a local hospital, and she was referred to our institution. Colonoscopy revealed a flat elevated lesion in the lower rectum, with large granules, which was clearly demonstrated by indigocarmine dye (Fig. 1). The lesion was diagnosed as a laterally spreading tumor (LST) according to Kudo's classification of flat elevated lesions⁵⁾. The irregular and nodular surface of the central lesion was diagnosed as submucosal invasion. MDCT colonography with multi-planar reconstruction demonstrated a lower rectal carcinoma in the sagittal section (Fig. 2a). There was no lymph node enlargement suggesting lymph node metastasis, except for an enlarged lymph node measuring 11×9 mm in diameter in the left pelvic cavity in a horizontal section of MDCT (Fig. 2b). Similarly, MRI showed an enlarged lymph node in the left pelvic cavity. Levels of serum carcinoembryonic antigen and carbohydrate antigen 19-9 were 1.5 ng/ml (range, 0-5) and 8.0 U/ml (range, 0-37), respectively.

Clinical diagnosis was an early lower rectal carcinoma with synchronous isolated lateral pelvic lymph node metastasis: cT1, cN0, cH0, cP0, cM1, cStage IV by TNM classification⁶⁾. The patient underwent total mesorectal excision (TME) and LPLND with en bloc resection of the left internal iliac vessels and pelvic autonomic nerves, because the survival rates in patients who underwent LPLND with en bloc re-

Fig. 4 H & E staining of the resected specimen. a,b Histopathological findings demonstrated a well- to moderately differentiated adenocarcinoma with submucosal invasion (3000 μ m: from tumor surface to invasive front). Black arrow shows tumor invasive front (a: low-power view, b: higher-power view). c Macroscopically, the left pelvic lymph node was 10 mm in maximal diameter, and histopathologically, adenocarcinoma metastasis was confirmed.

section of the autonomic nervous system on affected side is better than those who underwent LPLND with preservation of the autonomic nervous system¹⁾.

Formalin-fixed resected specimens showed a flat elevated lesion with a central nodule, measuring 52 $\times$ 48 mm in diameter (**Fig. 3**). Histopathological findings demonstrated a well- to moderately differentiated adenocarcinoma with submucosal invasion (3000 μ m: from tumor surface to invasive front); however, lymphovascular invasion was not identified (**Fig. 4a, b**). Sixty-three lymph nodes were harvested, and macroscopically, the size of the left pelvic lymph node was 10 mm in maximal diameter. Pathologically, there were no detectable metastases, except for left pelvic lymph node metastasis (**Fig. 4c**). No cancer cells were detected in the margin of the resected specimen.

She had slight urinary disturbance postoperatively which recovered rapidly. Adjuvant chemotherapy with 5-fluorouracil was performed for six months. Three years and two months after the operation, the patient is alive and recurrence free.

Discussion

In Japan, LPLND is generally performed for the treatment of T3-4 lower rectal carcinoma, and not for T1 lower rectal carcinoma, because lateral pelvic lymph node metastasis in T1 lesion is rare⁴⁾. In our institution, there were only four patients in 488 T1 lower rectal carcinoma patients (0.8%), who had lateral pelvic lymph node metastasis with LPLND, and who had lateral pelvic lymph node recurrence without LPLND. We experienced a rare case of synchronous isolated lateral pelvic lymph node metastasis from T1 lower rectal carcinoma in which preoperative diagnosis was possible by MDCT and MRI, and successful extended LPLND was indicated.

The clinical importance of the lateral spread of lower rectal carcinoma was first demonstrated in the 1950s⁷⁾. In Japan, total mesorectal excision has been the gold standard for middle or lower rectal carcinoma, as in other countries; however, in the late 1970s, extended LPLND was introduced to remove the lymphatic network along the internal iliac vessels³⁾.

The incidence of lateral pelvic lymph node metastasis in patients with advanced lower rectal carcinoma is reported to be 10-25 %^{1,3,4,8)}. Although lateral

pelvic lymph node metastasis is regarded as distant metastasis in the TNM classification⁶⁾, because of the fair five-year survival rate of 37-54 % in patients with lateral pelvic lymph node metastasis^{1,4,8)}, it is regarded as local disease in Japan⁹⁾. Some patients survive for more than five years, suggesting that some patients may be cured by extended surgery²⁾.

Factors such as gender⁴⁾, tumor location^{4,8)}, perirectal lymph node metastasis^{4,8)} and tumor differentiation⁸⁾ have been reported to be significant risk factors for lateral pelvic lymph node metastasis in retrospective multivariate analyses. In our institution, LPLND is performed for patients having clinically positive lateral pelvic lymph nodes or those at high risk, especially with T3-T4 tumors. In addition, if the autonomic nerves or internal iliac artery are directly invaded or threatened by the tumor, they are resected partially or completely. LPLND for a patient with isolated lateral lymph node recurrence after TME has also been reported¹⁰⁾.

Problems associated with LPLND include urinary and sexual disturbance¹¹⁾. Patients undergoing mesorectal excision alone can expect minimum urinary and sexual disturbances, but the functional results after mesorectal excision with extended LPLND are far worse. The degree of dysfunction depends on the extent of both autonomic nerve resection and extended LPLND¹¹⁾. In our case, although the patient experienced slight urinary disturbance postoperatively, the symptom improved gradually.

In Europe and the United States, LPLND is rarely performed for patients with lower advanced rectal carcinoma, and reports suggesting the efficacy of LPLND are mainly from Japan¹⁻³⁾. However, even in Japan, LPLND is not always the gold standard treatment; instead, TME alone or chemoradiotherapy with TME are conducted in several institutions. The main reason is the lack of high-quality multicenter randomized clinical trials to demonstrate any benefit of LPLND; therefore, a randomized controlled trial to demonstrate the efficacy of prophylactic LPLND is ongoing in Japan in patients with advanced lower rectal carcinoma without obvious pre and intra-operative lateral pelvic lymph node metastasis¹²⁾.

Regarding preoperative evaluation of the lymph node status in rectal carcinoma, MRI, CT and endoscopic ultrasonography have been reported to be useful; however, these images mostly show regional

lymph nodes and it is difficult to identify the pelvic space on ultrasonography because of limited soft tissue contrast resolution and the limited field of view. Recently, several reports have demonstrated the criteria for the prediction of lateral pelvic lymph node metastasis on MRI or CT. Matsuoka et al¹³⁾ reported that an ovoid shape with a transverse axis diameter of 5 mm or larger on MRI was considered as lateral pelvic lymph node metastasis. 18F-fluorodeoxyglucose (FDG)-positron emission tomography has been reported to have low sensitivity for the detection of lymph node metastasis¹⁴⁾. Metastatic lymph nodes are often barely detectable because of the poor contrast between their uptake and background activity. The uptake of FDG in the metastatic lymph node is often weak owing to the small size, even though tumor cells show good affinity to FDG. In our case, because CT and MRI showed a round lymph node approximately 10 mm in diameter, it was easy to diagnose lymph node metastasis.

In conclusion, we report the first case of pathological T1 lower rectal carcinoma with synchronous isolated lateral pelvic lymph node metastasis, successfully diagnosed by MDCT and MRI. Even for relatively early lower rectal carcinomas, preoperative evaluation of the lymph node status of both the mesorectum and outside the mesorectum, is essential because patients with lateral pelvic lymph node metastasis treated with extended LPLND might have a favorable long-term prognosis.

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