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CASE REPORT

Synchronous Retrorectal Tumor and Low Rectal Cancer: Surgical Management and Literature Review

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ABSTRACT

The management of early rectal cancer has progressively evolved toward organ-preserving strategies in selected patients. However, outcomes following local excision after neoadjuvant therapy remain heterogeneous, particularly in patients with residual ypT2 disease. Retrorectal tumors are rare lesions, most of which are benign, although surgical excision remains the standard treatment. The synchronous occurrence of both conditions is exceptionally uncommon.

A 41-year-old woman was diagnosed with cT2N0M0 low rectal adenocarcinoma. Total neoadjuvant therapy was initially administered with an organ-preservation intent. Restaging demonstrated a partial response (yT1N0), and transanal local excision was subsequently performed. Final pathology revealed ypT2 disease with an extremely close deep margin. Given these high-risk features, laparoscopic abdominoperineal resection with en bloc excision of a synchronous retrorectal lesion was undertaken. Histopathological examination confirmed an epidermoid cyst. The postoperative course was uneventful, and the patient remains free of local or distant recurrence at 6 months of follow-up.

This case highlights the challenges associated with organ-preserving strategies in early rectal cancer and the management of synchronous retrorectal lesions. Although local excision following neoadjuvant therapy may be appropriate in highly selected patients, ypT2 tumors continue to carry a substantial risk of recurrence. In selected asymptomatic patients with benign-appearing retrorectal cystic lesions, surveillance may be considered; however, surgical excision remains the standard approach.

Keywords: *early rectal cancer; local excision; total mesorectal excision; neoadjuvant chemoradiotherapy; organ preservation; retrorectal tumor; epidermoid cyst*

INTRODUCTION

Total mesorectal excision (TME) remains the standard treatment for mid and low rectal cancer, particularly for T2–T4 tumors.[1,2] Neoadjuvant therapy plays a pivotal role in locally advanced disease by reducing local recurrence rates and improving disease-free survival.[3] Despite substantial advances in rectal cancer management, many patients experience significant long-term impairment in quality of life following TME, prompting the development of organ-preserving strategies aimed at maintaining anorectal function without compromising oncologic outcomes.

Local excision (LE) is an accepted treatment for selected early-stage rectal neoplasms (T1N0) with favorable histologic features, size, and location. However, LE alone is associated with unacceptably high local recurrence rates in T2N0 tumors. Several studies have suggested that neoadjuvant therapy followed by LE may reduce this risk in carefully selected patients.[1,2]

Retrorectal (presacral) tumors are rare lesions derived from embryologic remnants. Although most are benign, malignant subtypes have been described (Table 1).[4] Their incidence is estimated at approximately 1 per 40,000–60,000 hospital admissions annually in tertiary referral centers.[5] These lesions are frequently asymptomatic and are traditionally managed by surgical resection.

We report the case of a young woman with low rectal adenocarcinoma and a synchronous retrorectal tumor, illustrating the complexity of decision-making when two conditions with potentially conflicting management strategies coexist.

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Table 1. Classification of the most common retrorectal tumors

Tumor category	Benign	Malignant
Congenital	Epidermoid/dermoid cyst Enteric cyst Tailgut cyst (cystic hamartoma) Teratoma (solid)	Malignant transformation of a cystic hamartoma* Teratocarcinoma (solid)
Neurogenic	Schwannoma Neurofibroma	Schwannoma Neurofibrosarcoma
Osseous	Aneurysmal bone cyst Osteoma Simple bone cyst	Chordoma Chondrosarcoma
Miscellaneous	Gastrointestinal stromal tumor (GIST) Hemangiopericytoma Desmoid tumor angiomyxoma	Metastatic carcinoma Angiosarcoma Carcinosarcoma Fibrosarcoma

* Low risk of malignant transformation.

CASE PRESENTATION

A 41-year-old woman presented with a 3-month history of hematochezia, tenesmus, and a 5-kg weight loss. Digital rectal examination revealed an irregular, ulcerated, friable, partially mobile mass located 2 cm from the anal verge without fixation to adjacent structures.

Colonoscopy confirmed the presence of the lesion, and biopsy demonstrated moderately differentiated rectal adenocarcinoma with proficient mismatch repair status (pMMR).

Pelvic magnetic resonance imaging (MRI) showed circumferential thickening of the distal rectal wall located 1.1 cm above the dentate line, measuring 5.2 cm longitudinally and 4.4 cm transversely, with invasion limited to the muscularis propria. There was no evidence of sphincter complex involvement, mesorectal lymphadenopathy, threatened circumferential resection margin, or extramural vascular invasion. Clinical staging was cT2N0Mx (Fig. 1).

Computed tomography (CT) of the chest, abdomen, and pelvis revealed no distant metastases or suspicious lymph nodes.

Both MRI and CT incidentally identified a 5.2 × 4.5 cm retrorectal lesion characterized by smooth, well-defined margins and mixed cystic-solid contents suggestive of a developmental cyst or hamartoma. Following multidisciplinary discussion, treatment options were reviewed with the patient, who expressed a strong preference for organ preservation and surveillance of the asymptomatic retrorectal lesion.

Total neoadjuvant therapy (TNT) was administered using a consolidation approach consisting of short-course radiotherapy followed by six cycles of FOLFOX chemotherapy.

Eight weeks after completion of TNT, digital rectal examination and rigid proctoscopy demonstrated a residual flat elevated lesion measuring 2.9 × 2.2 cm. Restaging MRI showed tumor involvement confined to the submucosa with contact but no invasion of the muscularis propria, no sphincter involvement, and no nodal disease, corresponding to yT1N0Mx with MRI tumor regression grade 3 (Fig. 2).

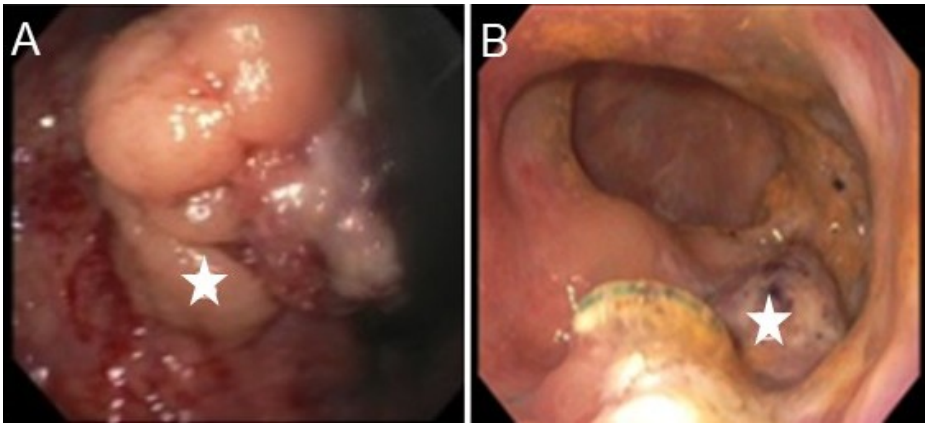

Figure 1. *Colonoscopy.* ***A.*** *Endoscopic view of rectal adenocarcinoma before neoadjuvant chemoradiotherapy.* ***B.*** *Endoscopic view demonstrating tumor regression after neoadjuvant therapy.*

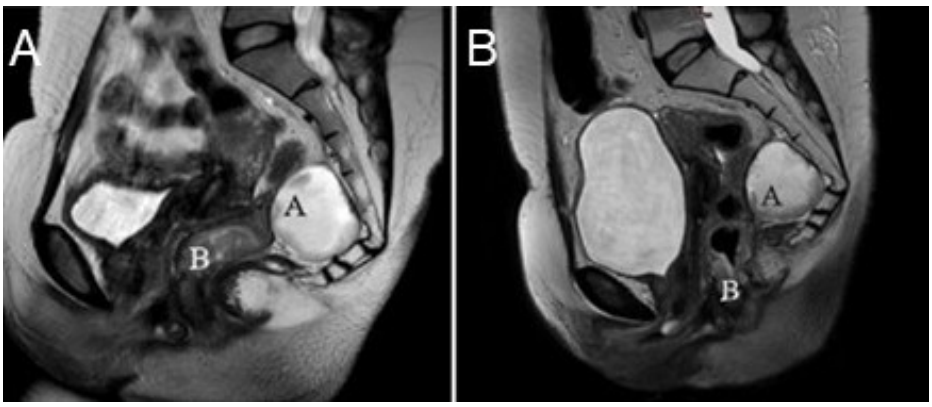

Figure 2. *MRI in the sagittal plane with T2-weighted sequences.* ***A.*** *Pre-neoadjuvant image.* ***B.*** *Post-neoadjuvant image. Images demonstrate irregular hypointense thickening of the distal rectal wall, consistent with low rectal adenocarcinoma (**A**), and a well-defined, homogeneously hyperintense retrorectal cystic lesion, consistent with a retrorectal cyst (**B**).*

Given the possibility of achieving complete excision of a residual T1 lesion while preserving sphincter function, conventional transanal local excision was performed. Pathological examination revealed a 2.5 × 2.8 cm residual adenocarcinoma staged as ypT2NxMx. There was no lymphovascular invasion, perineural invasion, or high-grade tumor budding. The lateral margin was negative (10 mm), whereas the deep margin measured only 0.2 mm.

Because of the high risk of local recurrence associated with residual ypT2 disease, residual tumor size greater than 2 cm after neoadjuvant therapy, and an extremely close deep margin, completion laparoscopic abdominoperineal resection was recommended and performed together with en bloc excision of the retrorectal lesion (Fig. 3).

Final pathology demonstrated moderately differentiated tubular adenocarcinoma with focal mucin production in the local excision scar. All mesorectal lymph nodes were negative (0/14), and resection margins were clear. The retrorectal lesion was confirmed as an epidermoid cyst.

At 6 months of follow-up, the patient remains free of local or distant recurrence (Fig. 4).

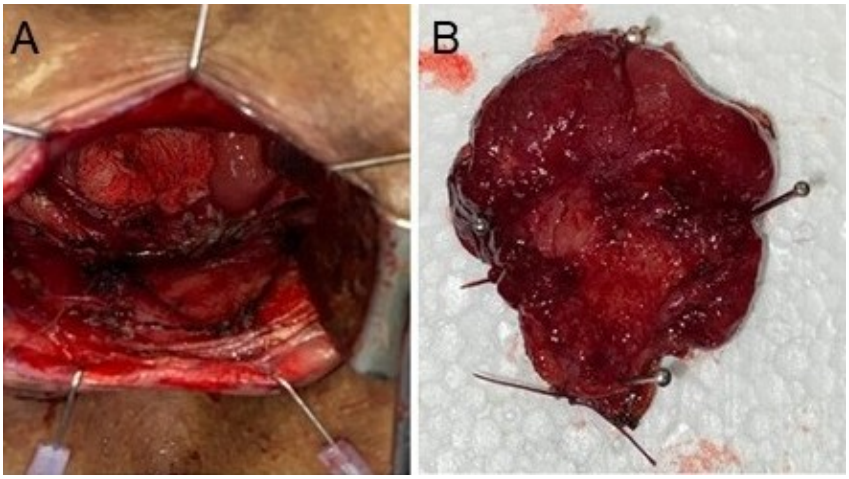

Figure 3. *Local excision of rectal adenocarcinoma.* ***A.*** *Posterior rectal wall defect following local excision.* ***B.*** *Resected specimen*

DISCUSSION

Retrorectal tumors are rare lesions whose true incidence is difficult to determine because most remain asymptomatic and are detected incidentally during imaging studies. No established association exists between retrorectal lesions and rectal adenocarcinoma, making their coexistence exceedingly uncommon. To our knowledge, only four similar cases have been reported worldwide, with no previous reports from Latin America.[6,7]

The therapeutic strategy in this patient was particularly challenging. Radical surgery with TME remains the standard treatment for low rectal cancer. However, given the tumor location and inability to guarantee adequate distal margins, ultralow anterior resection was not feasible. Although intersphincteric resection could potentially have achieved adequate oncologic margins through partial internal sphincter excision, the authors' prior experience with this approach has demonstrated suboptimal functional outcomes. Considering the patient's young age and desire for organ preservation, a conservative strategy was initially pursued.

TNT has been associated with increased rates of complete clinical response and should be considered in patients seeking rectal preservation.[8] In patients with an incomplete but favorable response, LE after neoadjuvant therapy is supported by several studies (Table 2).[1,3,8–13]

The ACOSOG Z6041 trial reported a pathological complete response rate of 44% and downstaging to ypT0–1 in 64% of patients treated with neoadjuvant chemoradiotherapy followed by LE. However, the absence of a comparison group receiving standard TME limits interpretation, and the authors recommended this approach only in selected patients or those unsuitable for radical surgery.[9]

Similarly, the GRECCAR 2 randomized trial evaluated patients with T2–T3 low rectal adenocarcinoma and residual tumors ≤2 cm following chemoradiotherapy. Patients were randomized to LE or TME, with completion TME mandated for ypT2–3 disease or positive margins. Local recurrence rates at 5 years were low and comparable between groups (5% vs 7%), with no differences in survival outcomes. Nevertheless, a substantial proportion of patients undergoing LE required completion TME, thereby diminishing the potential benefits of organ preservation.[10]

The TAU-TEM study further demonstrated that neoadjuvant chemoradiotherapy followed by LE was noninferior to TME in carefully selected patients with early rectal cancer, offering a less invasive alternative with comparable oncologic outcomes.[11]

In a systematic review, Hallam et al. concluded that LE after neoadjuvant therapy should be considered curative only when a pathological complete response is achieved, given the high recurrence rates observed among incomplete responders, particularly those with ypT2 disease (23.6%).[12] Likewise, a systematic review and meta-analysis including 73 studies and 4,674 patients reported local recurrence rates of 28.9%, 4.0%, and 14.7% for observation, completion TME, and adjuvant radiotherapy/chemoradiotherapy, respectively, following LE of pT2 tumors.[13]

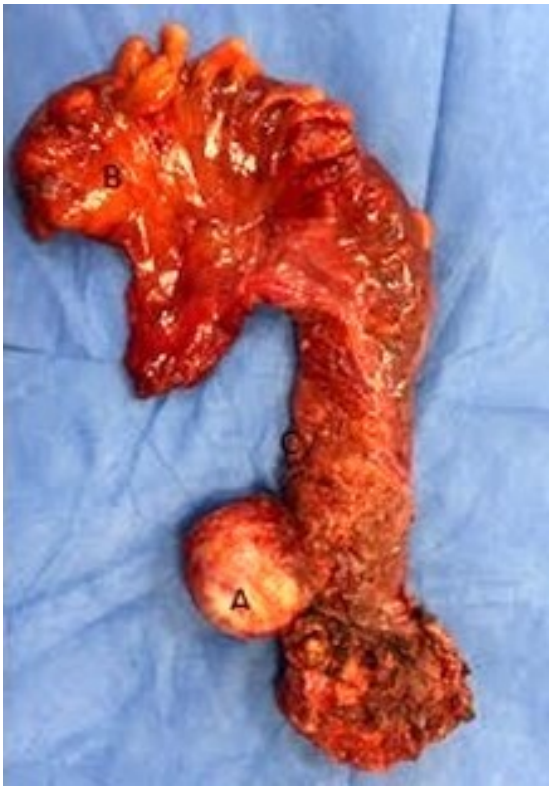

Figure 4. *Abdominoperineal resection specimen showing en bloc excision of a retrorectal cyst (A).*

Collectively, current evidence suggests that organ-preserving approaches combining neoadjuvant therapy and LE may provide oncologic outcomes comparable to TME in carefully selected patients with cT1–T2N0 tumors or excellent treatment responses.[1,9–11] However, limitations including small sample sizes, selection bias, heterogeneous inclusion criteria, and the frequent need for completion TME continue to restrict broader adoption. The most favorable outcomes are observed in patients with complete clinical response or ypT0–1 disease, whereas ypT2 tumors remain associated with substantially higher recurrence rates.[8,12,13]

An additional consideration is the phenomenon of residual tumor fragmentation ("tumor scatter"), whereby microscopic foci of viable tumor may persist within fibrotic tissue after neoadjuvant treatment. Consequently, LE may remove the visible residual lesion while leaving occult tumor deposits within the original tumor bed, potentially explaining residual disease identified in subsequent TME specimens.[14]

Regarding nonoperative management of retrorectal tumors, Hopper et al. evaluated 69 patients and demonstrated that MRI was significantly more accurate than CT in differentiating benign from malignant lesions (94% vs 64%; $p = 0.03$). Based on the high specificity of MRI for benign cystic lesions, the authors suggested that selected asymptomatic patients could be managed with serial imaging surveillance.[15]

Subsequently, Carpelan-Holmström et al.[16] analyzed 52 patients and reported low sensitivity (25%) but high specificity (98%) for preoperative imaging in predicting malignancy. MRI was considered essential for initial evaluation, whereas preoperative biopsy provided limited diagnostic benefit because of its high false-negative rate. The authors recommended surgical resection for symptomatic, solid, or large lesions, while small, thin-walled cystic lesions and asymptomatic recurrences of benign tumors may be considered for surveillance.

In the present case, had a complete clinical response or an R0 resection of a ypT1 lesion been achieved, nonoperative management of the low-risk retrorectal lesion might have represented a reasonable alternative. However, because completion of radical surgery was indicated for oncologic reasons, simultaneous resection of the retrorectal lesion was performed.

Table 2. Oncologic outcomes of local excision after neoadjuvant therapy in rectal cancer

Author / Year	Study design	Population / Stage of rectal adenocarcinoma	Assessment	Outcomes
Park et al.[1] 2024	Retrospective comparative	119 patients, cT2N0, within 8 cm of the anal verge	nCRT + LE vs TME	3-year LRFS: 87.9% vs 96.2%; p = 0.129 3-year DFS: 79.6% vs 84.9%; p = 0.429
Peltrini et al.[8] 2022	Systematic review (9 studies)	cT2N0	nCRT + LE	5-year DFS: 91.3% 5-year OS: 72.6% LR: 4%
Garcia Aguilar et al.[9] ACOSOG Z6041 2015	Multicenter non-randomized	79 patients cT2N0, within 8 cm of the anal verge	nCRT + LE	cCR: 44% Downstaging (ypT0–1): 64% 3-year DFS: OR 88.2% (95% CI 81.3–95.8) LR: 8%
Rullier, et al.[10] GRECCAR 2 2017	Multicenter prospective randomized	186 patients, cT2–T3N0, within 8 cm of the anal verge, good responders to CRT (residual tumor <2 cm)	nCRT + LE vs TME	cCR: 40% LR: 5% (nCRT + LE) vs 7% (TME)
Serra, et al.[11] TAUTEM 2025	Multicenter prospective non-inferiority randomized trial	173 patients, cT2–T3a/bN0M0, within 10 cm of the anal verge, tumor ≤4 cm	nCRT + LE vs TME	LR: 7.4% vs 6.2% DR: 12.3% vs 17.3% 3-year DFS: 82.7% vs 85.2%
Hallam et al.[12] 2016	Systematic review (20 studies)	1.068 patients	nCRT + LE	Recurrence in ypT2: 23.6% Combined DFS: 68%
Van Oostendorp et al.[13] 2020	Meta-analysis (73 studies)	4.674 patients pT1–T2	LE without nCRT vs nCRT + LE vs TME	LR: 28.9% (LE without nCRT) vs 14.7% (nCRT + LE) vs 4% (TME)
Oliva et al.,[3] 2016	Prospective	53 patients, rectal adenocarcinoma within 7 cm of the anal verge	nCRT + LE with follow-up vs. salvage TME	ypT2: 68% (adverse features: LVI/PNI/positive margins) LR: 22% CRM+: 87% (TME)

nCRT = neoadjuvant chemoradiotherapy. LE = local excision. TME = total mesorectal excision. LRFS = local recurrence–free survival. DFS = disease-free survival. OS = overall survival. LR = local recurrence. cCR = clinical complete response. 95% CI = 95% confidence interval. DR: distant recurrence. LVI = lymphovascular invasion. PNI = perineural invasion. CRM = circumferential resection margin.

CONCLUSIONS

The coexistence of retrorectal tumors and low rectal adenocarcinoma is exceptionally rare. Although local excision following neoadjuvant therapy has been proposed as an organ-preserving strategy for selected T2N0 rectal cancers, recurrence rates remain substantial, particularly in patients with residual tumors larger than 2 cm or ypT2 disease. Moreover, salvage surgery after local recurrence may be associated with higher rates of incomplete resection.

For benign-appearing retrorectal lesions, nonoperative management may be considered in carefully selected asymptomatic patients, despite surgical excision remaining the conventional standard of care.

This case underscores the importance of individualized decision-making in early rectal cancer, prioritizing oncologic safety over organ preservation when adverse pathological features are present and evidence remains limited.

Author Contributions
VM: Conceptualization, Research, Writing – original draft. AN: Research, Data curation, Writing – revision and editing. MO: Research, Writing – revision and editing. OM: Project management, Research, Supervision, Writing – revision and editing.
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