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CASE REPORT

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Complete pathologic response after chemoradiotherapy in a patient with rectal squamous cell carcinoma: a case report

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ABSTRACT Squamous cell carcinoma (SCC) of the rectum is a rare disease. A 59-year-old man presented with SCC of the middle rectum located 10 cm from the anus. The stage of the tumor was revealed to be T3N+M0. The patient received a combined treatment with cisplatin and fluorouracil in concomitance with external radiation therapy. He then underwent an anterior resection of the rectum. The postoperative histopathological findings classified the tumor as ypT0N0 with cancer-free margins and lymph nodes. Treatment of SCC remains very challenging, and the acquisition of more consistent data is needed.

KEYWORDS Squamous cell carcinoma; rectal neoplasm; surgery; colonoscopy

Introduction

Squamous cell carcinoma (SCC) of the rectum is a rare disease. Its incidence is estimated to be around 0.1 to 0.25 per 1000 colorectal neoplasms[1-3]. It appears to be associated with chronic inflammatory conditions and infections. Its presentation is nonspecific and patients tend to present with advanced stage disease. Distinction from SCC of the anus can be difficult, but can be facilitated by immunohistochemical staining for cytokeratins[4]. Knowledge is lacking about its etiology, prognosis, and optimal treatment. The literature is represented essentially by case reports and short series[4].

Case report

A 59-year-old man presented with a history of pelvic discomfort and constipation for about 6 months. The patient did not present with a family history of colonic malignancy. A digital rectal examination revealed a mass about 8 cm from the anal margin on the right lateral wall of the middle rectum. Colonoscopy revealed an ulcerated, polypoid tumor of the middle rectum located 10 cm from the anus. Biopsies indicated a SCC (**Figures 1**, **2** and **3**).

Magnetic resonance imaging (MRI) of the rectum confirmed the results of colonoscopy and revealed adenomegalia in the pelvis (**Figure 4**).

The computed tomography (CT) scan demonstrated the absence of distal metastases. The stage of the tumor was found to be T3N+M0.

The case was discussed by the multidisciplinary oncological team who decided that concomitant chemotherapy and radiation therapy followed by surgical excision should be performed. The patient received a combined treatment with cisplatin and fluorouracil (5FU) in concomitance with external radiation therapy. He received 45 Gy with two sessions of chemotherapy (**Figure 5**).

Then, he underwent an anterior resection of the rectum. The standard technique of mesorectal excision and the concept of sphincter-preserving surgery were achieved.

The postoperative histopathological findings classified the tumor as ypT0N0 with cancer-free margins and lymph nodes (**Figure 6**).

The postoperative period was uneventful.

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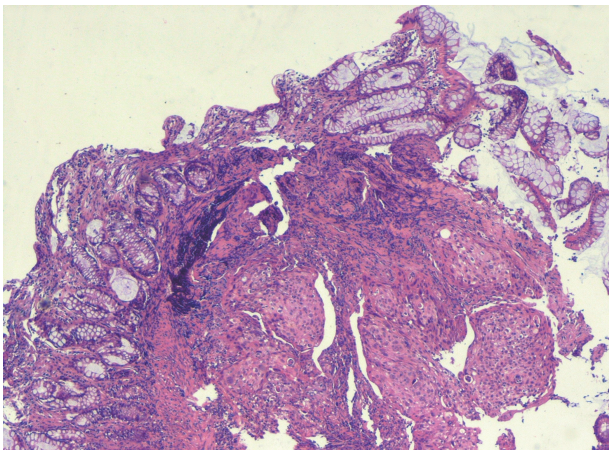

Figure 1 Carcinomatous proliferation with organized squamous differentiation (H&E staining, 40×).

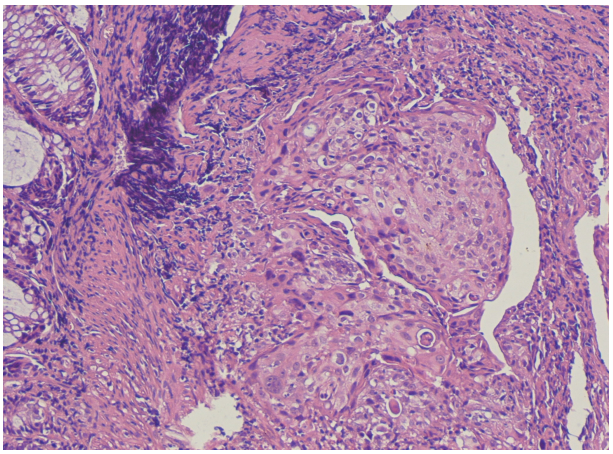

Figure 2 These massifs are formed by cohesive polyhedral cells with abundant eosinophilic cytoplasm and a strongly nucleolated, round nucleus revealing moderate atypia (H&E staining, 100×).

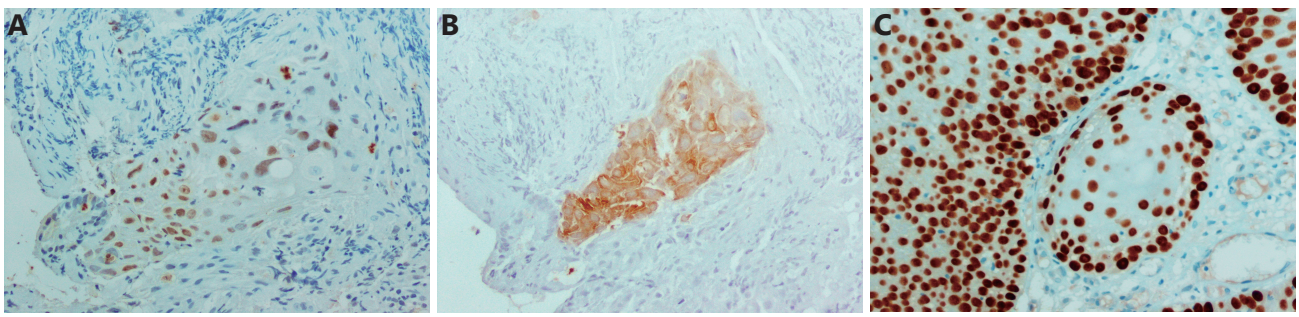

Figure 3 Immunohistochemistry (IHC staining, 200×): (A) Nuclear positivity for p63. (B) Cytoplasmic positivity for CK5/6 and negativity for CK20 and CDX2. (C) Nuclear positivity for p40.

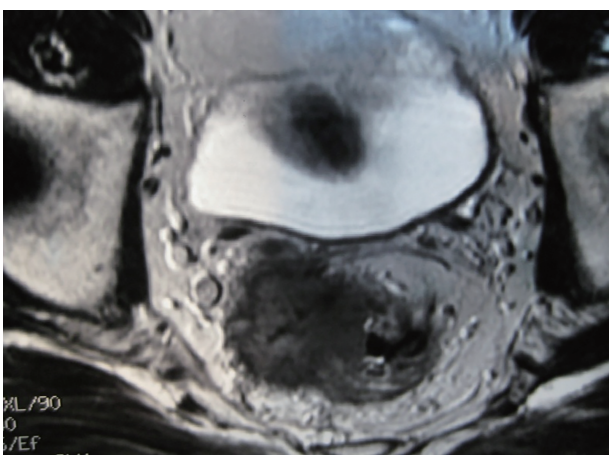

Figure 4 Magnetic resonance imaging before chemoradiotherapy.

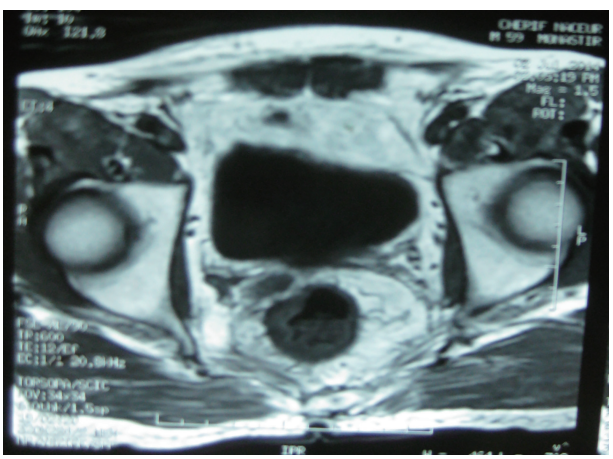

Figure 5 Magnetic resonance imaging after chemoradiotherapy.

Discussion

Colorectal SCC is a rare disease. The incidence of the disease is approximately 0.10 to 0.25 per 1000 colorectal cancers[1-3] and the first case of SCC of the rectum was described by Raiford in 1933[5]. We have little knowledge about its etiology,

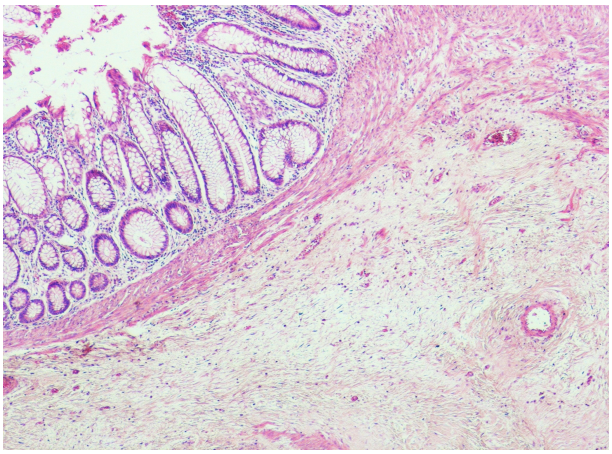

Figure 6 Complete pathologic response after neoadjuvant chemoradiotherapy (H&E staining, 40×).

prognosis, and optimal treatment.

SCC of the rectum appears to affect women more than men between the ages of 39 and 93 years, with a mean age of 57 years. In the literature, 66% of cases occur in women and 34% in men[6].

Regarding the pathophysiology of the disease, four hypotheses have been developed over the years.

Some suggest that chronic irritation may be caused by radiation exposure that can cause squamous metaplasia[7,8], or by colitic infections due to *Entamoeba histolytica* and schistosomiasis[9-11]. Ouban et al.[12] suggested that pluripotent stem cells have the ability of squamous differentiation.

While some authors have described the possibility of squamous differentiation in adenoma and adenocarcinoma[13], others have reported some case reports of rectal SCC in association with prostate, ovarian, and endometrial cancers[10,13].

The association between human papilloma virus (HPV) and SCC of the anus has been clearly established with the most common subclasses of pathogenic viruses, including HPV-16, -18, -31, and -33[14]. However, the relation between HPV and rectal SCC has not yet been established[11,15,16].

Symptoms of SCC are similar to those of adenocarcinoma of the rectum, such as bleeding, abdominal pain, changes in bowel habits, and weight loss[6,11].

Colonoscopy with biopsies of any visible abnormalities is crucial to the diagnosis of rectal SCC. A polyp or an ulcerated obstructing bulk is generally revealed during endoscopy examinations[14].

Williams et al.[10] have suggested some criteria that are necessary for the diagnosis of colorectal SCC: no evidence of SCC of any other primary site, absence of extension of the tumor from the anal squamous epithelium, and absence of a squamous-lined fistula tract to the affected bowel. In addition to these criteria, histology results consistent with a squamous carcinoma without glandular differentiation is also required[17,18].

In immunohistochemistry analysis, the most useful cytokeratins required to differentiate rectal from anal SCC are AE1/AE3, CAM 5.2, and 34B12. The cytokeratins AE1/AE3 stain positively for cells of squamous origin; the cytokeratin CAM 5.2 is able to stain for rectal SCC, but not for anal SCC[1,9].

MRI of the rectum and trans-rectal endoscopic ultrasound (R-EUS) are necessary before therapeutic approach. R-EUS provides improved local lymph node evaluation[4].

Surgery is the gold standard treatment for colorectal SCC according to most authors[19]. Nahas[1] demonstrated that the addition of radiation therapy before surgery increased sphincter preservation from 67% to 71%. Rasheed et al.[20] and Clark et al.[21] evaluated the success of chemoradiotherapy for the treatment of SCC of the rectum in two separate populations; using 5FU based treatment with either mitomycin-C or cisplatin. Our patient received a combined treatment with cisplatin and 5FU in concomitance with external beam radiation therapy, followed by anterior resection of the rectum.

Local excision is appropriate in selected stage T1 cases and for more advanced disease. Two surgical techniques can be performed depending on tumor location: lower rectal anterior resection or abdomino-perineal resection. The abdomino-perineal resection of the rectum is associated with high morbidity rates and low patients' satisfaction[22,23]. In the present case, low anterior resection was performed.

Comer et al.[19] have suggested a poorer prognosis for colorectal SCC than for adenocarcinoma. In fact, the overall 5-year survival rate of SCC is 32%, with significant variation by stage: Duke B, 50%; Duke C, 33%; and Duke D, 0%. Studies have suggested improved outcomes with preoperative CRT[4].

SCC of the rectum is a rare malignancy. The available information is clouded by a lack of uniformity in diagnosing and staging the disease[4]. Treatment of SCC remains very challenging, and the acquisition of more consistent data is needed.

Conflict of interest statement

No potential conflicts of interest are disclosed.

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