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The Journal of Biomedical Research, 2016, 30(5):436-440

JBR

*Case Report*

# Laparoscopic abdomino-perineal resection for patients with anorectal malignant melanoma: a report of 4 cases

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## Abstract

Anorectal malignant melanoma is a very rare but lethal disease. Patients with anorectal malignant melanoma commonly complain for changes in bowel habits and rectal bleeding. Therefore, anorectal malignant melanoma is often misdiagnosed as hemorrhoids, polyp or rectal cancer. Surgery is the mainstay of treatment for patients with anorectal malignant melanoma. However, whether abdominoperineal resection or wide local excision is the most appropriate surgical approach is still a controversial issue. Recently, with the great development of laparoscopic techniques, more and more operations can be performed by laparoscopic techniques. However, laparoscopic abdominoperineal resection for management of anorectal malignant melanoma has been rarely reported. In this study, we reported 4 patients with anorectal malignant melanoma underwent laparoscopic abdominoperineal resection. The outcomes of these patients were relatively good during a long time follow-up. Meanwhile, we reviewed the relevant studies with particular focus surgical treatment.

**Keywords:** anorectal malignant melanoma, laparoscopic abdominoperineal resection, wide local excision

## Introduction

Anorectal malignant melanoma is a very rare but highly malignant disease. Only multiple isolated case reports and single institution series have been published since first described by Moore in 1857[1]. However, anorectal malignant melanoma, accounting for 0.4%-1.6% of all melanoma, is the third most common malignant melanoma behind skin and retina melanoma[2-3]. Common initial symptoms of anorectal malignant melanoma include rectal bleeding, changes in defecation habits and asymptomatic local anorectal masses. Therefore, anorectal malignant melanoma is prone to be misdiagnosed as hemorrhoids, polyp or rectal cancer. The prognosis of anorectal malignant melanoma is very poor with a reported rate of 5-year survival between 17%-19.3%[4-5]. Surgical procedures are main managements of anorectal malignant melanoma while the traditional surgical strategy is abdominoperineal resection. However, for lack of survival benefit of abdominoperineal resection, there has been a trend in favor of wide local excision in

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Received 20 September 2012, Revised 06 October 2012, Accepted 31 December 2012, Epub 01 June 2013

CLC number: R656, Document code: B

The authors reported no conflict of interests.



doi: 10.7555/JBR.27.20120099

recent years[6-7]. With the great development of laparoscopic techniques, numerous operations have been performed by laparoscopic techniques recently. However, laparoscopic abdominoperineal resection for management of anorectal malignant melanoma has been rarely reported. We reported 4 cases with anorectal malignant melanoma treated by laparoscopic abdominoperineal resection combined with adjunctive therapy at our department from June 2005 to June 2010 with relatively good outcomes. Meanwhile, we reviewed the literature and particularly focused on current surgical management of patients with anorectal malignant melanoma.

## Case reports

### Case 1

A 56-year-old female patient had a chief complaint of changes in defecation habit combined with rectal bleeding for 3 months. No other diagnostic physical finding was detected except a mass above the dentate line about 3×2 cm in size revealed by digital rectal examination. The serum level of 5-S-cysteinyldopa (5-S-CD) was elevated at 54 nmol/L (normal range, 1.5-8.0 nmol/L). Flexible colonoscopy showed a distal rectal tumor of 4 cm from the anal verge with 50% circumferential involvement. Biopsy specimens of the tumor indicated anorectal malignant melanoma. Computed tomography (CT) scan of the abdomen and pelvis showed enlarged perirectal lymph nodes, but neither paraaortic lymphadenopathy nor distant metastases were detected.

We arranged laparoscopic abdominoperineal resection for this patient without inguinal lymph nodes dissection in view of the following reasons. The primary tumor and metastatic perirectal lymph nodes were resectable and no evidence of distant metastases was detected. Laparoscopic abdominoperineal resection for rectal cancer was performed proficiently in our department. There were also several frequent advantages of laparoscopic operation such as faster postoperative recovery and clearer operation visual field. A longer expected survival time after resection of primary tumor and metastatic lymph nodes was obtained. Laparoscopic abdominoperineal resection was performed as usual in a five port technique. A medial to lateral approach was performed with an ultrasonic scalpel in the mobilization of the sigmoid colon while safeguarding the ureters and gonadal vessels. The inferior mesenteric arteries and veins were blocked with titanium clips. The proximal colon was divided using Endo-GIA when the rectum was mobilized down to the pelvic planes. The perineal dissection was performed routinely after the anus was closed with a suture. Permanent colostomy was performed on the left abdomen after the tumor was excised from the perineum.

The result of histopathologic examinations of the resected specimen showed that spindle shaped cells resembled fibrosarcoma cells with melanin pigment (***Fig. 1A***). The tumor cells had infiltrated full-thickness of the intestinal wall without involving the internal anal sphincter. Two of eight mesorectal lymph nodes were invaded by tumor cells (***Fig. 1B***). Immunohistochemically, the tumor cells were positive for S-100 and HMB-45 (***Fig. 1C*** and ***1D***). Therefore, we confirmed the diagnosis of anorectal malignant melanoma and staged it as IIIB according to the AJCC TNM classification (AJCC Cancer Staging Manual, 6th edition, 2002). Serum 5-S-CD level decreased to 7 nmol/L after surgery. The patient received 50 mg cisplatin (DDP) for 3 days and 3 million units of interferon (IFN) for one week as adjuvant therapy after surgery in the light of metastatic lymph nodes. No severe adverse events occurred, and she was discharged 21 days after operation. She was followed up every 3 months and was still alive with no evidence of recurrence or metastases 51 months after surgery.

### Case 1-4

We retrospectively reviewed 4 patients (case 1 included) with anorectal malignant melanoma treated by laparoscopic abdominoperineal resection combined with adjunctive therapy in our department from June 2005 to June 2010. The demographic and clinicopathologic characteristics of these four patients are shown in ***Table 1***.

## Discussion

Anorectal malignant melanoma cells originate from melanocytes that are normally found in the transitional zone around the dentate line. Anorectal malignant melanoma is very rare, accounting for only 0.1% to 4.6% of all malignant tumors locating at the rectum and anus. However, the incidence of anorectal malignant melanoma has increased rapidly over the past 20 years. Therefore, attentions must be paid to anorectal malignant melanoma as this disease is uncommon but lethal.

Chief complaints of patients with anorectal malignant melanoma are rectal bleeding, anal mass, changes in bowel habits, etc[4]. Due to these nonspecific symptoms, anorectal malignant melanoma is always misdiagnosed as hemorrhoids, rectal polypus, rectal cancer or others[8]. The other reason for the high rate of misdiagnosis is that about 30% of patients with anorectal malignant melanoma have amelanotic tumors[4]. In this study, case 3 and 4 were misdiagnosed as hemorrhoids

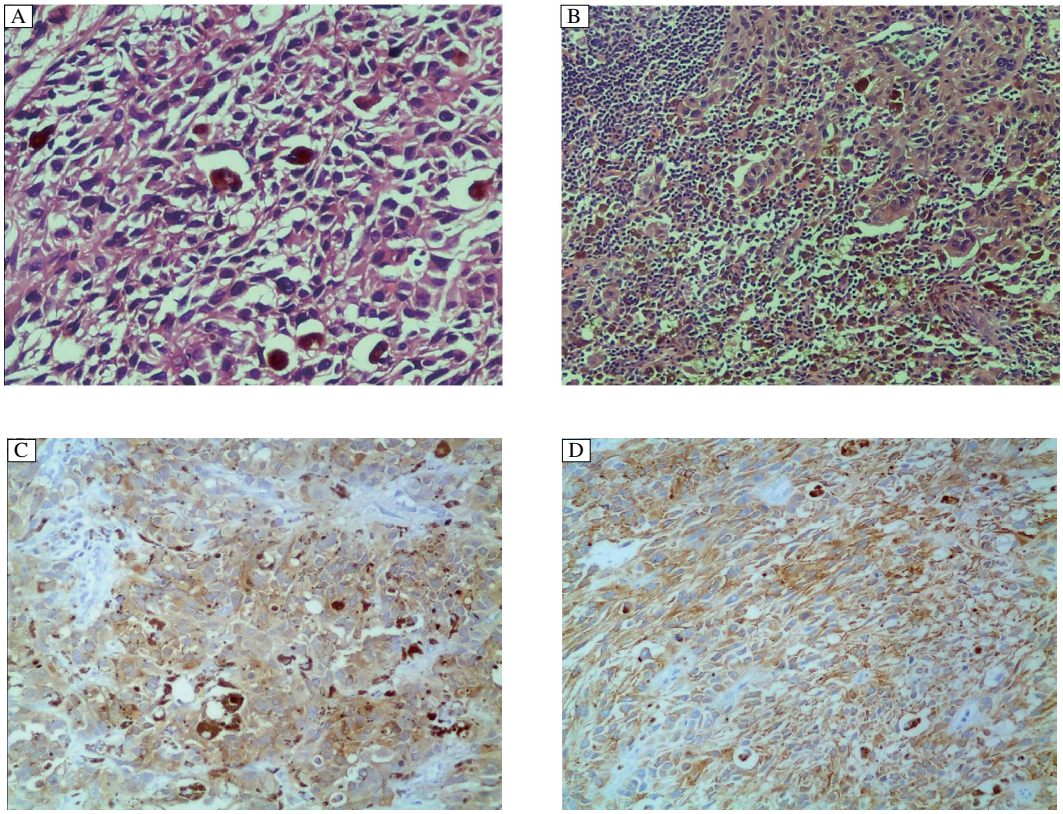


***Fig. 1*** **Histopathology of the resected specimen from a 56-year old female patient with anorectal malignant melanoma.** A: histopathology of the resected specimen of melanoma (H&E, ×200). Spindle shaped cells, resembling fibrosarcoma cells, with melanin pigment were observed. B: histopathology of a metastatic lymph node (H&E, ×100). Malignant melanoma cells are observed in the lymph node. C: immunohistochemical staining of the resected specimen using HMB-45 antibody(×200). D: immunohistochemical staining of the resected specimen using S-100antibody (×200).

and rectal cancer, respectively. The misdiagnosis of case 3 and 4 were due to their nonspecific symptoms.

Digital rectal examination is the first but often ignored step to diagnose anorectal malignant melanoma, which provides us with important information concerning size, location, fixation and ulceration of the tumor. Colonoscopy is applied for further examination with tissue biopsy. Endoluminal ultrasound, CT and magnetic resonance imaging (MRI) are useful methods in evaluating tumor thickness and lymph node metastases. Although pathological examination of the specimen is considered to be the best diagnostic method, immunohistochemical staining of the specimen plays a valuable role in confirming a suspicious mass. It was reported that S-100, HMB-45 and vimentin were detected in the majority of anorectal malignant melanoma specimens[9]. In our reported cases, digital rectal examination and colonoscopy were performed for every patient with positive findings. Tissue biopsy was ignored for case 3 due to its mimicry of hemorrhoids. We performed laparoscopic abdominal-perineal resection immediately after pathological examination of the postoperative samples and the patient had a relatively good outcomes. Immunohistochemical staining of all 4 specimens was positive for S-100 protein and HMB-45.

***Table 1*** **Clinicopathologic features of the 4 patients with anorectal malignant melanoma**

| Case | Age (years) | Sex | Size (cm) | Histologictype | TNM | Stage | Treatment | Outcomes (months) |
|---|---|---|---|---|---|---|---|---|
| 1 | 56 | F | 3×2 | Melanotic | T3N2M0 | IIIB | LAPR+ DDP+IFN | Alive(51) |
| 2 | 72 | F | 1×2 | Melanotic | T4N1M0 | IIIA | LAPR+DDP | Died(37) |
| 3 | 66 | M | 1×1 | Amelanotic | T3N2M0 | IIIB | LAPR+IFN | Died(22) |
| 4 | 78 | F | 2×4 | Amelanotic | T4N3M0 | IIIC | LAPR+ DDP+IFN | Died(8) |

TNM classification and stage for AMM were described according to the AJCC TNM classification (AJCC Cancer Staging Manual, 6th edition, 2002). AMM: Anorectal malignant melanoma, LAPR: laparoscopic abdominoperineal resection, DDP: cisplatin, IFN: interferon, F: female, M: male.

For the surgical treatment of anorectal malignant melanoma, there is a dispute in whether abdominal-perineal resection or wide local excision is the most appropriate method. Due to the rarity of anorectal malignant melanoma, relevant publications were based on retrospective studies of limited numbers. No randomized clinical trial comparing abdominal-perineal resection with wide local excision has been performed until now. Therefore, no exact evidence on which surgical procedure is better than another can be obtained. In the present study, we reviewed relevant papers and focused on surgical treatments.

The 5-year survival rate of patients treated by abdominal-perineal resection, which was reported by Brady through analysis of 85 cases, was higher than those treated by wide local excision (27% *vs.* 5%)[4]. Therefore, abdominal-perineal resection was recommended as the surgical method for patients with anorectal malignant melanoma, particularly for those with small tumors[4]. However, a series of retrospective studies and literature reviews published afterwards failed to identify a survival advantage of abdominal-perineal resection. The largest series to compare abdominal-perineal resection to wide local excision in the United States by querying the SEER database of 143 patients did not reveal a 5-year survival difference between the two methods (16.8% and 19.3% for abdominal-perineal resection and wide local excision, respectively)[6]. Similar result was reported by Yap after reviewing 17 case series of 485 patients with anorectal malignant melanoma[7]. With similar survival rate and higher life quality, wide local excision was recommended by authors as the prior surgical procedure for patients with abdominal-perineal resection reserved for selected patients only when wide local excision was not technically feasible[6-7].

To select a proper operation method for patients with anorectal malignant melanoma, different operation types according to tumor thickness were recently advocated. Local sphincter-saving resection with 1 and 2-cm safety margin was recommended for tumor thickness less than 1 mm and between 1 mm and 4 mm, respectively. If tumor thicknesswas greater than 4 mm, abdominal-perineal resection or wide local excision combined with adjuvant therapy was recommended. Irrespective of various approaches, clear resection margin (R0 resection) was emphasized by Nilsson and Ragnarsson after reviewing 251 patients with anorectal malignant melanoma at the Swedish National Cancer Registry[10]. In this case report, tumor thicknesses of these 4 cases were more than 4 mm and R0 resections were performed.

Although there was much debate over whether wide local excision is the best local therapy for patients with anorectal malignant melanoma, high incidence of local recurrence after wide local excision was reported in some studies[4]. To reduce the rate of local recurrence, wide local excision combined with radiation therapy (RT) had been carried out to treat patients with localized anorectal malignant melanoma in the University of Texas MD Anderson Cancer Center since 1990. Totally 54 patients had been treated in this manner until 2008 and the 5-year rate of local control was excellent (82%). Nevertheless, the 5-year survival rate was not significantly improved and the rate of distant metastasis was still disappointing.

The appropriate surgical management of regional lymph nodes in anorectal malignant melanoma is still under debate. There was no evidence to support prophylactic bilateral inguinal lymphadenectomy as it did not appear to improve the survival rate. The role of systemic chemotherapy and immunotherapy in anorectal malignant melanoma is also in debate. Although both chemotherapy and immunotherapy were used in several case series, the effectiveness was limited except in one case that used liposomal doxorubicin, temozolomide and cisplatin in stage IV anorectal malignant melanoma with good results.

Despite the controversy in choosing the reasonable surgical approach, the 5-year survival rate of anorectal malignant melanoma is still disappointing. The median survival time was about 20 months with the 5-year survival rate from 0 to 25% reported by Yap and Neary[7]. In a 79 anorectal malignant melanoma patients case series reported in Japan, the 5-year survival rate was 28.8% and the median survival time was 22 months.

Laparoscopic abdominal-perineal resection was reported to treat anorectal malignant melanoma by Ramalingam in 2009 for the first time. A male patient with anorectal malignant melanoma was treated by laparoscopic abdominal-perineal resection with good outcomes. In this case report, we arranged laparoscopic abdominal-perineal resection initially for case 1 and 2 on the basis of no distant metastasis. Case 3 was misdiagnosed as hemorrhoids at first, but laparoscopic abdominal-perineal resection was performed immediately when histopathologic examinations of the resected specimen confirmed it to be anorectal malignant melanoma. Laparoscopic abdominal-perineal resection with inguinal lymph nodes dissection was performed for case 4 initially for the misdiagnosis of rectal adenocarcinoma. All cases received DDP and/or IFN as adjuvant therapy for the detection of metastatic lymph nodes. In our report, the median survival was 32 months until now; it seems longer than that reported by others. However, due to the limited number, we cannot confirm the advantage of laparoscopic abdominal-perineal resection combined with chemotherapy and/

or immunotherapy in treating patients with anorectal malignant melanoma.

In conclusion, laparoscopic abdominal-perineal resection is a radical and minimally invasive operative method with a relatively low recurrence rate and high survival rate. It can be an option for patients with anorectal malignant melanoma if primary tumor and metastatic lymph nodes are resectable. However, more information should be collected to develop our knowledge in treating this rare disease.

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