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Surgical Management of Mucosal Melanoma of Anal Canal: A Rare Case Study

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ABSTRACT:

Melanoma is the cancer of melanocytes. Mucosal melanoma is a rare and aggressive form of melanoma arising from unchecked proliferation of melanocytes in the mucosal membrane of non-sun exposed area of gastro-intestinal, respiratory or urogenital tracks. Ano-rectal melanoma accounts for 0.4% to 1.6% of all melanomas and less than 1% of ano-rectal malignant tumors. In this case, a 55 years old female patient presented to Shalya Tantra OPD of provincial Ayurveda hospital, Dang with the chief complaint of irreducible mass per rectum for 2.5 years. Upon local examination, a tri-lobulated black pedunculated mass was found just distal to ano-rectal junction. With the provisional diagnosis of mucosal melanoma and normal Carcinoembryogenic Antigen (CEA) value, the mass was transfixed and ligated. The patient recovered well following operation. Proctoscopic examination of 15th post-operative day revealed healthy ano-rectal mucosa with no any evidence of disease recurrence. The mass was transfixed to firmly occlude the blood flow and secure the mass. The occluded blood supply cut off oxygen and nutrients to the mass causing pressure necrosis. The necrotic tissue eventually sloughed off leaving behind healthy healing surgical margins.

KEYWORDS: Ano-Rectal Melanoma**,** Melanocytes, Melanoma, Mucosal Melanoma.

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INTRODUCTION:

Melanoma is the malignant lesion of melanocytes. The majority of melanomas are cutaneous in origin and occasionally arise from extra-cutaneous tissue. Mucosal melanoma is a rare and aggressive form of melanoma arising from unchecked proliferation of melanocytes in the mucosal membrane of non-sun exposed area of gastro-intestinal, respiratory or urogenital tracks.

Epidemiology

Ano-rectal melanoma accounts for 0.4% to 1.6% of all melanomas and less than 1% of ano-rectal malignant tumors. [1] With age, the incidence of mucosal melanoma is heavily influenced with more than 65% of patients suffering from age of over 60 years and less than 3% for age below 30 years.[2] It is more likely to affect women than men. Ydeet al. in their oncology report mentioned the higher incidence of ano-rectal mucosal melanoma in women than men. [3]

Clinical presentation

The majority of anal melanoma lesion arises near the dentate line in the anal canal with 65% present around the transitional zone at dentate line and other 35% arising from distal rectum.[4] These are polypoidal in appearance with altered pigmentation. The patients present with the chief complaint of bleeding per rectum, palpable anal mass, pain or change in bowel habit.

Etiopathogenesis

Mucosal melanoma has very diverse mutation pattern. The mutational profile categories mucosal melanoma into different molecular groups; BRAF-mutated, RAS-mutated, NF1-Loss, and triple wild-type (absence of mutation in BRAF, RAS, NF1; but presence of KIT mutation and/or amplification).[5] In significant number of patients, lower incidence of BRAF oncogene mutation and higher incidence of c-KIT oncogene mutation has been noted.[6] Antonescu et.al. found 15% of anal mucosal melanoma with c-KIT L576p mutation.c-KIT is a key regulator of growth, differentiation, migration and proliferation of melanocytes.[7] Based on c-KIT mutation, role of c-KIT tyrosine kinase inhibitors have been examined in cases of mucosal melanoma. A retrospective study showed efficacy of imatinibs (a c-KIT inhibitor) with overall response rate of 21.9% and overall disease control rate of 60%.[8]

The pathogenetic mechanism and risk factor of mucosal melanoma still remains largely undefined, however association with HIV infection has been suggested.[9] Mucosal melanoma is not associated with UV exposition unlike cutaneous melanoma. It is found to have tendency to affect people with red hair and poor tan history.[10] The absence of solid predisposing risk factor makes this disease very difficult to diagnose or screen for. The early diagnosis of this disease is difficult because of its anatomical site, non-specific symptoms and higher rate of amelanotic lesion (20% of cases).

CASE REPORT:

A 55 years old female patient presented to Shalya Tantra OPD of provincial Ayurveda hospital, Dang with the chief

complaint of mass per rectum for 2.5 years, which was irreducible in nature. Patient gave the history of occasional bleeding per rectum following the defecation, which was fresh, bright red in color, and scanty in volume. It was associated with mild dull aching pain and difficulty in passage of stool. Patient didn't provide any history of loss of appetite or loss of weight.

On general physical examination, patient is fair in appearance with no any evidence of pallor, icterus, cyanosis, clubbing or lymphadenopathy. Upon local examination, a 3×2 cm long tri-lobulated black pedunculated mass was found just distal to ano-rectal junction. Findings of systemic examination were not significant. Provisional diagnosis of mucosal melanoma was established. Routine blood test revealed no any blood count or bio-chemical abnormalities with serology non-reactive against HIV, HCV, HBsAg and VDRL. Carcinoembryonic antigen was within normal level. Upon colonoscopy, the tri-lobulated mass was identified as anal polyp. The mass was transfixed and ligated with vicryl 2-0 in our center. The post-operative histopathological analysis revealed ano-rectal mucosa with ulceration and subepithelial proliferation of atypical melanocytic pleo-morphic cells with increased nucleo-cytoplasmic ration, irregular nuclear membrane and brown pigmentation of cytoplasm, confirming the diagnosis of mucosal melanoma.

Result:

The patient recovered well following operation and was discharged home on 8th post- operative day. The patient was closely followed up after surgical treatment without any other adjuvant therapy. Proctoscopic examination of 15th post-operative day revealed healthy ano-rectal mucosa with no any evidence of disease.



Figure 1. Clinical presentation of mass per rectum prior to surgical trans-fixation and ligation.



Figure 2. Clinical presentation of mass per rectum prior to surgical trans-fixation and ligation.



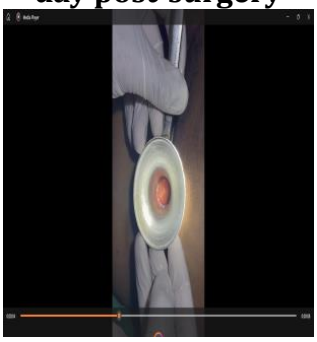
Figure 3. Surgical specimen



Figure 4. External examination on 15th day post-surgery



Figure 5. Surgical site showing healthy ano-rectal mucosa with no evidence of disease upon proctoscopic examination on 15thday status post-surgery



Video 1. Demonstrating post-op proctoscopic examination.

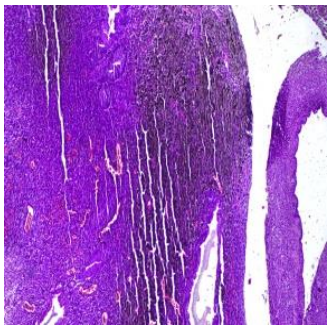


Figure 6: Histopathological Examination

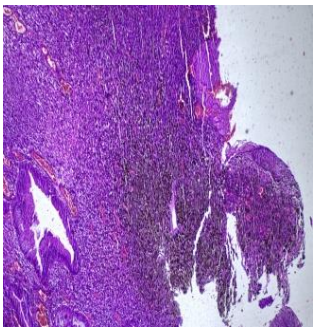


Figure 7: Histopathological Examination

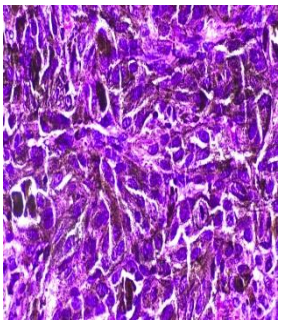
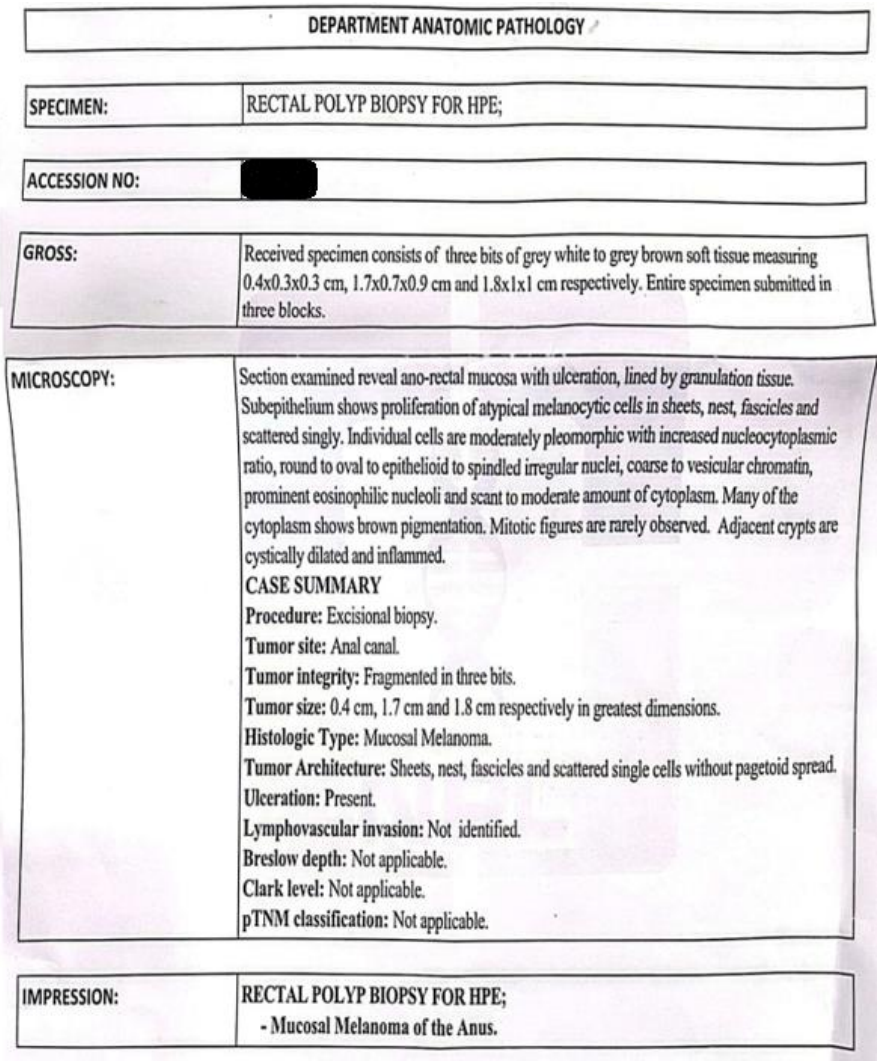


Figure 8. Histopathological Examination



Figure 9. Histopathological Examination

Figure 6,7,8,9. Section examined reveal ano-rectal mucosa with ulceration, lined by granulation tissue. Sub-epithelium shows proliferation of atypical melanocytic cells in sheets, nest, fascicles and scattered singly. Individual cells are moderately pleomorphic with increased nucleocytoplasmic ratio, round to oval to epithelioid to spindled irregular nuclei, course to vesicular chromatin, prominent eosinophilic nucleoli and scant to moderate amount of cytoplasm. Many of the cytoplasm shows brown pigmentation. Mitotic figures are rarely observed. Adjacent crypts are cystically dilated and inflamed.



DEPARTMENT ANATOMIC PATHOLOGY

SPECIMEN:	RECTAL POLYP BIOPSY FOR HPE;
ACCESSION NO:	[redacted]
GROSS:	Received specimen consists of three bits of grey white to grey brown soft tissue measuring 0.4x0.3x0.3 cm, 1.7x0.7x0.9 cm and 1.8x1x1 cm respectively. Entire specimen submitted in three blocks.
MICROSCOPY:	Section examined reveal ano-rectal mucosa with ulceration, lined by granulation tissue. Subepithelium shows proliferation of atypical melanocytic cells in sheets, nest, fascicles and scattered singly. Individual cells are moderately pleomorphic with increased nucleocytoplasmic ratio, round to oval to epithelioid to spindled irregular nuclei, coarse to vesicular chromatin, prominent eosinophilic nucleoli and scant to moderate amount of cytoplasm. Many of the cytoplasm shows brown pigmentation. Mitotic figures are rarely observed. Adjacent crypts are cystically dilated and inflammed. **CASE SUMMARY** **Procedure:** Excisional biopsy. **Tumor site:** Anal canal. **Tumor integrity:** Fragmented in three bits. **Tumor size:** 0.4 cm, 1.7 cm and 1.8 cm respectively in greatest dimensions. **Histologic Type:** Mucosal Melanoma. **Tumor Architecture:** Sheets, nest, fascicles and scattered single cells without pagetoid spread. **Ulceration:** Present. **Lymphovascular invasion:** Not identified. **Breslow depth:** Not applicable. **Clark level:** Not applicable. **pTNM classification:** Not applicable.
IMPRESSION:	**RECTAL POLYP BIOPSY FOR HPE;** **- Mucosal Melanoma of the Anus.**

Figure 10. Histopathological Report of the specimen.

DISCUSSION:

Surgical management remains the treatment of choice along with adjuvant therapy like radiation in cases of micro-metastasis to primary sites and lymph node region, although the efficacy of radiotherapy remains debatable. The mass was transfixed with vicryl 2-0 and ligated encasing the tissue and vessels to firmly occlude the blood flow and secure the mass. The occluded blood supply cut off oxygen and nutrients to the mass causing pressure necrosis. The necrotic tissue eventually sloughed off

on 5th day leaving behind healthy healing surgical margins. As of October, 2026 no evidence of recurrence or new lesions has been observed.

CONCLUSION:

Mucosal melanoma is a rare and aggressive form of melanoma arising from unchecked proliferation of melanocytes in the mucosal membrane. Surgical resection of mass is the treatment of choice along with adjuvant therapy. Because of its hidden location, rich vascularization and lymphatic network, it usually presents at more advanced stage and is associated with higher mortality rate.

Conflict of interest: The author declares that there is no conflict of interest.

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