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CASE-BASED TEACHING REVIEW

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Anorectal Malignant Melanoma Masquerading as a Neuroendocrine Tumour on Initial Histopathology: A Diagnostic Pitfall in a Pedunculated Anal Mass — Case-Based Teaching Review for Undergraduate and Postgraduate Surgical Trainees

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ABSTRACT

Background: Malignant lesions of the anorectal region that present as a pedunculated, prolapsing mass are frequently mistaken clinically for far more common benign entities such as haemorrhoids, fibroepithelial polyps, or anal papillae. Histologically, several unrelated malignancies — neuroendocrine tumour (NET), poorly differentiated carcinoma, lymphoma, gastrointestinal stromal tumour, and amelanotic malignant melanoma — can all produce a similar "organoid" or plasmacytoid pattern on routine haematoxylin and eosin (H&E) staining. Correct lineage assignment depends entirely on immunohistochemistry (IHC), not on gross or light-microscopic appearance.

Case: A 70-year-old woman presented with a one-year history of a prolapsing peri-anal mass requiring manual reduction after defecation. Examination revealed a broad-based pedunculated growth arising from the dentate line at the 6 o'clock position. After cardiac and haematological work-up, she underwent excisional biopsy under spinal anaesthesia. Initial H&E histopathology showed proliferating oval-to-round cells in an organoid pattern with necrosis, read as suggestive of a neuroendocrine tumour, and IHC was advised. A dedicated IHC panel subsequently showed the tumour to be negative for PanCK, EMA, Synaptophysin, Chromogranin, Mum1, CD20 and CD3 — excluding epithelial, neuroendocrine and lymphoid lineages — while Vimentin, S-100 (weak), SOX10, MelanA and HMB45 were positive, with a high Ki-67 index. The final diagnosis was **anorectal malignant melanoma**, not a neuroendocrine tumour. Staging ^{18}F-FDG PET-CT, performed after the patient had already received three cycles of chemotherapy on the earlier working diagnosis, showed extensive metastatic disease involving the liver, peritoneum/omentum/mesentery, mediastinal and inguinal/obturator lymph nodes, subcutaneous and intramuscular deposits, gross ascites and pleural effusion. BRAF mutation studies were advised to guide systemic therapy.

Teaching Value: This case is used to walk undergraduate and postgraduate trainees through the full diagnostic and operative reasoning for a pedunculated anorectal mass in an elderly patient, and — critically — to demonstrate why an initial H&E impression of "neuroendocrine tumour" based on organoid morphology alone must never be accepted without a broad-spectrum IHC panel. Amelanotic anorectal melanoma is a well-recognised mimic of NET and other small-round-cell/organoid lesions, and is disproportionately important to exclude because of its aggressive natural history. A linked video recording of the excisional biopsy is provided for direct visual learning.

Conclusion: A structured, stepwise approach — history, examination, fitness assessment, tissue diagnosis, and a sufficiently broad IHC panel spanning epithelial, neuroendocrine, lymphoid and melanocytic lineages — remains the safest route to correctly characterising an atypical anorectal mass. Negative neuroendocrine markers on IHC should prompt an expanded panel rather than diagnostic closure, particularly in the anorectal region, where amelanotic melanoma remains a rare but often already-metastatic mimic.

Keywords: anorectal malignant melanoma; amelanotic melanoma; neuroendocrine tumour mimic; pedunculated anal mass; excisional biopsy; immunohistochemistry; diagnostic pitfall; surgical education; case-based learning.

LEARNING OBJECTIVES

On completing this article, the learner should be able to:

1. List the differential diagnosis of a pedunculated peri-anal or anorectal mass, including malignant melanoma.
2. Describe the clinical examination technique for anorectal growths, including digital rectal examination and proctoscopic correlation.
3. Outline the diagnostic pathway from clinical examination through imaging, biopsy, histopathology, and immunohistochemistry.
4. Recognise that an “organoid” or plasmacytoid pattern on H&E is not specific to neuroendocrine tumours, and explain why a broad IHC panel — covering epithelial (PanCK, EMA), neuroendocrine (Chromogranin, Synaptophysin), lymphoid (CD20, CD3) and melanocytic (S-100, SOX10, MelanA, HMB45) lineages — is mandatory rather than a narrow, single-lineage panel.
5. Understand pre-operative fitness assessment in an elderly patient before anorectal surgery under spinal anaesthesia.
6. Describe the surgical technique of excisional biopsy for a pedunculated anorectal lesion.
7. Appreciate why anorectal malignant melanoma is frequently amelanotic, is commonly misdiagnosed on initial clinical and histological review, and is disproportionately likely to present with occult metastatic disease.
8. Interpret a staging ^{18}F-FDG PET-CT report in a patient with a newly confirmed anorectal malignancy, and understand the role of Ki-67 index and BRAF mutation testing in planning systemic therapy.

1. Introduction

Neuroendocrine tumours (NETs) of the gastrointestinal tract arise from the diffuse neuroendocrine cell system and can occur anywhere from the stomach to the anal canal. Rectal and anorectal NETs are uncommon, and when they do occur, they are frequently detected incidentally during endoscopy or, as initially suspected in this case, during evaluation of a symptomatic anal mass that was clinically presumed to be a benign lesion.

This case has been selected for teaching purposes because it demonstrates two recurring traps in anorectal surgical practice, layered one upon the other. First, a prolapsing anal mass is overwhelmingly likely to be a haemorrhoid or a fibroepithelial polyp, and it is tempting to treat it as such without sending tissue for formal histopathological examination. Second — and this is the pivotal teaching lesson of this case — even when tissue is sent and an organoid, “neuroendocrine-looking” pattern is reported on H&E, that impression is only a starting hypothesis. As this case demonstrates, the same morphology can conceal an entirely different, and far more aggressive, malignancy: amelanotic malignant melanoma. The corrected diagnosis was reached only because a full-lineage IHC panel was pursued rather than a NET-specific panel alone.

2. Case Presentation

2.1 History

A 70-year-old woman presented with a one-year history of a mass prolapsing from the anal canal, most noticeable during and after defecation. In the later months, the mass required manual reduction by the patient herself. There was no history of bleeding per rectum reported at presentation, and no significant weight loss or altered bowel habit was elicited.

2.2 Examination

Per-rectal and local examination revealed a pedunculated growth with a broad-based pedicle situated at the 6 o'clock position, arising from the region of the dentate line and encroaching onto the lower rectal wall. On digital examination, a finger could be passed circumferentially around the pedicle, confirming its mobile, pedunculated nature rather than a sessile or infiltrative lesion. No pigmentation was noted clinically on the mass — consistent, in retrospect, with the amelanotic nature of the melanoma subsequently diagnosed on IHC.

2.3 Pre-operative Work-up

Given the patient's age, a structured pre-anaesthetic work-up was undertaken before proceeding to excisional biopsy under spinal anaesthesia:

PRE-OPERATIVE INVESTIGATIONS

Investigation	Finding	Teaching Relevance
Complete blood count	Haemoglobin 9.5 g/dL (mild anaemia); other parameters within normal limits	Anaemia in an elderly patient with a chronic anorectal mass warrants consideration of chronic occult blood loss, and should be optimised before elective surgery where feasible.
ECG	Borderline changes noted (AV conduction pattern, LVH tendency); physician clearance obtained	Baseline ECG is mandatory before spinal anaesthesia in elderly patients to detect conduction or ischaemic abnormalities that may influence anaesthetic risk stratification.
2D Echocardiography	LVEF 60%, mild aortic and tricuspid regurgitation, trivial mitral regurgitation, septal bounce; no chamber dilatation or intracardiac clot	Confirms adequate ventricular function for anaesthesia; valvular findings are age-related and did not preclude surgery.

NCCT whole abdomen	No significant abnormality; no free peritoneal fluid; solid organs normal	Baseline cross-sectional imaging helps exclude synchronous intra-abdominal pathology, though contrast staging is preferred where a malignant tumour is already suspected — as was later borne out when staging PET-CT revealed extensive metastatic disease not evident on this baseline NCCT.

> **TEACHING POINT**
>
> In an elderly patient being considered for spinal anaesthesia, cardiac clearance and correction of significant anaemia are default steps — not optional extras — even for a procedure as ostensibly minor as an anorectal excisional biopsy.

3. Diagnostic Reasoning: How to Think Through a Pedunculated Anal Mass

Before any tissue diagnosis is available, a pedunculated anorectal mass should prompt a structured differential diagnosis:

DIFFERENTIAL DIAGNOSIS OF A PEDUNCULATED ANORECTAL MASS

Differential Diagnosis	Distinguishing Clinical Features
Prolapsing internal haemorrhoid	Soft, compressible, arises above the dentate line, reduces easily, classically at 3, 7, 11 o'clock positions
Fibroepithelial (skin tag / anal) polyp	Firm, skin-covered, usually smaller, slow-growing, non-necrotic
Hypertrophied anal papilla	Small, firm, arises at the dentate line, often associated with chronic fissure
Rectal adenomatous / villous polyp	Softer, friable, mucosal surface, may show villous fronds on proctoscopy
Anal / rectal carcinoma	Irregular, indurated, ulcerated, fixed to surrounding tissue, may bleed on contact
Neuroendocrine tumour	Can mimic a benign polyp grossly; firm, may show necrosis on cut section; diagnosis is histopathological, not clinical
Anorectal malignant melanoma	Frequently amelanotic (non-pigmented) and clinically indistinguishable from a benign polyp or NET; often already metastatic at presentation; confirmed only by a melanocytic IHC panel (S-100, SOX10, MelanA, HMB45)

Gastrointestinal stromal tumour (GIST)	Submucosal, firm, may ulcerate; rare in this location
Lymphoma / condyloma	Lymphoma: soft, infiltrative; condyloma: multiple, cauliflower-like, verrucous surface

Red flags favouring a neoplastic rather than a purely benign process

- A broad-based pedicle rather than a slender haemorrhoidal stalk.
- Firm or variegated consistency, or necrosis noted on the cut surface of the excised specimen.
- Occurrence in an elderly patient without the classical haemorrhoidal risk-factor history.
- A location or growth pattern atypical for a simple haemorrhoidal cushion.
- Absence of pigmentation does **not** exclude melanoma — roughly a quarter to a third of anorectal melanomas are amelanotic, and the diagnosis is frequently missed clinically for this reason.

Excisional versus incisional biopsy: when a pedunculated lesion is small enough to be completely excised with clear margins without compromising sphincter function — as in this case — excisional biopsy is preferred, since it is simultaneously diagnostic and (potentially) therapeutic. Larger, sessile, or fixed lesions suspicious for malignancy on examination are better served by an incisional biopsy first, to guide formal oncological planning before committing to a definitive resection.

4. Operative Technique

The excisional biopsy was performed under spinal anaesthesia (intrathecal bupivacaine) with the patient in the sitting position. A recording of this procedure is provided as a supplementary teaching resource.

SUPPLEMENTARY VIDEO — EXCISIONAL BIOPSY

Written informed patient consent for surgery and for educational use of this video recording has been obtained; no patient-identifying detail is disclosed in the article or in the video.

4.1 Key Operative Steps

1. Position the patient appropriately for anorectal access (sitting position was used here under spinal anaesthesia).
2. Achieve adequate anaesthesia and confirm block level before proceeding.
3. Identify the pedicle of the growth and its precise site of origin (here, the dentate line at the 6 o'clock position).
4. Secure the base of the pedicle with a ligature before division, to achieve haemostasis and prevent retraction of a bleeding vessel into the anal canal.
5. Divide the growth above the ligature, ensuring the entire lesion is submitted for histopathology (not a partial sample) whenever complete excision is feasible.
6. Inspect the excision bed for haemostasis; pack the anal canal (Soframycin + Metronidazole gel + local anaesthetic gel-soaked gauze in this case).
7. Label and send the entire specimen for histopathological examination with clear clinical notes (site, size, gross appearance, clinical impression).

> **TEACHING POINT**
>
> Ligating the pedicle before division is a simple but essential step that prevents a retracted, bleeding stump — a common source of avoidable post-operative haemorrhage in trainee hands.

5. Histopathology and Immunohistochemistry: From Provisional Impression to Final Diagnosis

5.1 Reported H&E Findings

Gross examination: a grey-brown, lobulated specimen measuring 5 × 4 × 2.5 cm, with a grey-brown variegated cut surface.

Microscopic examination: proliferating oval-to-round cells arranged in an organoid pattern, with areas of necrosis. The overlying rectal mucosa and squamous epithelium were histologically normal.

Provisional diagnosis rendered: neuroendocrine tumour. Immunohistochemistry (IHC) was advised for confirmation and grading.

5.2 Why the Organoid Pattern Suggested — But Did Not Confirm — Neuroendocrine Differentiation

Neuroendocrine tumours characteristically show cells arranged in nests, trabeculae, or an “organoid” (organ-like, regularly packed) architecture, often with a finely stippled “salt-and-pepper” chromatin pattern on light microscopy, and necrosis raises the index of suspicion for a higher-grade lesion. However, this same organoid or plasmacytoid architecture — round-to-oval cells with inconspicuous nucleoli arranged in nests — is shared by several unrelated malignancies at this site, including poorly differentiated carcinoma, lymphoma, GIST, and, as in this case, amelanotic malignant melanoma. Morphology on H&E alone can therefore only ever generate a provisional, working hypothesis in this anatomical location; it cannot assign lineage.

5.3 Immunohistochemistry: The Decisive Step

A dedicated IHC panel was performed on the paraffin block (Case No. 26MLI7756, Metropolis Histoxpert, reported 07-05-2026), broadened beyond a NET-only panel once the initial neuroendocrine markers returned negative:

IMMUNOHISTOCHEMISTRY PANEL RESULTS

Marker	Result	Lineage Excluded / Confirmed
PanCK	Negative	Excludes epithelial (carcinoma) lineage
EMA	Negative	Excludes epithelial lineage
Synaptophysin	Negative	Excludes neuroendocrine lineage
Chromogranin	Negative	Excludes neuroendocrine lineage
Mum1	Negative	Excludes plasmacytoid lymphoid lineage

CD20	Negative	Excludes B-lymphoid lineage
CD3	Negative	Excludes T-lymphoid lineage
Vimentin	Positive	Non-specific mesenchymal marker; supportive only
S-100	Weak positive	Supports melanocytic lineage
SOX10	Positive	Confirms melanocytic lineage (also myoepithelial/neural — interpreted with the melanocytic markers below)
MelanA	Positive	Confirms melanocytic lineage
HMB45	Positive	Confirms melanocytic lineage
Ki-67 proliferation index	High index	Indicates a high-grade, highly proliferative, aggressive tumour

Final diagnosis: Malignant Melanoma (anorectal primary). **Advice:** BRAF mutation studies.

Taken together, the negative epithelial, neuroendocrine and lymphoid markers, combined with the positive S-100/SOX10/MelanA/HMB45 panel, unambiguously establish a melanocytic origin. Malignant melanoma of the anorectal region accounts for roughly 1% of anorectal malignancies, and — critically for this teaching case — up to a quarter to a third of these tumours are amelanotic, lacking visible pigment both clinically and on gross specimen examination, exactly as in this patient. Amelanotic anorectal melanoma is consistently reported in the literature as a diagnostic pitfall precisely because it can mimic NET, poorly differentiated carcinoma, lymphoma, and GIST on routine H&E, and because a subset of cases even show partial loss of one or more standard melanocytic markers, making a single-marker approach unreliable. The safest practice, illustrated directly by this case, is to run a full-lineage panel — not a NET-restricted one — whenever an anorectal “organoid” or small-round-cell lesion is encountered, and to treat a negative result on the initially suspected lineage as a prompt to broaden the panel rather than as a dead end.

6. Post-operative Course, Staging, and Oncological Follow-up

6.1 Immediate Post-operative Course

The patient’s post-operative course was uneventful. She was discharged on the third post-operative day on a short course of oral antibiotics (cefuroxime), an antibiotic-antiprotozoal combination, an anti-inflammatory analgesic, haematinics, and a topical wound-healing ointment, along with dietary advice to avoid chilli and fried food for six weeks and to use hot sitz baths. She was advised to return after five days for wound review, and sooner if required.

6.2 Referral, Confirmation of Diagnosis, and Staging

Following receipt of the initial histopathology report suggestive of a neuroendocrine tumour, the patient was referred for IHC-based confirmation and formal oncological planning. She did not return to this unit for the scheduled local follow-up; her subsequent course was reconstructed from investigation reports received from the referral pathway.

IHC confirmation (07-05-2026): as detailed in Section 5.3, the IHC panel established the final diagnosis of malignant melanoma rather than neuroendocrine tumour.

Cytological confirmation of metastasis: fine-needle aspiration cytology of a swelling in the anterior chest wall (Dept. of Pathology, Cytology Section, R.N.T. Medical College, Udaipur; reported 04-05-2026) showed cellular smears with malignant cells scattered singly, high nuclear-to-cytoplasmic ratio, pleomorphic nuclei, granular chromatin, inconspicuous nucleoli, and plasmacytoid morphology with binucleation — reported as a metastatic malignant lesion, consistent with metastatic spread of the anorectal melanoma.

Staging ^{18}F-FDG PET-CT (Department of Nuclear Medicine, Ananta Institute of Medical Sciences & Research Center, Rajsamand; dated 07-05-2026): performed after the patient had already received three cycles of chemotherapy (last cycle May 2026) on the earlier working diagnosis of a rectal NET. The scan demonstrated:

- A mildly FDG-avid, ill-defined enhancing lesion in the posterior wall of the anal canal, measuring approximately 1.5 × 1.4 cm (SUV max 4.4) — the primary site.
- FDG-avid hypodense liver lesions in both lobes, the largest in the caudate lobe measuring approximately 2.5 × 1.5 cm (SUV max 5.4).
- FDG-avid peritoneal, omental, mesenteric and serosal deposits and stranding, the largest measuring approximately 3.7 × 3.5 cm (SUV max 20.3).
- FDG-avid bilateral obturator and left inguinal lymphadenopathy (left inguinal node approximately 2.0 × 1.7 cm, SUV max 4.2).
- Mildly-to-moderately FDG-avid mediastinal, bilateral lower paratracheal, subcarinal, right hilar, right segmental, right internal mammary, paracardiac and bilateral anterior diaphragmatic lymph nodes, the largest measuring approximately 2.5 × 1.0 cm (SUV max 16.2).
- FDG-avid nodular subcutaneous/intramuscular deposits in the posterior triangle of the right neck, the left anterior chest wall (approximately 1.7 × 1.7 cm, SUV max 6.7) and the posterior aspect of the left thigh.
- Gross abdominopelvic ascites and minimal right pleural effusion.
- No focal enhancing brain lesion, no abnormal head-and-neck FDG uptake, and no lytic, destructive or sclerotic bony lesions on the axial or appendicular skeleton.
- A non-FDG-avid subcentimetric nodule in the left upper lobe of indeterminate significance was noted, with follow-up suggested; non-FDG-avid fibrotic change was noted in the right lower lobe.

The reporting radiologist’s impression noted that, in view of the high metabolic activity of the lesions (SUV max up to 20.3), the possibility of a poorly differentiated tumour should be considered — findings entirely in

keeping with the high Ki-67 index reported on IHC.

> **TEACHING POINT**
>
> At the time both the PET-CT and the chest-wall FNAC were requested and reported, the referral pathway continued to reference the earlier working diagnosis of “neuroendocrine tumour of rectum.” This is a realistic illustration of the lag that can occur between a corrected tissue diagnosis at one centre and its propagation across a multi-centre referral pathway, and underlines the importance of actively communicating a revised diagnosis to every downstream investigating and treating team, rather than assuming it will travel with the patient by default.

6.3 Systemic Management

BRAF mutation studies were advised on the specimen to determine eligibility for BRAF/MEK-targeted therapy. The patient continued systemic chemotherapy under oncology care, with supportive antiemetic and adjunct medication administered as part of this treatment, as documented in pharmacy records (invoice dated 24-06-2026). It is worth noting for trainees that mucosal (including anorectal) melanomas carry a substantially lower BRAF mutation rate than cutaneous melanoma, so a negative BRAF result would not be unexpected and does not exclude other targetable pathways (e.g., KIT alterations) or eligibility for immune checkpoint inhibitor therapy, which is now standard first-line systemic treatment for metastatic melanoma generally.

At the time of writing, no further communication has been received from the patient’s attendants following the reports detailed above, and the patient’s subsequent clinical course, including the BRAF mutation result and response to systemic therapy, could not be further ascertained. Given the extent of metastatic disease at staging, this should be read as a case lost to follow-up rather than one with a pending but anticipated result. Should further information become available, it will be incorporated as a future update to this teaching record.

7. Discussion

7.1 Anorectal Malignant Melanoma: An Uncommon but Disproportionately Aggressive Diagnosis

Anorectal malignant melanoma is rare, accounting for roughly 1% of anorectal malignancies and only a small fraction of all melanomas, yet it is among the most aggressive tumours encountered in this region. Its rarity, combined with a nonspecific presentation that mimics haemorrhoids, polyps, or NET — as in this case — means diagnosis is frequently delayed. A substantial proportion of cases (variably reported as roughly a quarter to a third) are amelanotic, lacking the pigmentation that might otherwise prompt earlier clinical suspicion, and even melanocytic IHC markers can show partial or unexpected loss in individual cases, compounding the diagnostic difficulty. Because of this combination of nonspecific presentation and histological mimicry, a large proportion of patients — as in this case — already harbour regional or distant metastatic disease at the time of definitive diagnosis, which is the single most important determinant of prognosis.

7.2 The Central Teaching Lesson: Organoid Morphology Is Not Lineage-Specific

The broader teaching value of this case lies less in the rarity of the final diagnosis and more in the discipline of the diagnostic pathway that uncovered it. An organoid, nested, or plasmacytoid pattern with necrosis on H&E is compatible with neuroendocrine tumour, but it is equally compatible with poorly differentiated carcinoma, lymphoma, GIST, and amelanotic melanoma. When the first-line neuroendocrine markers (Chromogranin, Synaptophysin) returned negative in this case, that negative result was correctly treated not as a reassurance but as an instruction to broaden the panel — ultimately reaching epithelial exclusion (PanCK, EMA negative), lymphoid exclusion (CD20, CD3, Mum1 negative), and melanocytic confirmation (S-100, SOX10, MelanA, HMB45 positive). Trainees should internalise this sequence as the default response to a negative first-line IHC panel in an anorectal "organoid" lesion, rather than reporting out an equivocal or "NET, IHC-pending" result indefinitely.

7.3 Staging and Systemic Management

Once melanoma was confirmed, staging with ^{18}F-FDG PET-CT was essential and, in this case, revealed disease that had already spread well beyond the local excision site — hepatic, peritoneal, extensive nodal, subcutaneous/intramuscular, and serosal involvement, with gross ascites and pleural effusion. This pattern is consistent with the published behaviour of anorectal malignant melanoma, in which the liver and lungs/mediastinal nodes are among the most frequently involved distant sites. A high Ki-67 index and high SUV max values on PET-CT both point toward an aggressive, poorly differentiated phenotype, correlating clinically with the widespread disease found at staging. BRAF mutation testing, as advised on this specimen, remains reasonable practice, though trainees should be aware that mucosal melanomas — unlike cutaneous melanoma — have a comparatively low rate of BRAF mutation, and that KIT alteration testing and immune checkpoint inhibitor-based systemic therapy are increasingly central to management of metastatic mucosal melanoma; systemic oncological management itself lies outside the scope of this surgical teaching article and is not detailed further here.

8. Teaching Points: Take-Home Summary

- Not every prolapsing anal mass is a haemorrhoid — always correlate clinical impression with histopathology.
- A broad-based pedicle, firm consistency, or necrosis on cut section should raise suspicion beyond a simple benign polyp.
- Elderly patients require structured pre-operative cardiac and haematological assessment even before "minor" anorectal procedures under spinal anaesthesia.
- Ligating the pedicle before division is a simple step that prevents avoidable post-operative bleeding.
- An organoid or plasmacytoid growth pattern with necrosis on light microscopy is **not specific to neuroendocrine tumour** — it is shared by poorly differentiated carcinoma, lymphoma, GIST, and amelanotic malignant melanoma. A single-lineage IHC panel is not sufficient; a broad-spectrum panel

spanning epithelial, neuroendocrine, lymphoid and melanocytic markers should be requested from the outset, or promptly added when the first-line panel is negative.

- Absence of visible pigmentation does not exclude melanoma: amelanotic anorectal melanoma is a well-documented and easily missed diagnostic pitfall.
- Ki-67 index reflects proliferative activity and tumour aggressiveness across tumour types generally, not only in neuroendocrine tumours.
- Anorectal malignant melanoma carries a high rate of occult or overt metastatic disease at presentation; staging PET-CT is essential once the diagnosis is confirmed, even after apparently complete local excision.
- Complete excisional biopsy is both diagnostic and potentially therapeutic for small, mobile, pedunculated anorectal lesions — but local excision alone does not constitute oncological staging or treatment once a malignant diagnosis such as melanoma is confirmed.

9. Self-Assessment

1. What is the key limitation of relying on an “organoid” pattern on H&E to diagnose a neuroendocrine tumour in the anorectal region?
2. Which IHC findings in this case excluded neuroendocrine, epithelial, and lymphoid lineages, and which confirmed the final diagnosis?
3. Why was cardiac work-up (ECG and echocardiography) considered essential before this patient’s spinal anaesthesia?
4. What is the single most important step for controlling bleeding when excising a pedunculated anorectal mass?
5. Why is anorectal malignant melanoma often diagnosed late, and what did the staging PET-CT in this case demonstrate about its natural history?
6. What further molecular test was advised on this specimen, and what is its clinical relevance in mucosal (as opposed to cutaneous) melanoma?

SHOW / HIDE ANSWERS

10. CONSENT STATEMENT

Written informed consent was obtained from the patient for publication of this case report and any accompanying images and investigation reports, as well as for use of the linked

operative video for educational publication. No patient-identifying detail is disclosed in this article or in the linked video.

11. CONFLICT OF INTEREST

The author declares no conflict of interest.

12. FUNDING

This teaching case report received no external funding.

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PEER REVIEW

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Review Model	Single-blind (author identity withheld from reviewer)
Reviewer	Dr. Sadhana Kothari, MBBS, MD (Pathology & Bacteriology), DCP — Associate Professor, Department of Pathology, GCS Medical College,

	Ahmedabad, Gujarat, India
Reviewer's Field	Pathology — selected specifically to confirm the immunohistochemistry panel and histopathological reasoning underlying the diagnostic revision from neuroendocrine tumour to malignant melanoma
Manuscript Sent	23-Jul-2026 (blinded peer-review copy)
Review Returned	31-Jul-2026, via correspondence — unconditional clearance, no revisions requested
Recognition	Certificate of Appreciation issued to the reviewer, 01-Aug-2026

> *"The article is good and can be published… This article is consistent with clinical findings and IHC diagnosis. Can be published." — Dr. Sadhana Kothari, peer reviewer*

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