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Granular Cell Tumor of the Anal Canal: Case Report and Literature Review

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Abstract

Granular cell tumors (GCTs) are rare benign neoplasms that can occur anywhere in the body but are most commonly found in the head and neck region. These tumors are often asymptomatic and are incidentally discovered during routine rectal examination. In some cases, symptoms may include bleeding, pain, and a palpable mass. Imaging studies such as colonoscopy, ultrasound, magnetic resonance imaging (MRI), or computed tomography can be used to characterize and measure the tumor. Treatment typically involves local resection, with or without adjuvant radiotherapy, depending on the size, location, and pathological characteristics of the tumor. The prognosis for GCTs of the anal canal is generally good, with few cases of recurrence or metastasis reported, but long-term follow-up is recommended due to the potential for late recurrence or malignant transformation. The present study reports a 39-year-old female patient who presented with anal itching associated with protrusion of a perianal mass and who underwent treatment between November 2022 and December 2023. The MRI scan revealed a nodular image in its caudal aspect with involvement of the internal sphincter between 12 and 5 o'clock, which was successfully resected. Histopathology was compatible with GCT, and the patient had a satisfactory recovery and was discharged. In conclusion, GCTs of the anal canal are rare and extremely unusual tumors that can be difficult to diagnose and manage, requiring a multidisciplinary approach for optimal management.

Keywords
- granular cell tumor
- anal canal
- neoplasm
- diagnosis
- prognosis

Introduction

Granular cell tumor (GCT) is a rare neoplasm that arises from Schwann cells. Although primarily a benign tumor, a small percentage of cases are malignant. This tumor can occur anywhere in the body and is more common in women and in the age group of 10 to 50 years.[1]

The gastrointestinal tract is one of the sites where GCT can be found, with the esophagus being the most common location and the rectum the rarest. It is asymptomatic in most cases and is diagnosed incidentally during routine endoscopic procedures.[2]

This tumor should be considered in the diagnosis of submucosal lesions in the gastrointestinal tract due to its low frequency and low malignancy.[3]

In this article, we present a rare case of granular cell tumor in the anal canal in a 39-year-old female patient, diagnosed during an anorectal examination. Additionally, we discuss

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the literature related to the diagnosis and management of GCT in the gastrointestinal tract.

Results

A 39-year-old woman with a history of gastroesophageal reflux and treated anal condylomas presented with a complaint of anal itching associated with the protrusion of a perianal mass, without bleeding.

On physical examination, perianal inspection revealed an 8 mm nodule between 4 and 5 o'clock, which was solid and tender upon rectal palpation. It had continuity with the hemorrhoidal disease and measured 2 cm within the anal canal. The nodule was solid in consistency and elicited pain upon compression.

Given these findings, a magnetic resonance imaging (MRI) of the rectum was requested to characterize the lesion, showing a possible left intersphincteric fistulous tract with a chronic appearance but no visible fistulous openings. It was associated with a nodular image in its caudal aspect, involving the internal sphincter (►**Fig. 1a**).

Based on the physical examination and imaging findings, a surgical intervention was planned. Intraoperatively, the lesion did not correspond to an anorectal fistula but rather to a perineal tumor consistent with the nodule, approximately 3 cm in diameter. The tumor invasively involved the internal sphincter between 12 and 5 o'clock. The external sphincter was adhered but not infiltrated, so it was dissected during surgery to facilitate tumor resection (►**Fig. 2a**).

The patient progressed well in general condition, and a decision was made to discharge her after 24 hours without incidents.

Macroscopically, an irregular, grayish-brown, firm fragment measuring $4 \times 2.3 \times 1.5$ cm was observed. On sectioning, it appeared irregular, grayish-yellow, solid, and nonencapsulated (►**Fig. 2b**). Histopathological findings were consistent with a GCT, showing proliferation of polygonal cells within a fibrous and smooth muscular tissue, with multifocal contact with the surgical margin. The lesion consisted of cells with broad, finely granular, eosinophilic cytoplasm, a small round to oval nuclei, homogeneous appearance, clear cytoplasmic membranes, and a low mitotic index (0–1 per high-power field), with mild lymphoplasmacytic inflammatory reaction (►**Fig. 2c** and **2d**).

An immunohistochemical study, requested upon receiving the biopsy, showed S-100, inhibin, and K_i-67 positivity in approximately 1 to 2% of the tumor cells in areas of more active growth.

At 2-months after surgery, the patient had an uncomplicated postoperative wound, with no signs of infection or local complications, except for mild gas leakage through the anus, which led to the initiation of pelvic floor physiotherapy. The 8-month follow-up showed complete wound healing with no signs of complications and normal sphincter control.

Discussion

Our study reports a unique clinical case involving a GCT located in the anal canal, an exceedingly rare occurrence in this anatomical region. These tumors are typically benign neoplasms, predominantly found in the head and neck region, encompassing areas such as the oral cavity, skin, and soft tissues. Infrequently, they manifest within the gastrointestinal tract, constituting a mere 5 to 19% of all GCT cases. The esophagus stands as the most frequent site of occurrence, accounting for 19% of cases, followed by the duodenum, anus, and stomach. The colon and rectum serve as uncommon locations, with an estimated presence in merely up to 8.5% of instances.[1–4]

The histopathological examination of GCTs reveals nonencapsulated clusters of spindle-shaped cells characterized by dense eosinophilic granular cytoplasm, from which their nomenclature originates. Research has unveiled these cytoplasmic granules to be lysosomes, akin to those found in Schwann cells that have engulfed myelin. Analogous to most neoplasms arising from neural sheaths, these tumors

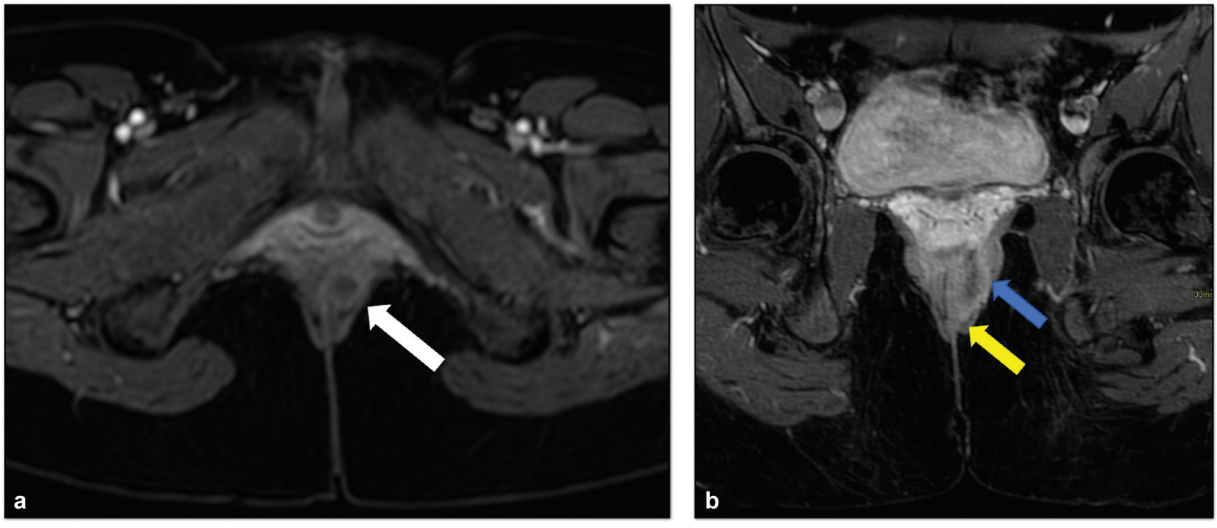

Fig. 1

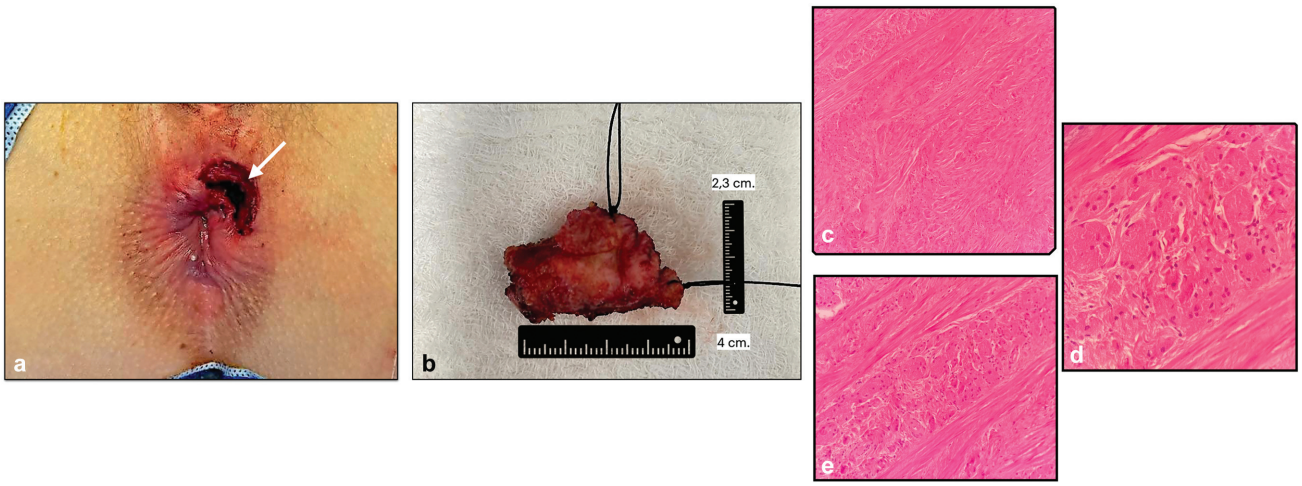

Fig. 2

consistently and ubiquitously express markers such as S-100 antigen and neuron-specific enolase (NSE). Malignant transformation of GCTs is an exceedingly rare event, accounting for merely 1 to 2% of cases, with the literature documenting around 50 such instances. Among these, only three cases have been documented in the anal-perianal region. Notably, Bouraoui et al. and Mnasri and Bouchoucha were pioneers in reporting cases of malignant GCTs in this anatomical region. To date, there is a scarcity of published research on these malignant tumors occurring in the anal region, aside from these two reports.[3,5–9]

The GCTs exhibit a predilection for the female gender, particularly affecting young and middle-aged adults within the age bracket of 30 to 40 years. Notably, between 10 and 25% of patients present with lesions manifesting at multiple sites, with the potential for synchronous or metachronous emergence over several years.[10,11]

Typically, this tumor is characterized by submucosal involvement while preserving the integrity of the overlying mucosa. Penetration below the level of the muscularis propria is a rarely encountered phenomenon. In fact, Cha et al. reported in 2009 that these tumors generally measure less than 2 cm in size and do not infiltrate the muscularis propria.[12]

Fanburg Smith et al. proposed a set of histopathological criteria for identifying malignant GCTs, which encompass the presence of necrosis, spindle-shaped cells, vesicular nuclei with prominent nucleoli, heightened mitotic activity (>2 mitoses/10 high-power fields at $\times 200$ magnification), a substantial nuclear-cytoplasmic ratio, and cellular pleomorphism. Malignancy was defined by three or more of these criteria being fulfilled.[13,14]

The diagnosis of a malignant granular cell tumor necessitates additional investigations, including chest radiography, bone scans, liver ultrasonography, thoracic, abdominal, and pelvic computed tomography, among others.[13]

Although standardized guidelines for managing this condition are currently lacking, retrospective case analyses offer insights into management strategies. Lesions measuring less than 2 cm in diameter and located away from the muscularis propria are generally considered benign and amenable to removal via endoscopic mucosal resection (EMR). Conversely, Znati et al. proposed a conservative approach for patients with colonic GCTs, advocating for polypectomy or EMR in cases involving tumors smaller than 4 cm and segmental resection for larger lesions.[13,15]

Endoscopic mucosal resection or polypectomy is frequently sufficient for treating these tumors. Nonetheless, due to their rarity, management and prognostication remain nonstandardized.[13]

Mobarki et al. published a comprehensive series comprising 42 cases spanning 21 years, ultimately concluding that GCTs continue to pose a diagnostic challenge in clinical pathology, primarily owing to the lack of precise data on their detailed morphological and clinical features. Most observations are derived from small case series or isolated cases, further emphasizing the rarity of this entity.[16]

Given their atypical presentation, clinical findings associated with GCTs in the anal canal are scarcely reported.[2,9]

In summary, our article outlines a clinical case featuring a 39-year-old woman diagnosed with a granular cell tumor situated in the anal canal. Although GCTs are rare neoplasms that may arise anywhere in the body, they predominantly manifest as benign tumors. In cases localized within the perianal region, management strategies are contingent on tumor size and location. Endoscopic mucosal resection is often a feasible approach for benign cases. However, the rarity of these tumors precludes the establishment of standardized management protocols.

Conclusions

Granular cell tumors represent a rare entity, requiring precise diagnosis and individualized multidisciplinary management tailored to each patient's unique clinical presentation and characteristics.

Authors' Contributions

J.A.P.: methodology, software, formal analysis, research, data curation, writing – review and editing, visualization, project management. D.G.P.: data curation, visualization.

M.M.M.: conceptualization, validation, supervision, research, resources, writing – review and editing. G.C.V.: supervision, research, resources, writing – review and editing.

Conflict of Interests

The authors have no conflict of interests to declare.

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