

# A case of primitive non-neural granular cell tumor presenting as a single painless bleeding nodule

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**ABSTRACT** Primitive non-neural granular cell tumor is a rare tumor of uncertain lineage that clinically presents as a solitary painless nodule most typically on the extremity or trunk of an adult. We report the case of a 20-year-old man with a small reddish papule on the abdomen, measuring about 2 x 3 mm, surrounded by a faint erythematous halo. Dermoscopy examination shows diffuse red color and weak whitish striae. However, only histological and immunohistochemical evaluation allowed us to perform the correct diagnosis.

## Introduction

Primitive non-neural granular-cell tumor (PNGCT) is a rare tumor of uncertain lineage. It was first described by Le Boit et al. [1] as "primitive polypoid granular cell tumor" after analysis of four cases. Since then various other names have been proposed. Lazar et al. called it "primitive non-neural granular cell tumor" [2] and Chaudhry et al. coined the term "dermal non-neural granular cell tumor" [3]. Unlike conventional granular cell tumor, PNGCT is not of neural or Schwannian lineage, and the precise line of differentiation is still unclear [2,3]. Herein we describe a case of this rare and intriguing entity in which the clinical and dermoscopic pattern guided the management for excision although only histological and immunohistochemical evaluation allowed to make the correct diagnosis.

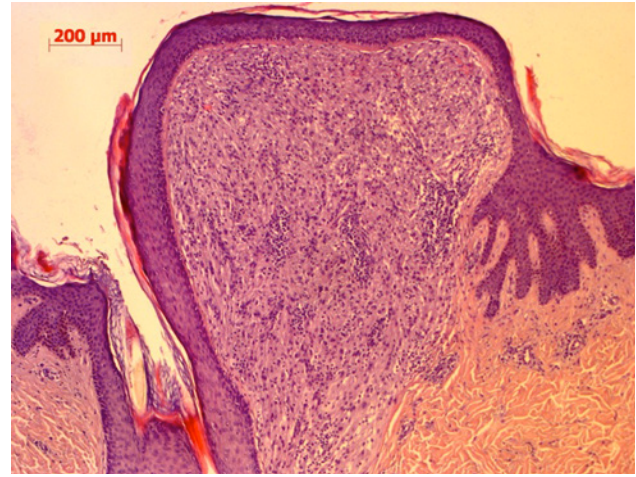
## Case report

A 20-year-old man presented with a small reddish papule on the abdomen, measuring about 2 x 3 mm, surrounded by a faint erythematous halo. The asymptomatic lesion had appeared 4-5 months earlier and had gradually grown in size (Figure 1A). It had been bleeding spontaneously for the last 2 weeks. Dermoscopic examination revealed diffuse red color, subtle linear vessels and weak whitish striae (Figure 1B). Clinical examination did not reveal any other nodules or skin lesions. The patient denied any recent weight loss, fatigue or abdominal pain. Because of the unspecific clinical and dermoscopic presentation, the lesion was excised for histological and immunohistochemical examination.

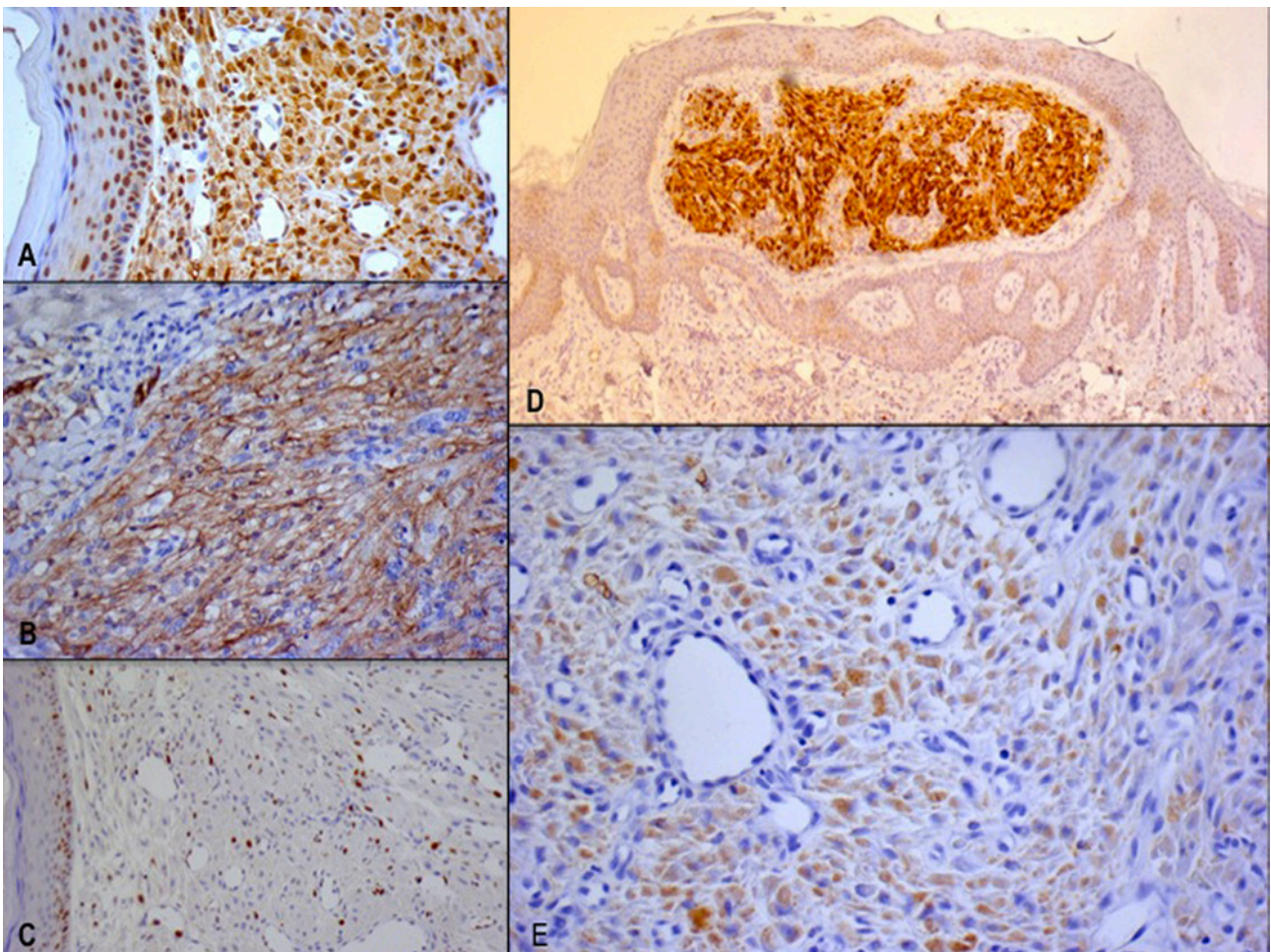
Histological examination revealed a growth consisting of oval and spindle cells with granular cytoplasm (Figure 2).



**Figure 1.** (A) Small red nodule on the abdomen; (B) Diffuse structureless red color, fine linear vessels and whitish striae at dermoscopy examination. [Copyright: ©2014 Feci et al.]



**Figure 2.** Histological examination showing prominent dermal nodule consisting of oval and spindle cells (original magnification: x50 in H&E). [Copyright: ©2014 Feci et al.]



**Figure 3.** Immunohistochemistry showing positivity for: (A) F XIIIa (original magnification: x200); (B) D2-40 (original magnification: x200); (C) MIB1 (original magnification: x100); (D) CD10 (original magnification: x50); (E) CD68 (original magnification: x200). [Copyright: ©2014 Feci et al.]

Thickness was about 15 mm. One mitotic figure was observed per mm<sup>2</sup> of field; none of the figures were atypical. There was no evidence of junctional component or melanin pigmentation.

A panel of immunohistochemical stains was performed. The tumor cells were positive for CD10, CD68, D2-40

and Factor XIIIa and negative for CD31, CD34, DESMIN, HHF35, S-100, Melan A, HMB45, MITE, Synaptophysin and CD57 (Figure 3). These features confirmed the diagnosis of primitive non-neural granular-cell tumor (PNGCT).

A computer tomographic total body scan was performed to rule out systemic involvement. The patient refused sentinel

lymph node biopsy. Twelve months after diagnosis, there was no evidence of local recurrence or systemic disease.

## Conclusions

PNGCTs have been reported in a wide age range (5–83 years), with slight female predominance [3,4]. Clinically, it presents as a solitary painless nodule, typically on an extremity or the trunk of adults [2]. The reported size range is 0.2–2.8 cm (median 0.5–0.8 cm). Configuration is on the whole papulonodular or polypoid and may be ulcerated [2,3]. This makes differential diagnosis with other malignant and benign skin growths particularly difficult. As shown by our single case, dermoscopy does not allow for a correct diagnosis as it reveals unspecific pattern that have been reported in a range of tumors including pyogenic granuloma, amelanotic melanoma, non-pigmented melanoma metastases or other rare adnexal tumors [5-9]. Further reports are needed to improve the knowledge about the clinical and dermoscopic variability of this rare tumor. Currently a provisional clinical-dermoscopic diagnosis must be sustained by histological examination and immunohistochemistry.

Microscopically, these lesions do not tend to be encapsulated and are relatively circumscribed dermal nodules without any associated grenz zone.

Pseudocarcinomatous hyperplasia, which is commonly associated with conventional granular-cell tumors, is generally absent, but epithelial hyperplasia with collarette formation is common [2]. Cytologically, the tumors are composed of spindle, oval and polygonal cells with abundant granular eosinophilic cytoplasm. Some cases may be cytologically atypical with hyperchromatic nuclei and nucleoli [2]. The mitotic index averages 1–3 per mm<sup>2</sup> with occasional atypical forms. Cytological atypia and increased mitotic index do not seem to imply a more aggressive clinical course [4].

PNGCT is a rare tumor and awareness of it is important to avoid misdiagnosis with more sinister entities, leading to over-treatment and unnecessary patient anxiety. In fact, granular changes due to lysosome accumulation can be observed in a variety of neoplasms, including conventional granular-cell tumor, melanocytic neoplasms, smooth muscle neoplasms, dermatofibromas, epithelioid cell histiocytomas, dermatofibrosarcoma protuberans, fibrous papules, basal cell carcinomas, atypical fibroxanthomas, angiosarcomas, malignant fibrohistiocytomas, perineuromas and metastatic carcinomas [10,11]. This granular cell change usually involves only part of the lesion, allowing differentiation by conventional morphological and immunohistochemical criteria [3]. Immunohistochemistry is fundamental for differential diagnosis with conventional granular cell tumors (S-100+), epithelioid cell histiocytoma (CD68-) and paraganglio-

ma-like dermal melanocytic tumor (S-100+, Melanin A+ and HMB45+).

Although local recurrence has been reported in rare cases and secondary lymph node localizations in 2/30 cases, these tumors are thought to pursue a benign clinical course, and complete excision is currently the recommended treatment. In our case, after the complete excision of the lesion, a computer tomographic total body scan was performed to rule out systemic involvement. The patient refused sentinel lymph node biopsy. Twelve months after diagnosis, there was no evidence of local recurrence or systemic disease.

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