

RESIDENT ROUNDS: PART III

Case Report: A Non-Syndromic Case of Multiple Unilateral Nodular and Pigmented Basal Cell Carcinomas

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ABSTRACT

Although basal cell carcinomas (BCC) are relatively common, particularly in older individuals, the development of multiple BCCs at a young age can indicate an associated genetic disorder. Several cases of unilateral or segmental BCCs have been described in the literature. Some cases have demonstrated concomitant syndromic findings while others had unilateral BCCs as the only finding. Herein we present a non-syndromic case of multiple unilateral nodular and pigmented BCCs in a 61-year-old Hispanic man.

CASE REPORT

A 61-year-old Cuban man presented to our dermatology clinic with multiple pigmented lesions localized to the right side of his face and body. The patient reported a history of numerous unilateral pigmented basal cell carcinomas (BCC) that had started at age 28. Previous treatments in Cuba included biannual surgical excisions, and destruction with cryotherapy or electrosurgery. He denied exposure to extensive sunlight, ionizing radiation, or any potentially carcinogenic chemicals. Medical history was otherwise unremarkable and he had no family history of skin cancers. A full review of systems was negative.

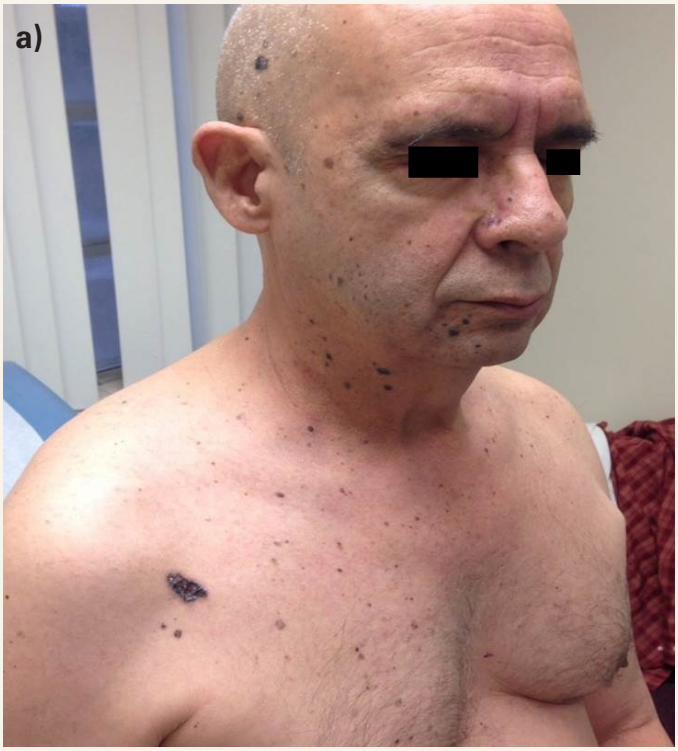
Physical examination showed numerous dark brown to black pearly papules and plaques, some ulcerated, limited to the right side of the scalp, face, chest, and inguinal fold (Figure 1a and 1b). Frontal bossing, macrocephaly, palmar or plantar pits, oral lesions, palpable bifid ribs, and lymphadenopathy were notably absent. Histopathological examination of several lesions showed pigmented and nodular BCCs (Figure 2). The patient deferred surgical intervention, including Mohs micrographic surgery for the larger and most functionally or cosmetically concerning lesions. Several lesions were subsequently treated off-label with imiquimod 5% cream 5 times per week for 6 weeks with good clinical results.

DISCUSSION

Although BCCs are the most common cutaneous malignancies, particularly among older individuals, the development of multiple early-onset BCCs is suggestive of an associated genetic disorder. The most common syndrome associated with early-onset BCCs is the nevoid basal cell carcinoma syndrome (NBCCS), or Gorlin syndrome. Caused by a mutation in the patched 1 (PTCH1) gene, which encodes for the transmembrane receptor in the Hedgehog signaling pathway, NBCCS exhibits an autosomal dominant inheritance patter.[1] In addition to multiple early-onset BCCs, other associated neoplasms include medulloblastomas, meningiomas, ovarian fibromas, and cardiac fibromas.[1] Common clinical features include calcification of the falx cerebri (92%), marcrocephaly (80%), palmoplantar pitting (80%), odontogeneic keratocysts (75%), frontal bossing (66%), bifid ribs (45%), and other skeletal abnormalities.[1,2]

A few cases of unilateral NBCCS have been reported in the literature,[3-5] and have been attributed to type 1 mosaicism. The case of a girl with known family history of NBCCS and unilateral BCCs present since birth was more recently described, and type 2 mosaicism was demonstrated via molecular analysis of PTCH1.[6] All of these cases expressed a constellation of findings meeting diagnostic criteria for NBCCS, and truly represent mosaic versions of the syndrome. However, several other cases of unilateral BCCs have been reported with the absence of any other syndromic findings.[7-11] While genetic testing for PTCH1 mutations or imaging studies were not performed in our patient, none of the common clinical features of NBCCS was present on examination and diagnostic criteria for the syndrome were not met. These cases of non-syndromic unilateral BCCs are likely due to postzygotic somatic mutations in genes encoding for key regulators of the Hedgehog signaling pathway including PTCH1 or 2, and smoothened (SMO). Further investigation of these unique non-syndromic cases may help explain why other embryologic abnormalities are lacking, and can provide further insight into the tumorigenesis of BCCs.

FIGURE 1. a) Numerous dark brown to black pearly papules and plaques limited to the patient's right side. **b)** Closer examination of the lesion on the right shoulder shows an ulcerated black plaque with a pearly raised border.



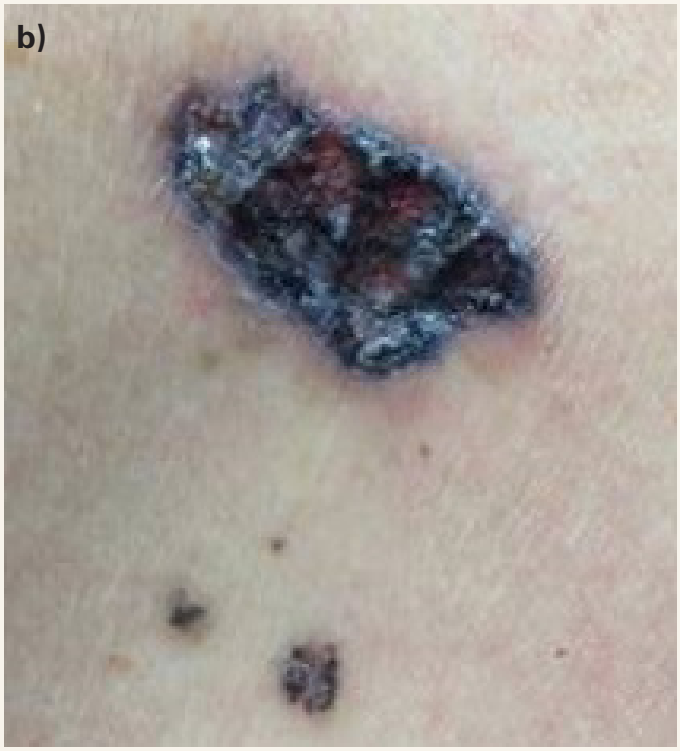
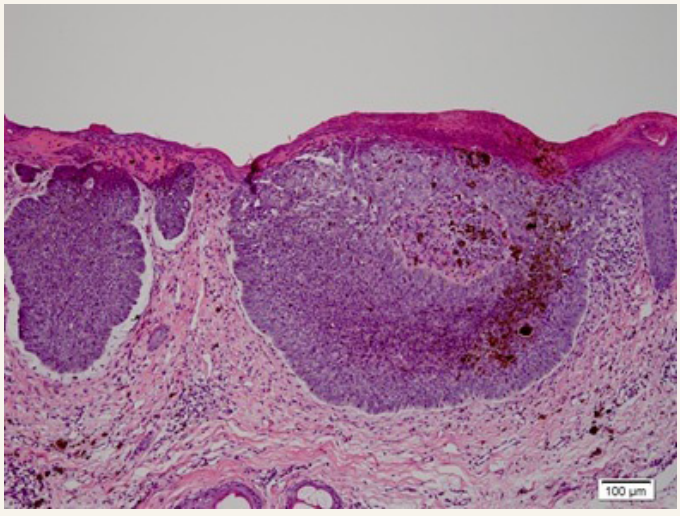


FIGURE 2. Shave biopsy demonstrating pigmented nodular basaloid aggregates extending into the dermis.



DISCLOSURES

The authors have no relevant conflicts of interest to disclose.

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