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Focal Hypertrichosis in an Infant as the Presenting Sign of Nevoid Basal Cell Carcinoma Syndrome

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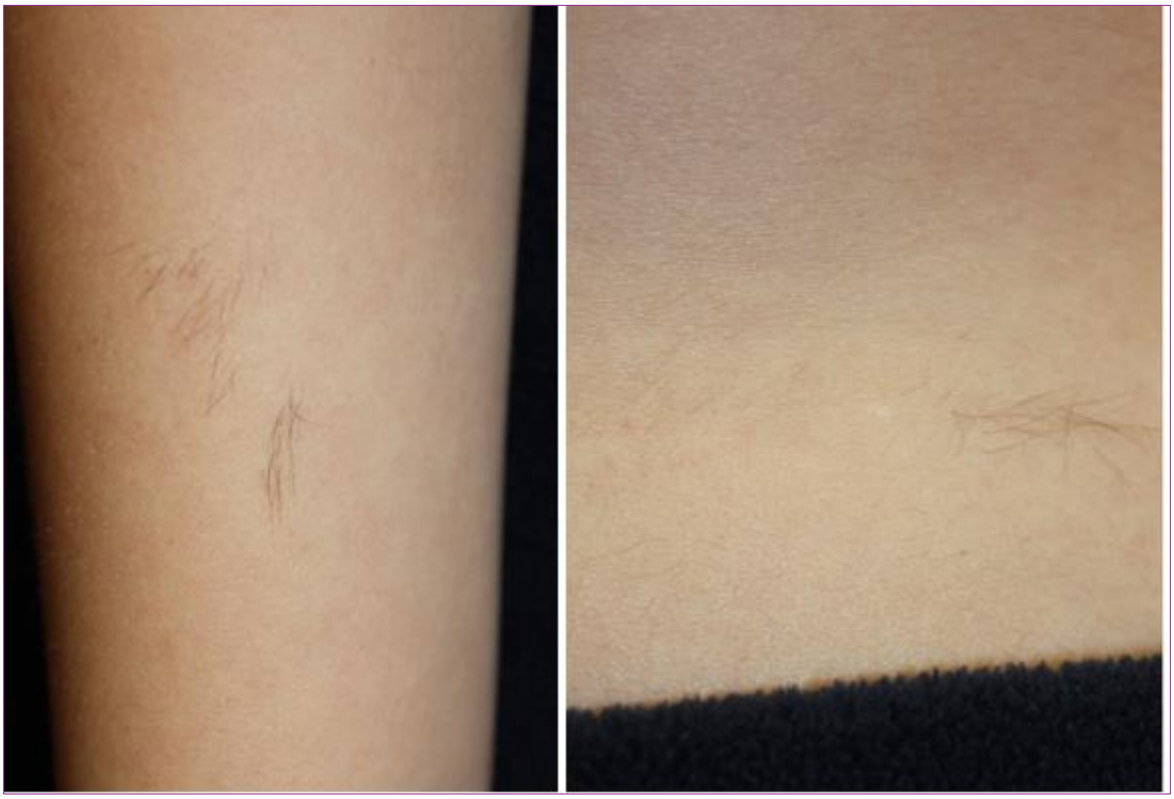

INTRODUCTION

Nevoid basal cell carcinoma syndrome (NBCCS), or Gorlin Syndrome, is a neurocutaneous disorder caused by mutations in the *PTCH1* or, less commonly, SUFU genes. Mutations in these genes lead to malfunction of the sonic hedgehog pathway, causing unregulated cell proliferation and differentiation. The sonic hedgehog signaling pathway plays a crucial role in the development of many systems including the axial skeleton, limbs, gut endoderm, and the hair follicle. As a result of this unregulated cell proliferation, NBCCS classically presents with dermatologic manifestations including basal cell carcinomas (BCC), palmar and plantar pits, and milia. Other common manifestations

include odontogenic jaw cysts, calcification of the falx cerebri, and skeletal abnormalities.[1,2] As the sonic hedgehog pathway affects hair follicle growth and development, *PTCH1* mutations could lead to unregulated hair follicle proliferation. A case series by Notay et al. highlights the presence of patches of hair as an early sign of NBCCS.[3] We present the case of a patient whose discrete tufts of hair led to the diagnosis of NBCCS.

CASE REPORT

A nine-month-old female presented for evaluation of multiple tufts of hair which had been present since four months of age. She had no other significant medical history and was born full-term without complications. At her initial visit she did not have macrocephaly. Physical exam was notable for multiple focal patches of dark terminal hairs with normal underlying skin involving the right forearm, left wrist, lateral forehead, and left side of the mons pubis. She was diagnosed with localized hypertrichosis and no further workup was pursued.

Two years later, the patient presented with macrocephaly and developmental delay. Dermatologic exam at this time revealed two new patches of hair growth in addition to the patches noted previously on exam. Subsequent genetic testing found a heterozygous pathogenic mutation in the *PTCH1* gene, c.202-1 G>A, confirming the diagnosis.

Over the next ten years, she was followed by an outside dermatologist where she was treated for hundreds of basal cell carcinomas with multiple modalities including imiquimod cream, electrodessication and curettage, and CO2 laser under general anesthesia. She returned to our clinic ten years after her initial diagnosis, and her isolated patches of hypertrichosis remained unchanged (**Figure 1,2**).

DISCUSSION

Hypertrichosis can be either congenital or acquired, and within these categories you have both localized and generalized forms. Localized hypertrichosis carries a small differential diagnosis such as nevoid hypertrichosis, Becker's nevi, or other localized symmetric hypertrichosis including the faun-tail deformity.[5] This case demonstrates that NBCCS should be considered within the differential diagnosis of localized hypertrichosis, as this patient is the sixth case to demonstrate this finding as an early sign of NBCCS.[3,4] Further, it may be useful to include scattered hairy patches of skin as one of the cutaneous findings in NBCCS along with palmar/plantar pits, basal cell carcinomas, and milia, as early intervention is crucial to preventative care including avoidance of irradiation, sun protective precautions, and for appropriate screening for other sequelae of NBCCS.

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