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Ectopic Acanthosis Nigricans Occurring in a Child After Syndactyly Repair

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Skin grafts from the groin area were used to repair syndactyly of the fourth and fifth fingers in an 8-month-old infant with oculodentodigital dysplasia (ODD). At 12 years of age, he developed hyperpigmented velvety plaques at the repair sites. This patient is the first reported case of acanthosis nigricans (AN) occurring in a graft site after syndactyly repair. We propose the term ectopic acanthosis nigricans *to describe the phenomenon of AN occurring in transplanted skin away from the original donor site.*

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Case Report

A 12-year-old boy was referred to the pediatric and adolescent dermatology clinic for consultation. The patient was born after a full-term pregnancy, with no complications during labor or delivery. Shortly after birth, he was diagnosed with oculodentodigital dysplasia (ODD) with associated bilateral syndactyly of the fourth and fifth fingers. At 8 months of age, the bilateral syndactyly was repaired using skin grafts from the groin area. He had a family history of a maternal grandmother with an unknown type of skin cancer and a maternal uncle with a history of melanoma. His mother had a history of hypertension and type 2 diabetes mellitus. The patient's past medical history included exogenous obesity, nonalcoholic steatohepatitis, dyslipidemia, and insulin resistance for which he was being monitored by an endocrinologist. He was taking the medications monoleukast sodium tablets and mometasone furoate monohydrate nasal spray.

On physical examination, the patient was obese and was noted to have dysmorphic facial features, which included short palpebral fissures, bilateral epicanthal folds, a thin pinched nose with hypoplastic ala nasi, and low-set ears. He also had amblyopia and hypoplastic teeth. Results of a skin examination revealed hyperpigmented velvety plaques on the posterior neck, bilateral axillae, and bilateral hands between the fourth and fifth fingers. Scarring also was present between the fourth and fifth fingers.

Comment

ODD is a rare autosomal dominant disorder characterized by craniofacial defects, ophthalmologic abnormalities, dental and hair anomalies, hand and foot malformations, and neurologic manifestations.[1] First described by Lohmann[2] in 1920, it has since been described in over 240 individuals.[3] Principal features include a thin nose with hypoplastic ala nasi and anteverted nostrils; microphthalmos, microcornea, iris abnormalities, and bilateral epicanthal folds; microdontia and hypoplasia of the tooth enamel; dry lusterless hair; syndactyly of the fourth and fifth digits; and camptodactyly of the fifth finger.[3-5] The most common neurologic features are spastic paraparesis and bladder disturbance.[1,6] ODD is caused by mutations in the gap junction protein alpha 1 gene, *GJA1*, encoding connexin 43 and is localized to chromosome arm 6q21-23.2.[7]

Our patient demonstrated hyperpigmented velvety plaques reminiscent of acanthosis nigricans (AN) on the lateral and medial aspects of the fourth and fifth fingers, respectively (Figure). Intriguingly, these sites were affected by syndactyly and were repaired using skin grafts from the groin

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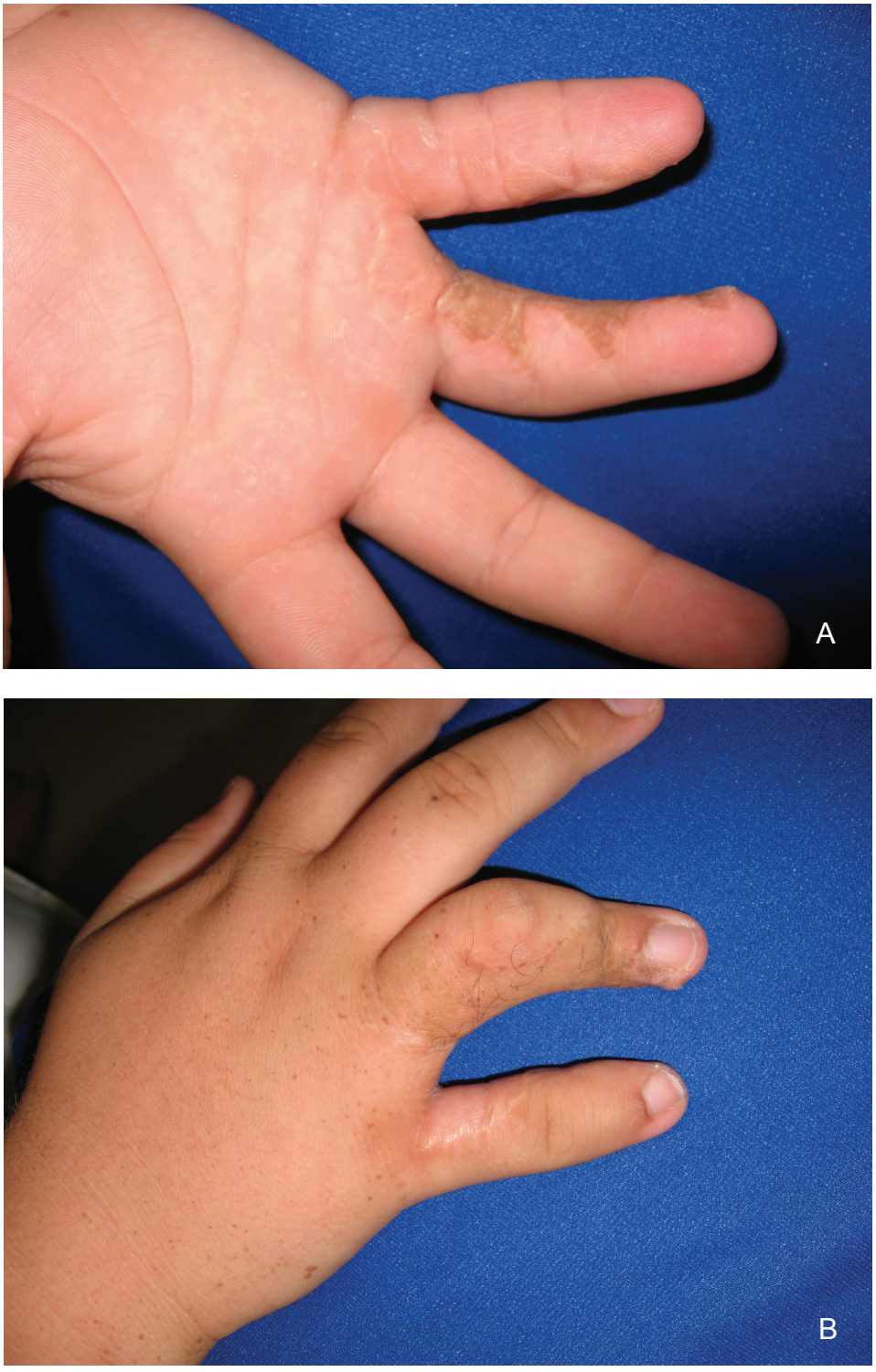

Hyperpigmented velvety plaques on the lateral and medial aspects of the fourth and fifth fingers, respectively, of the right hand at the site of prior syndactyly repair (palmar view, A; dorsal view, B).

area when he was an infant. AN typically involves the posterior neck, axillae, and other flexural areas of the body.[8] Other areas that can be involved include the groin, umbilicus, areolae, submammary areas, and hands (tripe hands).[9] Clinically, AN presents as hypertrophic, hyperpigmented, velvety plaques.[10] Usually a benign condition associated with insulin resistance, AN rarely can be a manifestation of internal malignancy, particularly the stomach,[11] though this finding is less relevant in children. It also can occur after ingestion of certain medications.[10]

The underlying mechanism of AN appears to be high levels of circulating insulin cross-reacting and

binding to insulinlike growth factor receptors on keratinocytes and fibroblasts, thereby stimulating growth.[12] It is unknown why particular areas of the body preferentially are affected by this process over other areas. Curiously, our patient displayed AN in areas grafted with skin originating from the groin. Although hyperpigmentation and hair growth have been reported after long-term follow-up in patients who had full-thickness grafts to repair congenital syndactyly,[13] AN has not been previously reported in a graft site after syndactyly repair. Our finding suggests the insulinlike growth factor receptors implicated in the pathogenesis of AN are site specific and retain their responsiveness even when transplanted to an alternate site in the body. We propose the term *ectopic acanthosis nigricans* to describe the phenomenon of AN occurring in transplanted skin away from the original donor site.

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