

# Get the Dirt on This Skin Condition

Joe R. Monroe, MPAS, PA

A frustrated mother brings in her 14-year-old daughter for evaluation of darkening skin. When the girl was 10, the skin around her neck became darker than it had been; the problem quickly spread to involve skin folds under her arms, in the groin, on the dorsa of her toes, and on her knuckles. Blaming the problem on a lack of washing, the mother has instructed the girl to scrub vigorously—but while this process removes a bit of the dark skin, by the next day, the affected areas are dark again.

The patient is 5 ft 2 in and weighs 175 lb; she is clearly overweight. According to her mother, the girl's recent blood work indicated a fasting blood glucose level of 120 mg/dL, a cholesterol level of 280 mg/dL, and a triglyceride level > 300 mg/dL. Both agree that the girl's diet—mostly snacks and fast food, nothing green or fresh—leaves a lot to be desired. Family history is positive for diabetes and heart disease. The patient had her first menstrual period a year ago.

On examination, all intertriginous areas (skin folds) are quite dark and velvety to rough, with many tiny skin tags confined to the darkened areas. In addition, the dorsal aspects of her knuckles are similarly affected. Attempts at removing or reducing the dark areas with alcohol pads fail. The rest of the patient's skin is free of notable changes (eg, excessive dryness, hirsutism, or acne).



## What is the correct diagnosis?

- Casal collar (related to pellagra)
- Acral acanthotic anomaly
- Acanthosis nigricans
- Tinea corporis

## ANSWER

The correct answer is acanthosis nigricans (AN; choice "c").

## DISCUSSION

AN is an extremely common condition, especially among young people with skin of color who are beginning puberty. In addition to the typical areas of involvement seen in this case, AN can also appear in the navel and on the forehead.

Most cases are (at least in part) caused by increased



Joe R. Monroe, MPAS, PA, practices at Dermatology Associates of Oklahoma in Tulsa. He is also the founder of the Society of Dermatology Physician Assistants.

levels of insulin and growth hormone, which effectively activate insulinlike growth factor receptors on keratinocytes. This also triggers melanocyte proliferation, which explains the hyperpigmentation seen in AN.

There are 5 types of AN. Type 1 is familial, a trait passed on by an autosomal dominant mode of inheritance; it is especially common in those with darker skin, but not necessarily in those who are obese. Type 2 is secondary to endocrinologic disorders such as hypothyroidism, acromegaly, polycystic ovarian syndrome, and Cushing disease. Most cases seen day-to-day in clinics are type 3—pseudoacanthosis nigricans—which manifests in children with incipient metabolic syndrome, most of whom will go on to develop diabetes. Type 4 is drug-induced from growth hormone, glucocorticoids, nicotinic acid, and others.

Type 5—the most unusual form of AN—is related to an occult malignancy (gastrointestinal, lung, or breast tumors), which can trigger keratinocyte and melanocyte proliferation. This malignancy-associated AN dif-

fers from other types in at least 3 ways: (1) It is almost always seen in adults; (2) it appears suddenly; and (3) it can take several forms, including “tripe palm” (palms covered by tiny intradermal firm papules) and/or the sudden appearance of hundreds of seborrheic keratoses over the body.

Two items in the differential are essentially *look-alikes* of AN: acral acanthotic anomaly and Casal collar. The former is a variant of AN in which the hyperkeratosis and hyperpigmentation of the skin is confined to the knees, elbows, knuckles, and dorsal surfaces of toes. The latter is a clinical sign associated with pellagra (a disease caused by vitamin B<sub>3</sub> [niacin] deficiency): the darkening and scaling of skin in a photodistributive pattern around the neck.

## TREATMENT

Unfortunately, topical or oral products are not effective for AN. All types of AN can be treated only by addressing the underlying cause. **CR**