

Subungual Nodule in a Pediatric Patient

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A 13-year-old girl presented to her pediatrician with a small pink bump under the left great toenail of 8 months' duration that was slowly growing. Months later, she developed an ingrown nail on the same toe, which was treated with partial nail avulsion by the pediatrician. Given continued nail dystrophy and a visible bump under the nail, the patient was referred to dermatology. Physical examination revealed a subungual, flesh-colored, sessile nodule causing distortion of the nail plate on the left great toe with associated intermittent redness and swelling. She denied wearing new shoes or experiencing any pain, pruritus, or purulent drainage or bleeding from the lesion. She reported being physically active and playing tennis.

WHAT'S YOUR DIAGNOSIS?

- amelanotic melanoma
- glomus tumor
- osteochondroma
- subungual exostosis
- verruca vulgaris

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The authors report no conflict of interest.

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THE DIAGNOSIS: Subungual Exostosis

Subungual exostosis should be considered as a possible cause of an exophytic subungual nodule in a young active female. In our patient, the involvement of the great toe was a clue, as the hallux is the most common location of subungual exostosis. The patient's age and sex also were supportive, as subungual exostosis is most common in female children and adolescents—particularly those who are active, as trauma is thought to play a possible role in development of this benign tumor.¹⁻³ Radiography is the preferred modality for diagnosis; in our case, it showed a trabecular bony overgrowth (Figure 1), which confirmed the diagnosis.

Subungual exostosis is a rare, benign, osteochondilaginous tumor of trabecular bone. The etiology is unknown but is hypothesized to be related to trauma, infection, or activation of a cartilaginous cyst.^{1,3} The subungual nodule may be asymptomatic or painful. Disruption and elevation of the nail plate is common.⁴ The differential diagnosis includes amelanotic melanoma, fibroma, fibrokeratoma, osteochondroma, pyogenic granuloma, squamous cell carcinoma, glomus tumor, and verruca vulgaris, among others.⁵



FIGURE 1. Radiography demonstrated exostosis extending from the distal medial cortical surface of the left first distal phalanx, confirming the diagnosis of subungual exostosis.

Physical examination demonstrates a firm, fixed, subungual nodule, often with an accompanying nail deformity. Further workup is required to confirm the benign nature of the lesion and exclude nail tumors such as melanoma or squamous cell carcinoma. Radiography is the gold standard for diagnosis, demonstrating a trabecular bony overgrowth.⁶ Performing a radiograph as the initial diagnostic test spares the patient from unnecessary procedures such as biopsy or expensive imaging techniques such as magnetic resonance imaging.

Early lesions may not demonstrate sufficient bone formation shown on radiography. In these situations, a combination of dermoscopy and histopathologic examination may aid in diagnosis (Figure 2).⁴ Vascular ectasia, hyperkeratosis, onycholysis, and ulceration are the most common findings on dermoscopy (in ascending order).⁷ Histopathology typically demonstrates a base or stalk of normal-appearing trabecular bone with a fibrocartilage cap.⁸ However, initial clinical workup via radiography allows for the least-invasive and highest-yield intervention.

Clinical suspicion for this condition is important, as it can be diagnosed with noninvasive inexpensive imaging rather than biopsy or more specialized imaging modalities. Appropriate recognition can save young patients from unnecessary and expensive procedures. Treatment typically involves surgical excision; to prevent regrowth, removal of the lesion at the base of the bone is recommended.²



FIGURE 2. Dermoscopy of a flesh-colored, sessile, subungual nodule that was diagnosed as subungual exostosis.

Although amelanotic melanoma also can manifest as a subungual nail tumor, it would be unusual in a young child and would not be expected to show characteristic changes on radiography. A glomus tumor would be painful, is more common on the fingers than on the toes, and typically has a bluish hue.⁹ Verruca vulgaris can occur subungually but is more common around the nailfold and often has the characteristic dermoscopic finding of thrombosed capillaries. It also would not be expected to show characteristic radiographic findings. Osteochondroma can occur in young patients and can appear clinically similar to subungual exostosis; however, it typically is painful.¹⁰

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