Subungual Bizarre Parosteal Osteochondromatous Proliferation: A Unique Case Report

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ABSTRACT

Introduction: Bizarre parosteal osteochondromatous proliferation (BPOP), also known as Nora's lesion, is a rare benign condition that predominantly affects the short bones of the hands and feet. Its subungual presentation is exceedingly rare. Differentiating it from malignant tumors is essential. We present the case of a 32-year-old man with a painful, progressively enlarging mass in the nail bed of the right second toe. Radiographs and computed tomography revealed a well-defined juxtacortical lesion without continuity with the medullary canal. Complete excision of the tumor, including the periosteum and superficial cortex, was performed, followed by nail-bed reconstruction. Histopathological examination confirmed the diagnosis of Nora's lesion. No recurrence was detected during follow-up, and full functional recovery was achieved. **Conclusions:** Recognition of this entity is essential to avoid diagnostic errors and unnecessarily aggressive surgery. Wide resection encompassing the affected cortical bone and periosteum is the treatment of choice to reduce the risk of recurrence.

Keywords: Nora's lesion; bizarre parosteal osteochondromatous proliferation; subungual tumor; bone neoplasms; toe.
Level of Evidence: IV

Proliferación osteocondromatosa parostal atípica subungueal: presentación de un caso único

RESUMEN

Introducción: La proliferación osteocondromatosa parostal atípica, conocida también como lesión de Nora, es una alteración benigna y poco frecuente que afecta, de forma predominante, a los huesos cortos de manos y pies. Su presentación subungueal es excepcional. Es clave su diagnóstico diferencial con tumores malignos. Se presenta el caso de un hombre de 32 años con una tumoración dolorosa, de crecimiento progresivo, en el lecho ungueal del segundo dedo del pie derecho. La radiografía y la tomografía computarizada mostraron una lesión yuxtacortical bien delimitada, sin continuidad con el canal medular. Se realizó la exéresis completa del tumor, inclusive el periostio y la cortical superficial, y la reconstrucción posterior del lecho ungueal. El examen histopatológico confirmó el diagnóstico de lesión de Nora. En el seguimiento, no se detectó recidiva y la recuperación funcional fue completa. **Conclusiones:** El reconocimiento de esta entidad es esencial para evitar errores diagnósticos y cirugías innecesariamente agresivas. La resección amplia, que incluya el hueso cortical y el periostio afectado, es el tratamiento de elección para reducir el riesgo de recurrencia.

Palabras clave: Lesión de Nora; proliferación osteocondromatosa parostal atípica; tumor subungueal; tumores óseos; dedo del pie.
Nivel de Evidencia: IV

INTRODUCTION

Atypical parosteal osteochondromatous proliferation was first described by Nora et al. in 1983 as an exophytic osteocartilaginous mass arising from the cortical surface, generally without medullary continuity.[1] Since then, fewer than 200 cases have been reported.[2]

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Its etiopathogenesis remains unknown. Two main hypotheses have been proposed: a reactive process following repetitive microtrauma or a possible neoplastic origin.[3]

Its occurrence in the subungual region is exceptional and poses a diagnostic challenge because of its similarity to both benign and malignant lesions, including osteochondroma, periosteal chondroma, and parosteal osteosarcoma.[4,5] Therefore, definitive diagnosis requires correlation of clinical, radiographic, and histopathological findings.

CLINICAL CASE

A 32-year-old man with no history of trauma presented with pain and progressive swelling of the second toe of the right foot, accompanied by partial ulceration of the nail.

Physical examination revealed a firm, nonmobile mass adherent to the deep tissues, with mild local signs of inflammation.

Radiographs showed a well-defined juxtacortical lesion without medullary involvement, consistent with a slow-growing lesion. Computed tomography confirmed cortical integrity and the absence of soft-tissue invasion (Figure 1).

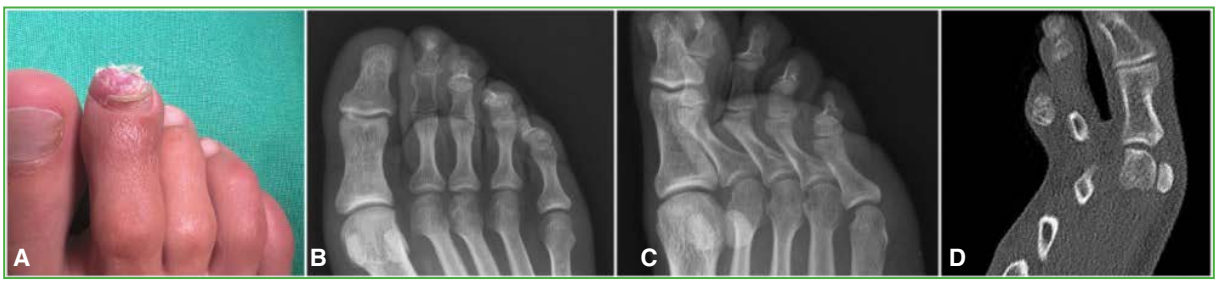

Figure 1. A. Intraoperative image. **B–D.** Anteroposterior and oblique radiographs of the right foot. **D.** Coronal computed tomography image of the second toe of the right foot showing a well-defined, exophytic, juxtacortical lesion without continuity with the medullary canal.

En bloc excision of the tumor, including the periosteum and underlying cortex, was performed, followed by reconstruction of the nail bed (Figures 2 and 3). Histopathological examination revealed immature bone trabeculae covered by hyaline cartilage without cellular atypia, findings consistent with atypical parosteal osteochondromatous proliferation.

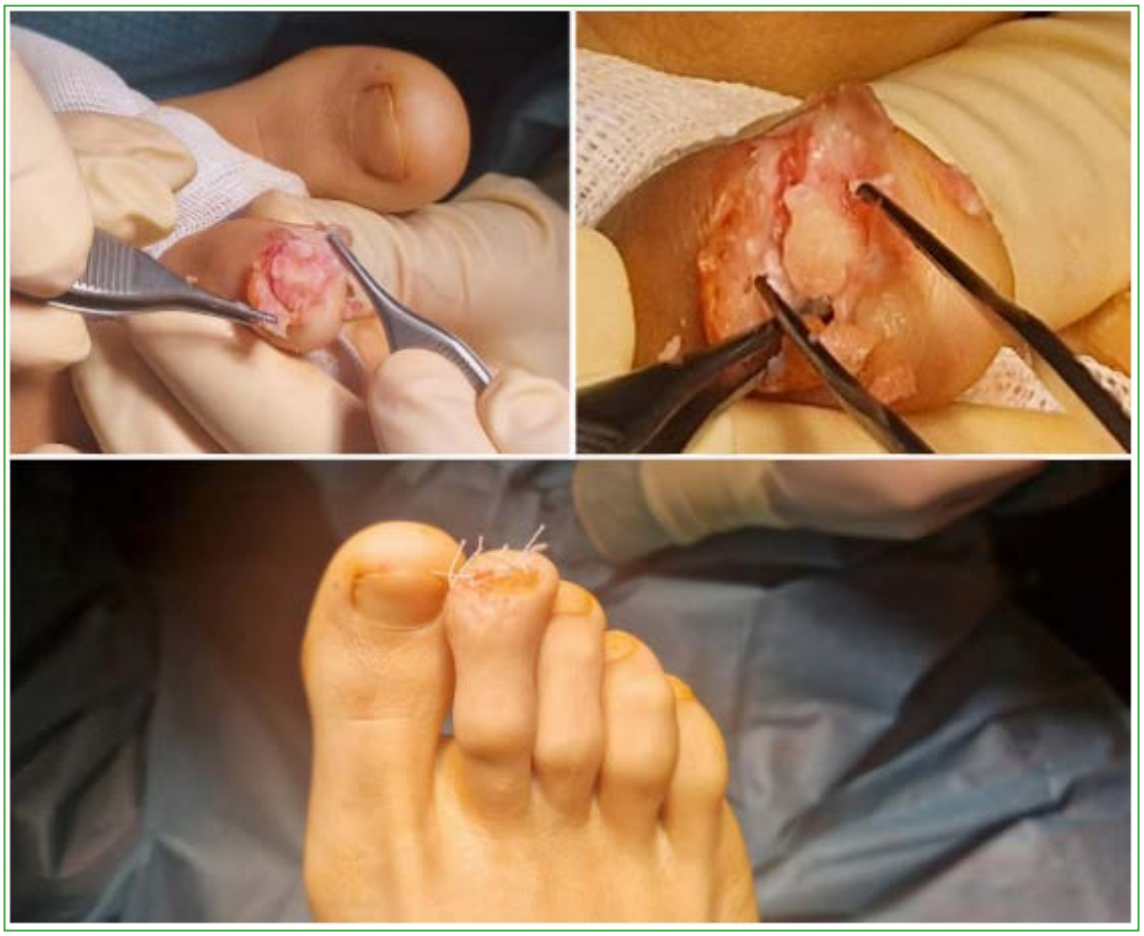

Figure 2. Intraoperative sequence of the surgical procedure showing exposure of the subungual lesion, en bloc resection, and closure after reconstruction of the nail bed.

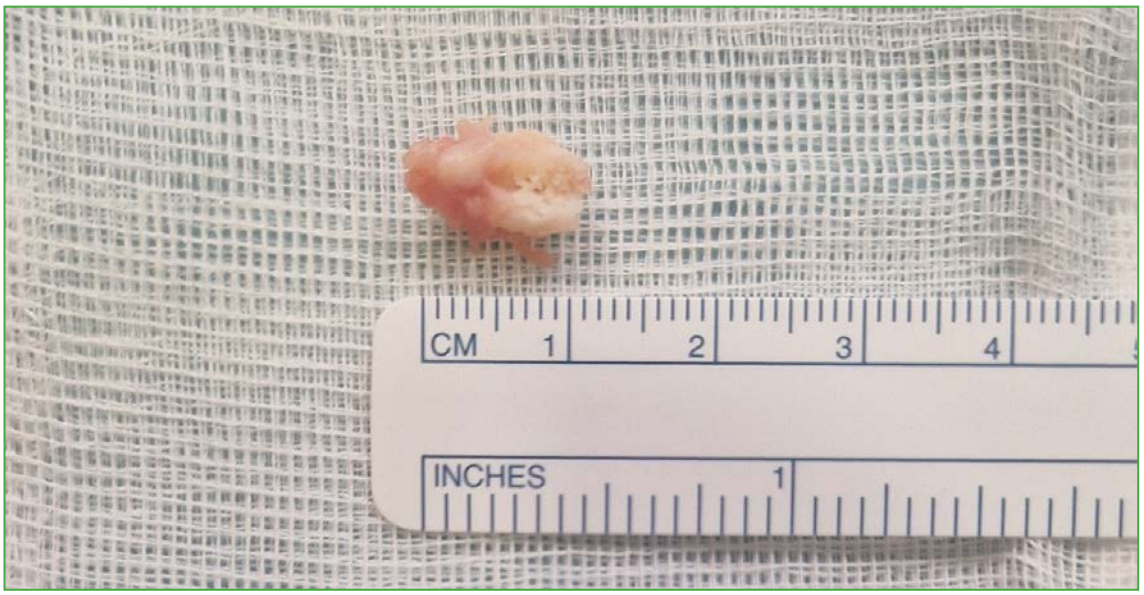

Figure 3. Surgical specimen obtained after complete excision of the lesion.

The postoperative course was favorable, with no complications during follow-up. Clinical and radiographic follow-up showed no recurrence, and the patient fully recovered function and sensation in the second toe (Figures 4 and 5).

The patient provided written informed consent for publication of this case.

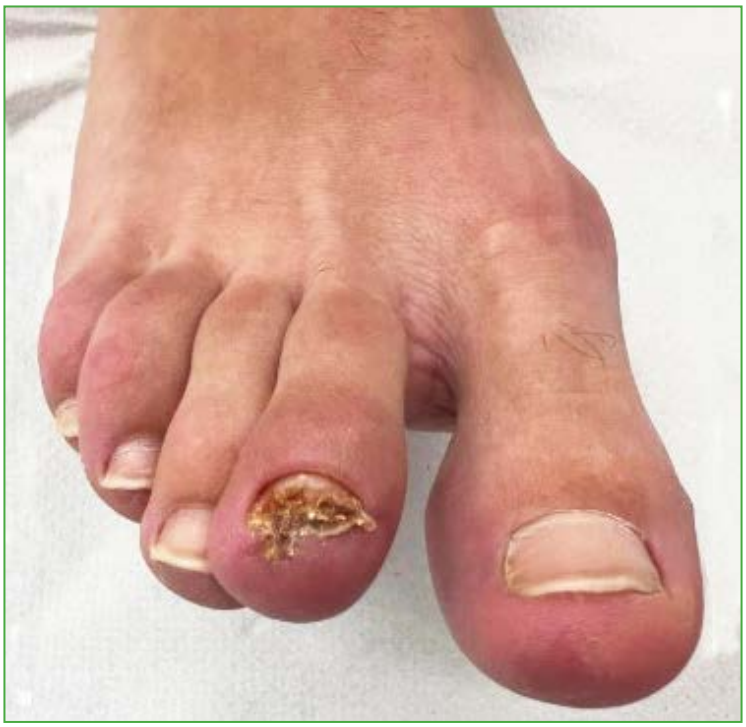

Figure 4. Clinical outcome 2 weeks after surgery.

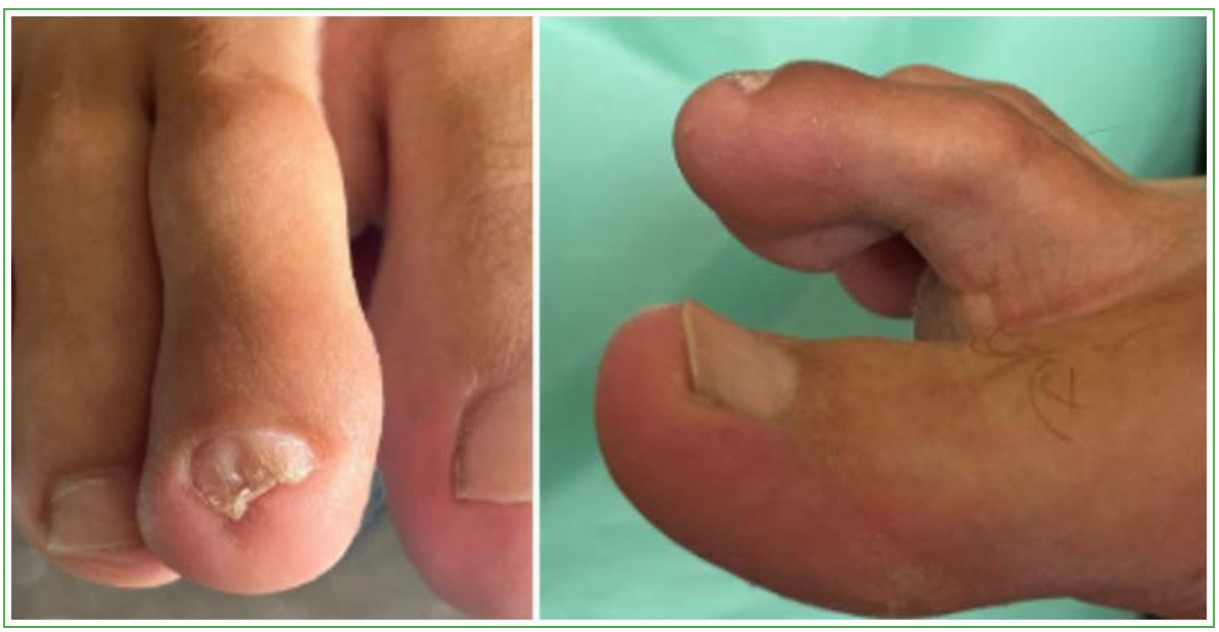

Figure 5. Clinical outcome at the end of follow-up, showing complete functional recovery and a satisfactory cosmetic outcome of the second toe.

DISCUSSION

Atypical parosteal osteochondromatous proliferation is a benign entity with the potential for local recurrence. It most commonly affects young adults and typically involves the short bones of the hands and feet.[6]

On imaging, it appears as a well-defined, exophytic, juxtacortical mass without periosteal reaction or continuity with the medullary canal, which helps differentiate it from malignant lesions such as parosteal osteosarcoma.[7,8] Computed tomography and magnetic resonance imaging allow precise assessment of its extent, cartilaginous component, and relationship to adjacent structures.[9]

Histologically, it is characterized by immature bone, cartilage, and disorganized fibrovascular stroma. Mild chondrocyte atypia and basophilic matrix may be present, features that can also be encountered in some malignant lesions.[4]

The recommended treatment is complete resection together with the adjacent periosteum and cortex to reduce the risk of recurrence. Recurrence rates of up to 50% after incomplete resection have been reported in some series.[10] In our patient, wide resection prevented recurrence during follow-up and allowed full functional recovery.

Despite its locally aggressive behavior, atypical parosteal osteochondromatous proliferation has an excellent prognosis after complete surgical resection. To date, no secondary malignant transformation has been reported.[11]

CONCLUSIONS

Nora lesion should be considered in the differential diagnosis of painful subungual masses. Clinical and radiographic recognition is essential to guide the diagnosis and avoid unnecessary treatment. Wide surgical excision provides excellent functional outcomes with a minimal risk of recurrence.

AI Use Statement

ChatGPT (OpenAI) was used to assist in translating the abstract's content. The authors verified the accuracy and originality of the AI-generated content.

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