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Case Report

Post-traumatic onychoheterotopia: A rare occurrence

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ABSTRACT

Onychoheterotopia or ectopic nail is a rare condition and very few cases have been reported in India. It can be congenital or acquired, of which the latter is uncommon. Histopathology is useful for confirmation of the diagnosis and differentiation from other differentials. We report a case of post-traumatic onychoheterotopia following a crush injury.

Keywords: Acquired, Histopathology, Onychoheterotopia

INTRODUCTION

Onychoheterotopia or ectopic nail indicates the presence of nail-like growth on sites apart from the normal nail matrix. Post-traumatic onychoheterotopia is rare and occurs due to the insertion of the nail matrix at another site, following some form of trauma. Identification of an ectopic nail is important after excluding other conditions, for its appropriate management.[1]

CASE REPORT

A 21-year-old male complained of a disfigured nail on the left thumb for 1 year. He had a history of trauma to the nail in the form of a crush injury 18 months back. After 5 months, he noticed a part of the nail growing in a different direction, higher up than the original nail. This part of the nail was hard to cut and due to this growth, the original nail was also deformed and difficult to trim. There was no history of cutaneous or systemic disorder, drug intake, or any family history of a similar condition. The patient had not received any treatment for the same, and the lesion did not show any signs of spontaneous regression. On examination, a curved, discoloured and dystrophic nail plate, about 0.5 cm in width, was visualised near the distal nail bed [Figure 1]. There was slight subungual and periungual hyperkeratosis. The nail bed on the lateral side was hypertrophied. The nail plate arising from the nail matrix showed a thickened and rolled-out distal margin, especially overlying the distal nail plate.

A radiograph of the left hand did not reveal any underlying bony abnormality. Avulsion of both proximal and distal nail plates was done with matricectomy of the distal nail. Histopathology of the distal nail showed a normal nail structure composed of cornified pale cells, along with a nail bed and nail matrix composed of stratified epithelium devoid of granular layer [Figure 2]. Occasional connective tissue fragments with a few vessels were also seen. There was no evidence of any other rudimentary structure. Based on clinical and histopathologic findings, a final diagnosis of acquired onychoheterotopia was confirmed. On follow-up, there was no regrowth of the distal ectopic nail plate [Figure 3].

DISCUSSION

Onychoheterotopia, or ectopic nail, was first described in 1931 by Ohya. It is an infrequent condition, with only a few cases reported from India.[2] Most cases have been reported from Japan.[3] Most of these are congenital and suggested to have an autosomal recessive transmission.[2] Acquired onychoheterotopia subsequent to trauma is reported rarely. The growth of an ectopic nail is usually vertical due to the absence of the modulating effect of a proper nail fold; however, horizontal growth, parallel to the normal nail plate, may also be seen.

Various explanations have been given for the development of this condition; though the exact pathogenesis is not known. These include the presence of ectopic germ cells, ectopic teratomatous

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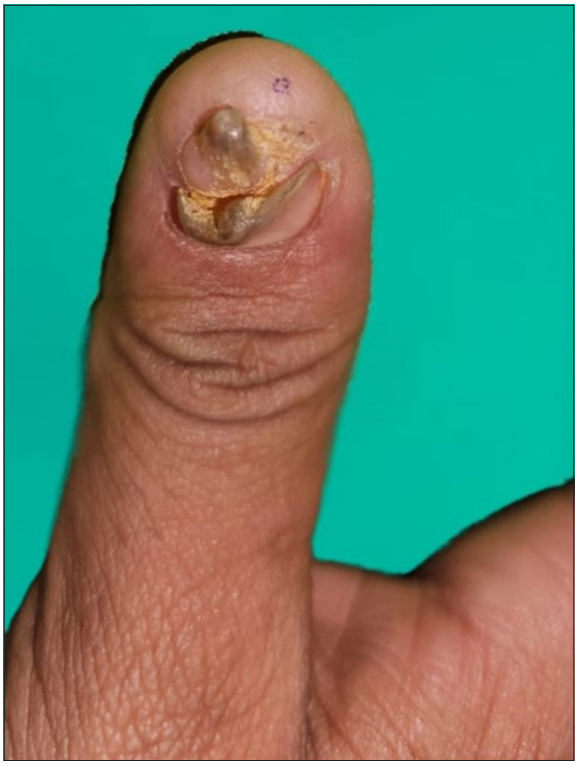

Figure 1: Ectopic nail growing on the distal end of the original nail with slight subungual and periungual hyperkeratosis. The nail bed on the lateral side is hypertrophied.

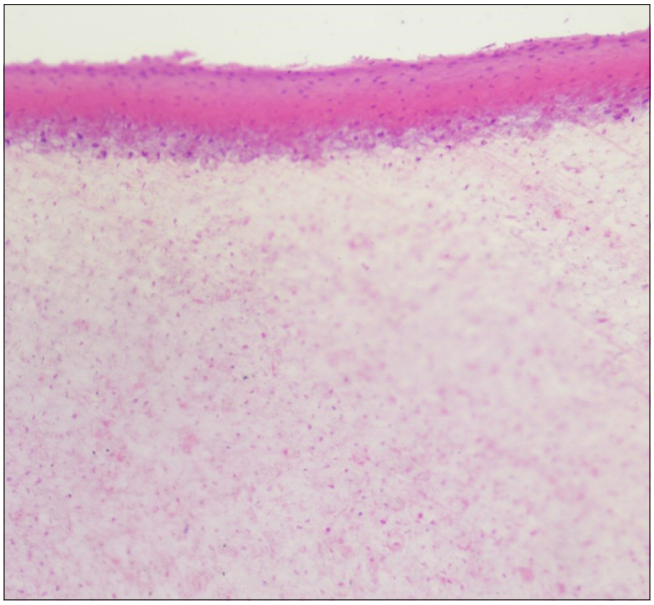

Figure 2: Histopathology shows nail matrix with 5–6 layers of matricial cells (hematoxylin and eosin, ×40).

nail tissue, trauma causing transfer of onychocytes to other sites, dyskeratotic skin growing into a nail, and presence of rudimentary nail after regression of polydactyly.[4,5] Ectopic nails

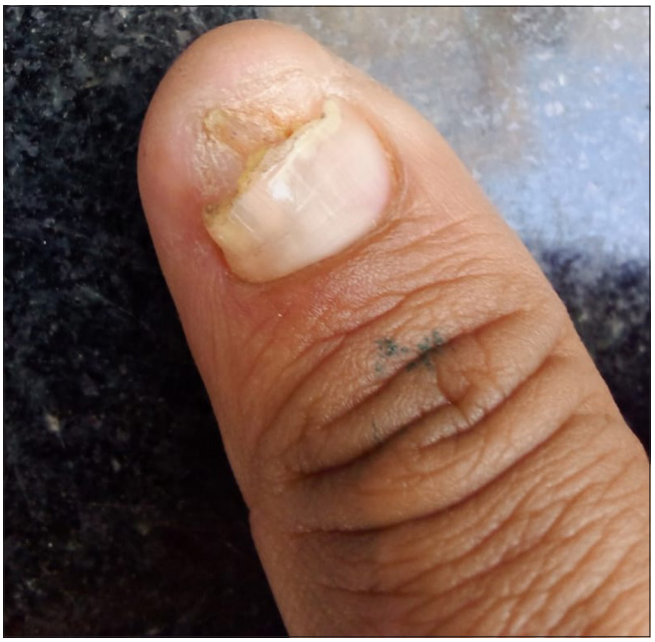

Figure 3: Post-operative picture of the nail showing no regrowth of the ectopic nail, though nail bed hyperkeratosis and some scarring can be appreciated.

have also been suggested to have genetic inheritance. Associated abnormalities include congenital palmar nail syndrome, Pierre-Robin syndrome and chromosome 6 abnormalities. Bone defects have been reported occasionally, both with acquired and congenital onychoheterotopia. This is proposed to occur due to contact of the ectopic nail matrix with periosteum, thus inhibiting intramembranous ossification and resulting in the underlying bone's Y- or M-shaped deformation.[4,5] However, there are conflicting reports regarding the spontaneous resolution of these bony defects following the excision of an ectopic nail.[3]

Acquired onychoheterotopia can develop both after a single traumatic event or several repetitive injuries. Due to the injury, possibly the germinal matrix gets implanted in another site. Ectopic nails may occur at any site; however, fingers are a common site. Congenital ectopic nail is commonly seen on the palmar of the digits, whereas acquired onychoheterotopia occurs on the dorsum of digit, probably because the dorsal part of the digits is more prone to injury.[6] Among the reported cases, the index finger, middle finger, ring finger, thumb, and toe are the commonly reported sites.[1]

Histopathologic examination confirms the diagnosis of ectopic nail, which microscopically resembles a normal nail. Keratinocytes can be seen with keratohyalin granules and the nail matrix is present without a granular layer.[7] The presence of a nail matrix is essential to confirm the diagnosis. Nail bed may or may not be present. On electron microscopy, large desmosomes are seen forming tight junctions between the matrix and the nail plate, which are not seen in a normal nail. The differential diagnosis of ectopic nails includes cutaneous

horn, wart, rudimentary polydactyly, teratoma, foreign body and split nail deformity.[7]

The ectopic nail can be left untreated after proper counselling. Surgical excision is advised for cosmetic purposes or in case of irritation, pain or secondary infection.[1,8]

CONCLUSION

We report a case of post-traumatic acquired onychoheterotopia developing in the thumb of the non-dominant hand in a young male. Correct diagnosis is important to look for related syndromes and associated bone abnormalities and plan appropriate treatment, to prevent recurrence.

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