

Post-traumatic ectopic nail: a rare case

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An ectopic nail is an extremely infrequent disorder, also known as onychoheterotopia. Onychoheterotopia can present congenitally as well as in acquired form, although the acquired form is a rare occurrence. Ohya *et al.* first described the congenital ectopic nail in 1931. The growth of tissue resembling nails at sites different from the nail bed is characteristic of this condition. Acquired type or post-traumatic ectopic nail has been postulated to be due to acute or repeated trauma to the nail unit followed by transfer and inoculation of the nail matrix at another site. A post-traumatic ectopic nail is rare and unusual, making its diagnosis and management important. Histopathological correlation is necessary to confirm the diagnosis and differentiate it from other nail conditions. Here, a classic case of a post-traumatic ectopic nail in the left little finger in a male laborer following a cut injury is reported. The ectopic nail had horizontal growth and was approximately 5 × 3 mm in size and 1 cm away from the normal nail. After surgical resection and biopsy of the resected part, it was successfully diagnosed as a nail of ectopic origin. This is a rare case of a post-traumatic ectopic nail on the little finger with horizontal growth away from the normal nail.

Keywords: onychoheterotopia, abnormal nail, acquired nail

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INTRODUCTION

An ectopic nail, also called onychoheterotopia, is defined as nail-like tissue growth on sites apart from the classical nail unit areas^{1,2}. Development of a post-traumatic nail is mainly due to traumatic entry and insertion of nail matrix at a different site, although the pathogenesis is not clear. Onychoheterotopia is unusual and rare following any trauma or injury. It is important to identify an ectopic nail and differentiate it from other conditions by correlating the clinical picture with the history.

CASE PRESENTATION

A 35-year-old male laborer presented with a nail-like structure on his left little finger, growing away from the normal nail from eight years beforehand.

The patient observed this growth four months after a cut injury to the left little nail fold. This new growth had a horizontal and parallel pattern toward the medial side with the existing nail. The growth was not associated with any pain, discomfort, or joint movement limitations. On examination, a nail-like structure was observed on the right little finger with horizontal growth, and was present medial to the normal nail at a distance of 1cm, measuring about 5 × 3 mm (Figure 1). It did not merge with the existing normal nail, and no other abnormality was found around the nail on examination. X-ray of the complete hand ruled out the possibility of polydactyly (Figure 2). Informed consent of the patient was taken for surgical resection and to publish photographs. Resection of the ectopic nail was done under local anesthesia, and the resected part was sent for histopathological examination. Histopathological examination of the nail was

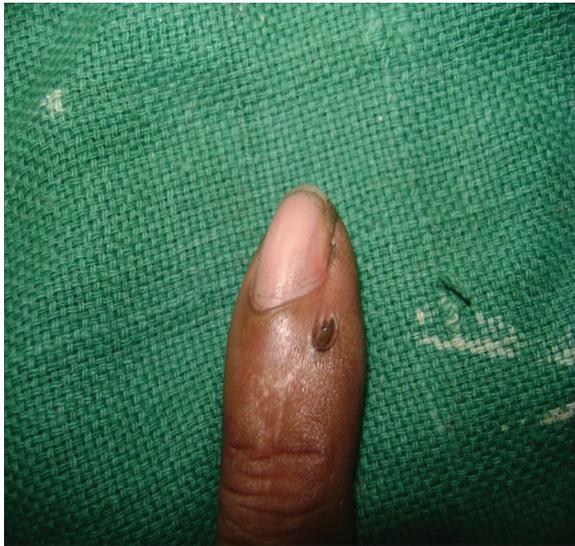


Figure 1. Abnormal nail growth over left little nail fold of 5 × 3 mm in size with horizontal growth and 1 cm away from the normal nail.



Figure 2. X-ray of hand showing no polydactyly.

done by hematoxylin and eosinophilic stain and was viewed under 40× magnification, which suggested the presence of the nail plate and nail matrix in the absence of the nail bed (Figure 3).

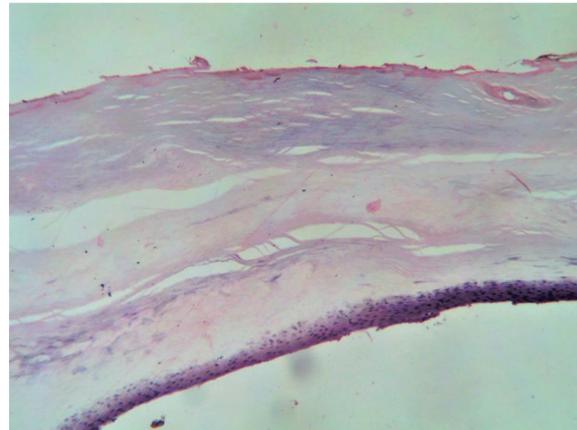


Figure 3. Histopathology of resected tissue stained with hematoxylin and eosinophilic stain seen under 40× magnification suggestive of a nail plate with 2-3 layers of matrical cells as the base.

On the basis of the detailed history and clinical and histopathological examination, the diagnosis of an ectopic nail with post-traumatic etiology was made. The patient did not attend our scheduled follow-up visit after the resection of the ectopic nail.

DISCUSSION

The nail is an epidermal appendage originating from the ectoderm. Its main function is to protect the distal digits and free nerve endings at the fingertips and improve fine touch sensation³. Its functions and cosmetic appearance impact the psychological and performance aspect of an individual.

An ectopic nail is identified by nail-like growth at different sites rather than the classical nail unit on the dorsal aspect of digits. It is divided as congenital with genetic predisposition and acquired after a history of trauma^{3,4}. It is an uncommon condition: only 65 cases have been reported, most of the congenital type, with the acquired type rarely seen^{1,5}.

Though the genesis of acquired and congenital ectopic nail is unclear, various hypotheses have been proposed. These include a rudimentary nail even after polydactyly regression, stray germinal cells at distant sites, inoculation of onychocytes after trauma, and the onychodermal layer contributing to nail plate formation⁶⁻⁹.

Acquired or post-traumatic ectopic nail has been postulated to be due to acute or repeated trauma to the nail unit followed by transfer and insertion

of nail matrix at other sites². The ectopic nail can occur at any site but is commonly seen on the digits. Congenital ectopic nail is frequently seen on the palmar aspect of the digits, while the post-traumatic type is seen on the dorsal aspect of the digit as it is prone to injury¹⁰⁻¹². Circumferential, horizontal, and vertical growth patterns have been described. The absence of a normal nail fold or nail bed is known to cause vertical growth¹³. Ectopic nails are associated with diseases like Pierre Robin syndrome congenital palmar nail syndrome, and abnormalities of the long arm of chromosome 6, suggesting genetic inheritance with autosomal transmission or familial tendency^{1,4,14}. Associated bone defects have been reported in both types, which infers that ectopic nail matrix contact with the periosteum could inhibit intramembranous ossification and alter the bone shape¹².

The diagnosis of an ectopic nail is confirmed by histopathological examination. Histopathology generally resembles that of a normal nail. It is characterized by keratinocytes with keratohyalin granules and the nail matrix without a granular layer, suggesting structural resemblance to normal nails¹. The nail matrix is always present, whereas the nail bed may be present or absent¹. On electron microscopy, tonofilaments and spherical keratohyalin granules in keratinocytes of the nail matrix and tight bondage between the nail plate and matrix are seen instead of large desmosomes (classic keratin pattern)¹. The rare occurrence of an ectopic nail usually makes its diagnosis difficult. It needs to be differentiated from cutaneous horns, foreign body, teratoma, rudimentary polydactyly, hamartoma, and split nail deformity¹.

Among all the cases reported till now, the involvement of the index finger¹⁵ middle finger,¹⁶⁻¹⁸ ring finger¹⁹, thumb^{20,21}, and toe²² is commonly seen. There has been only one case reporting the involvement of a little finger² with a post-traumatic ectopic nail. Ectopic nail requires surgical management. Amputation of the ectopic nail is performed to remove it completely^{1,3,4,6}. To avoid recurrence, the nail plate needs to be completely resected^{1,2}.

CONCLUSION

An acquired ectopic nail is an infrequent condition, easily managed by surgical removal.

Here, we report the rare case of a post-traumatic ectopic nail with uncommon presentation over a little finger with horizontal nail growth, away from the normal nail, due to nail matrix insertion¹⁵.

Conflict of interest: None declared.

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