



# A case of ingrown toenail accompanied by extreme soft tissue hypertrophy to the extent of invisible nail

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Ingrown nails occur when the nail fold grows inwards into the nail bed. This condition affects daily life and causes a loss of labor, and therefore, should be meticulously tackled and immediately treated. Ingrown nail is categorized in three stages based on pain, erythema, infection, drainage, and the presence of granulation tissue. We present hypertrophic tissue excision and bilateral partial matrix excision in an unclassified case of ingrown toenail in which the bilateral side wall hypertrophy covered the entire nail; normal tissue of the nail was invisible, along with first year follow-up results.

**Key words:** Hypertrophy; ingrown nail; tissue excision.

Ingrown toenail is a common problem that occurs when the nail fold grows inwards into the nail bed, generally affects young adults and causes a significant morbidity.<sup>[1,2]</sup> Its prevalence has risen over recent years due to an increase in the habit of wearing narrow shoes. Complaints include disappearance of nail groove, pain due to hypertrophy of the soft tissue in the region, discharge with a foul odor, and malformation of the nail.<sup>[3]</sup>

The normal distance between the border of the nail and the nail groove is 1 mm. The nail groove is covered with a thin epithelial layer and protects the nail groove from irritation. Such habits as wearing narrow-width shoes or tight socks increase the pressure to which the nail bed and nail groove is exposed. As a result, hyperplasia occurs due to a reaction in the nail groove and peripheral soft tissues. If this condition continues nail matter grows into the nail groove and causes the development of infection.<sup>[3,4]</sup>

Ingrown nail can be evaluated in 3 stages: Stage 1, the presence of inflammation and pain; Stage 2, the

inclusion of infection in the manifestation; and Stage 3, chronic inflammation and presence of pain and side wall hypertrophy.<sup>[4]</sup> While results obtained from conservative treatment is satisfactory in Stage 1 cases, surgical indications are present occasionally in Stage 2 and mostly in Stage 3 cases.<sup>[5]</sup>

We present hypertrophic tissue excision and bilateral partial matrix excision treatment in a case of ingrown toenail in which the bilateral side wall hypertrophy covered the entire nail, the normal tissue of the nail was invisible and did not fall into any classification system.

## Case report

A 41-year-old female patient presented to our clinic with complaints of pain in the right hallux for 2 years, occasional discharge, nail deformity and difficulty in wearing shoes. Her history revealed previous examinations and treatment with medicine and medical dressing. Examination established that the nail was invisible due to coverage of the nail tissue with hypertrophic soft tis-

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**Submitted:** July 7, 2011 **Accepted:** November 18, 2011

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Available online at  
www.aott.org.tr  
doi:10.3944/AOTT.2012.2708  
QR (Quick Response) Code:





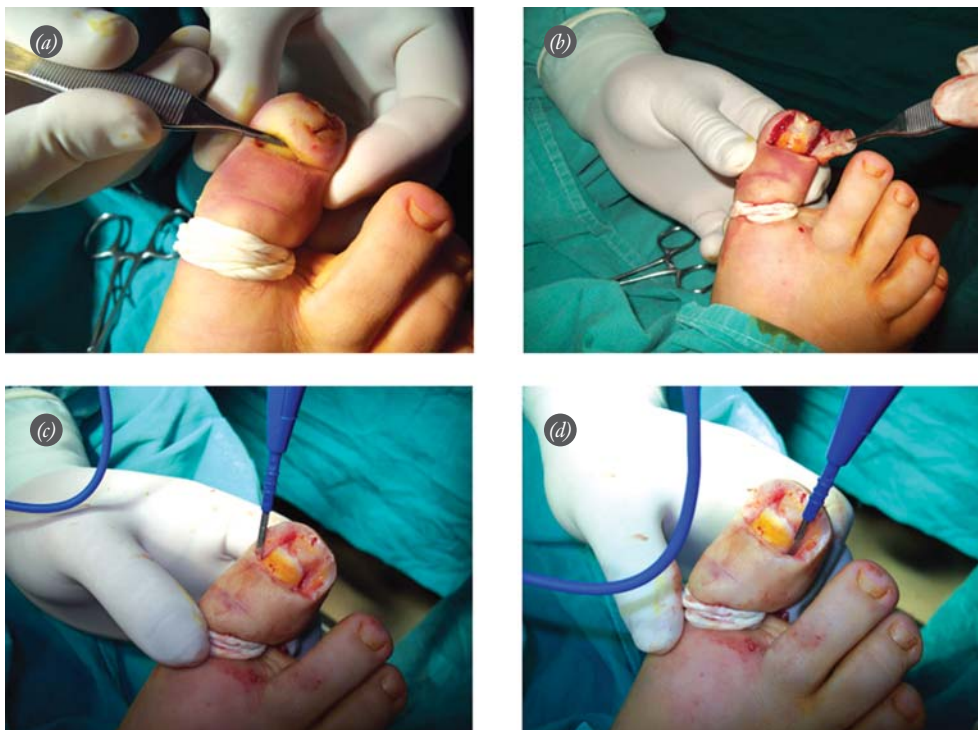
**Fig. 1.** (a-b) Clinical views of the toenail. [Color figure can be viewed in the online issue, which is available at [www.aott.org.tr](http://www.aott.org.tr)]

sue and that the nail extended 2 mm from the hypertrophic tissue (Fig. 1). The patient did not have any infection symptoms and preoperative antibiotics treatment was not given.

A two-way radiograph of the patient was obtained and any underlying bone anomalies were investigated. She was also evaluated in terms of skin pathologies in consultation with the Department of Dermatology. The patient was then admitted to clinic and surgical treatment was planned.

The surgical procedure was conducted with digital block anesthesia and finger tourniquet (Fig. 2a). After

cleaning the area with povidone-iodine, the hypertrophic tissue was excised (Fig. 2b). Partial matrix excision was performed medially and laterally. A germinal matrix of light white color located in the medial and lateral fold was excised and the remnants were cauterized in compliance with the Winograd procedure (Figs. 2c and d). Then the skin, on the medial and lateral side was closed with 2-0 Prolene suture (Fig. 3). A loose compressive bandage was applied and later changed once every three days. Sutures were removed on the 15th postoperative day. Complaints disappeared almost completely and the nail began to grow from the bed at the first month follow-up (Fig. 4).



**Fig. 2.** Views from the surgery: (a) Digital block anesthesia and finger tourniquet, (b) excision of the hypertrophic tissue, and (c, d) germinal matrix cauterization. [Color figure can be viewed in the online issue, which is available at [www.aott.org.tr](http://www.aott.org.tr)]



**Fig. 3.** Skin is closed with Prolene suture. [Color figure can be viewed in the online issue, which is available at [www.aott.org.tr](http://www.aott.org.tr)]

At the 1st year follow-up, the patient had no complaints and was able to wear shoes and manage her daily tasks. The examination showed that the nail tissue was normal, the ingrown state of the nail was recovered in the medial and lateral sides of the nail bed and a hypertrophic lateral fold was not present (Fig. 5).

## Discussion

Frost<sup>[1]</sup> divided ingrown nail into three groups. Stage 1 nails have spur formation in the lateral nail fold that occurs due to irregular nail growth in a normal nail bed; Stage 2 nails have inwards folding of the lateral border of the nail bed (concave nail); and Stage 3 nails have a normal nail bed accompanied by soft tissue hypertrophy in the lateral border. While Stage 1 nails are treated with conservative treatment, Stage 2 and Stage 3 nails generally necessitate surgical treatment. Surgical options in the treatment of ingrown nail include complete or partial nail extraction, chemical matrixectomies applied together with complete or partial nail extractions, surgical matrixectomies, electrocautery, laser and cryotherapy applications, wedge excision of the nail and radical excisions.<sup>[3,6,7]</sup>

Ingrown nail is commonly seen in orthopedics clinics. Numerous studies on ingrown nail and its surgical treatment have been presented in the literature.<sup>[3-6]</sup> However, published series generally report Stage 2 and Stage 3 ingrown nails and their surgical treatments.<sup>[7,8]</sup> We presented a previously unobserved and unreported case of ingrown nail that did not fall into any classic staging system, with invisible nail.

Hypertrophy in the medial and lateral skin folds of the nail is a frequently observed condition.<sup>[9]</sup> Generally, hypertrophic tissue is limited to the medial and lateral



**Fig. 4.** Postoperative 1st month follow-up view of the toenail. [Color figure can be viewed in the online issue, which is available at [www.aott.org.tr](http://www.aott.org.tr)]

aspects of the nail and is excised with surgical treatment. However, cases in which the hypertrophic skin folds to cover the nail completely are rare.<sup>[10]</sup> In Winograd procedure, the skinfold in the area where the ingrown nail occurs is excised and the ingrown piece is removed. Following this, germinal matrix is partially excised or cauterized.<sup>[11]</sup> In the present case, the hypertrophic tissue completely covering the nail was excised medially and laterally using 2 separate incisions. The ingrown sections of the nail were then excised medially and laterally and the classic Winograd procedure was implemented. In the 6th month and 1st year follow-ups, it was established that the patient did not have any complaints, was cosmetically satisfied and did not have any difficulty in wearing shoes.

In conclusion, although rare, it is possible to observe ingrown toenail and secondary to that, excessive soft tis-



**Fig. 5.** Postoperative 1st year follow-up view of the toenail. [Color figure can be viewed in the online issue, which is available at [www.aott.org.tr](http://www.aott.org.tr)]

sue hypertrophy. Functionally and cosmetically satisfying results can be obtained by germinal matrix cauterization following medial and lateral excision of the hypertrophic tissue.

**Conflicts of Interest:** No conflicts declared.

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