

Surgical options for pincer nail correction

Opções cirúrgicas para correção de unha em pinça

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ABSTRACT

Pincer nail is an acquired or hereditary nail deformity, which manifests as a transverse hypercurvature of the nail plate, especially in its distal portion, causing compression of the nail bed, which can provoke pain with functional disability, as well as secondary infections. Conservative treatment is associated with high recurrence rates, so surgical reconstruction is generally necessary. Four exemplary clinical cases of different corrective options of the pincer nail are described.

Keywords: Ambulatory surgical procedures; Nail diseases; Nails malformed

RESUMO

A unha em pinça é uma deformidade ungueal, hereditária ou adquirida, que se manifesta como uma hipercurvatura transversal do prato ungueal, sobretudo na sua porção distal, o que provoca uma compressão do leito ungueal, podendo causar dor com incapacidade funcional, assim como infeções secundárias. O tratamento conservador associa-se a uma elevada taxa de recorrência, motivo pelo qual a reconstrução cirúrgica é geralmente necessária. Descrevem-se quatro casos clínicos exemplares de diferentes opções corretivas da unha em pinça.

Palavras-Chave: Doenças da unha; Cirurgia de ambulatório; Unhas malformadas

INTRODUÇÃO

Pincer nail is characterized by a transverse over curvature of the nail plate, which causes compression of the nail bed, especially the distal portion, which can cause pain and secondary infection.¹ It is more common in the toes, especially the hallux, but it can also occur in the fingers. The etiology can be hereditary (especially with an autosomal recessive transmission pattern and symmetric involvement of the nails) or acquired (more frequently with an asymmetric topography and secondary to various etiologies, such as tight footwear, osteoarthritis of the distal interphalangeal joint, psoriasis, subungual exostosis, onychomycosis, tumors of the ungueal system, and even some drugs, such as betablockers.²⁻⁴

Conservative treatment rarely corrects the deformity completely and is associated with a high recurrence rate. Surgery is thus more useful for better long-term control.⁵ Various surgical techniques have been described in the literature for correction of this nail deformity.

Case 1: Female patient, 45 years, with pincer nail of the right hallux, underwent corrective surgery with the Mutaf te-

Case Report

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chnique, consisting of avulsion of the nail plate, removal of the osteophyte on the dorsal surface of the phalanx and transverse broadening of the nail bed via modified Z-plasty applied to each of the lateral folds and the distal portion of the nail bed. Incisions performed up to the periosteal plane and posterior transposition of the nail bed flaps allow broadening and flattening of the distal nail bed (Figure 1).

Case 2: Female patient, 84 years, with pincer nail of the right hallux, underwent surgical correction with the Kosaka technique (W or zigzag). In this technique, after avulsion of the

nail plate, a W-shaped incision is performed, 5mm below the hyponychium, extending deeply under the nail bed in a supra-periosteal parallel plane. The skin flap containing the nail bed is elevated, stretched in the transverse direction, and the excess skin from the lateral portions of the flap is removed. The dorsal surface of the phalanx is flattened. The flap is then sutured in a zigzag pattern, similar to a classical W-plasty (Figure 2). In addition to the hallux, the technique was also performed on another patient with pincer tail of the second toe, also successfully, showing the technique's versatility (Figure 3).

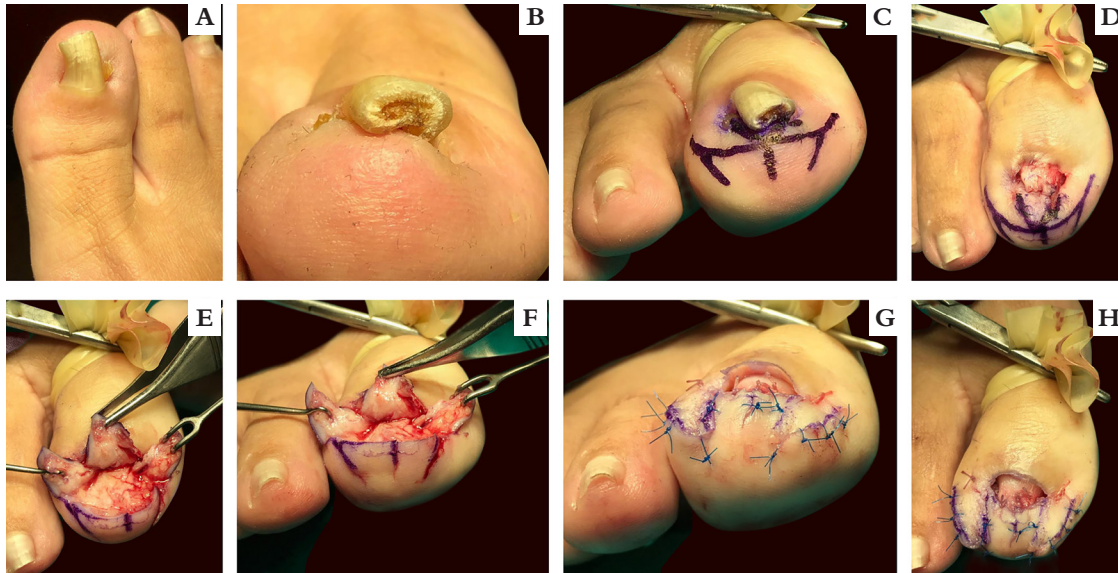


FIGURE 1: Surgical correction of pincer nail of right hallux (a, b) by Mutaf technique; c) planning flap, drawing modified Z-plasty on both lateral nail folds and distal portion of nail bed; d) Avulsion of nail plate; e, f) incisions performed to periosteal plane and then the nail bed flaps transposed, allowing exposure and excision of the subungual exostosis and broadening and flattening of distal nail bed; g, h) Closure of incisions with non-resorbable monofilament sutures.

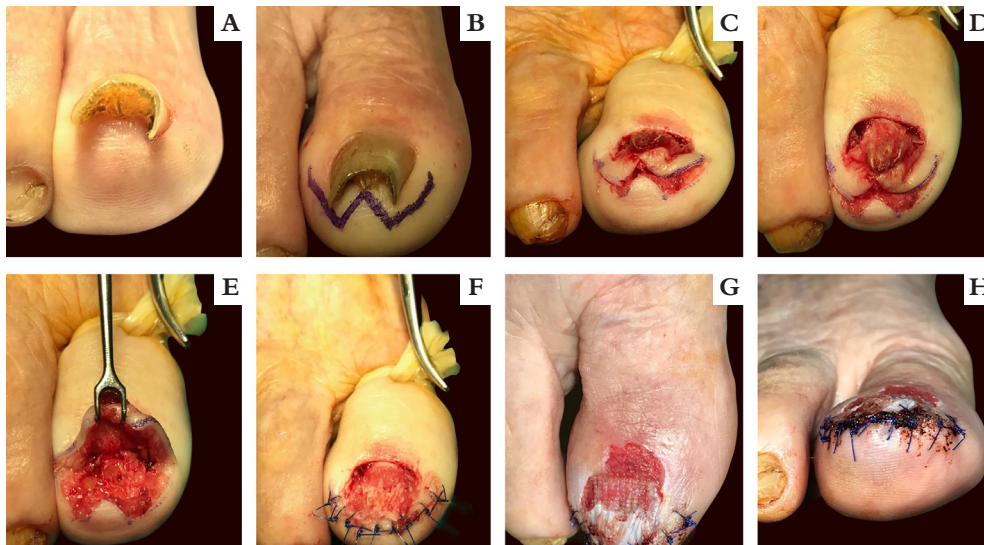


FIGURE 2: Surgical correction of pincer nail of right hallux (a) by Kosaka technique; b) planning flap, drawing W-plasty (or zigzag); c, d) following nail plate avulsion, W-shaped incision performed 5mm below hyponychium and extended in parallel supra-periosteal plane ; e) skin flap containing nail bed is elevated, exposing and flattening the dorsal surface of the distal phalanx, stretched transversely, and excess skin from lateral portions of flap is removed; f) closure of flap in zigzag pattern with non-resorbable monofilament suture; g, h) Result on day 15 postop before removal of sutures

Case 3: Young female, 32 years, with pincer nail of left hallux, underwent Fanti surgical technique (Figure 4), consisting of nail plate avulsion and U-shaped incision around lateral and distal nail folds, plus longitudinal incision along the axis of the nail bed from the proximal to the distal fold. The nail bed is undermined in the supra-periosteal plane, elevating the two flaps to expose the nail bed, allowing removal of the dorsal osteophyte on the distal phalanx. The intervention is finalized by suturing the flaps over the new flattened nail bed.

Case 4: Female patient, 30 years, with pincer nail of the right hallux, causing severe pain and functional disability,

treated with modified Zook technique, consisting of removal of the nail plate and flattening of the nail bed via skin grafts (harvested with a scalpel from the ipsilateral inguinal crease) in subcutaneous tunnel created along both lateral edges of the nail bed. Additionally, on one of the lateral folds, since there was a marked over curvature, we opted to combine with a fusiform excision without involving the matrix (modified Zook technique) (Figure 5).

All the procedures were performed under distal digital anesthetic block, and there were no immediate or late complications. Antibiotic prophylaxis was performed with a first-ge-

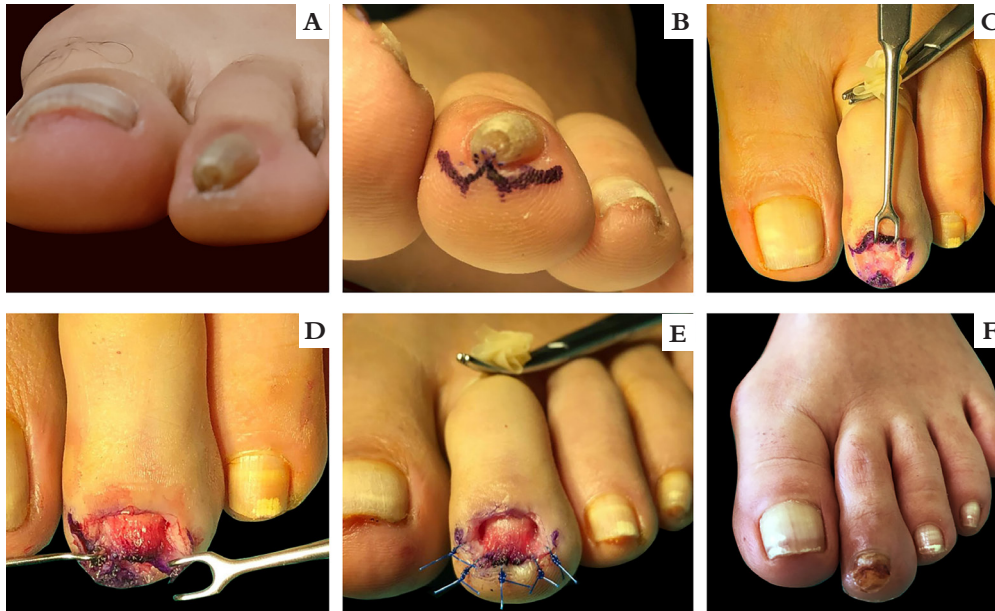


FIGURE 3: Kosaka technique (in W or zigzag), described in Figure 2, in surgical correction of pincer nail of 2nd left toe, also successful

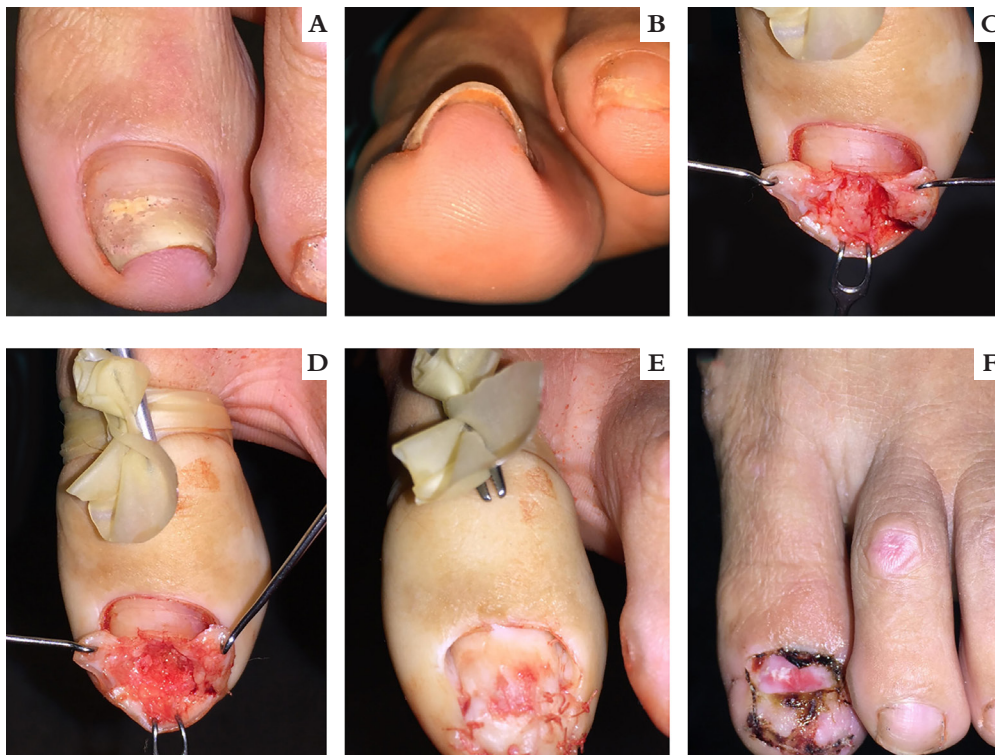


FIGURE 4: Surgical correction of pincer nail of left hallux (a, b) with Fanti technique. In this technique, besides nail plate avulsion, a U-shaped incision is performed around the lateral and distal folds, plus a longitudinal incision along the nail bed axis from the proximal to the distal fold; c, d) Undermining nail bed in supra-periosteal plane and elevation of the two flaps that expose the nail bed and allow removal of dorsal osteophyte on distal phalanx; e) suturing of flaps over nail bed, now flattened; f) postop result on day 15, when sutures were removed



FIGURE 5: Surgical correction of pincer nail of the right hallux (a) with modified Zook technique; b) following nail plate avulsion, subcutaneous tunneling performed along lateral edges of the nail bed and harvesting of dermal grafts with scalpel from the ipsilateral inguinal crease (c); d) placement of harvested dermal grafts in subcutaneous tunnels, which allowed flattening of nail bed; e) additionally, on external lateral fold, due to marked over curvature, we opted to associate fusiform excision without involving the nail matrix (modified Zook technique); f) result at one year follow-up

neration cephalosporin in all the cases. Instructions to patients included rest and analgesia on the first days postop. The non-resorbable sutures were removed after seven to 15 days. The cosmetic and functional results were good in all the cases, with effective correction of the nail deformity.

DISCUSSION/CONCLUSION

Although conservative correction of pincer nail may be useful in mild cases, the high rates of treatment failure and relapse mean that surgical correction is the treatment of choice for this deformity, especially in serious cases with marked functional impact associated with inflammation and/or infection. Multiple corrective surgical techniques have been described, which can be classified as those that include destruction of the nail matrix and techniques that preserve it.

The main advantages of the techniques by Mutaf,⁶ Kosaka,⁷ and Fantl¹ are preservation of the nail matrix, exposure and destruction of the subungual osteophyte when it exists, and flattening of the nail bed. Still, the technique’s performance involves partial or total avulsion of the nail plate, which increases the complete recovery time. The Zook technique⁸ does not require removal of the osteophyte, but it is technically more complex and requires the creation of secondary defects in the donor areas for dermal grafts.

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REFERENCES

1. Maria J, Ballavenuto A, Antonio CR, Antonio JR. Tratamento de unha em pinça pela técnica de Fanti. *Surg Cosmet Dermatol* 2014;6(2):122-5.
2. Brinca A, Pereira N, Vieira R, Figueiredo A. Unha em pinça: correção cirúrgica pela técnica de Zook modificada. *Rev Soc Port Dermatol Vene-reol.* 2011;69(4):613-5.
3. Nam HM, Kim UK, Park SD, Kim JH, Park K. Correction of pincer nail deformity using dermal grafting. *Ann Dermatol.* 2011;23(Suppl. 3):299-302.
4. Baran R, Haneke E, Richert B. Pincer nails: definition and surgical treatment. *Dermatologic Surg.* 2001;27(3):261-6.
5. Shin WJ, Chang BK, Shim JW, Park JS, Kwon HJ, Kim GL. Nail plate and bed reconstruction for pincer nail deformity. *Clin Orthop Surg.* 2018;10(3):385-8.
6. Mutaf M, Sunay M, Işık D. A new surgical technique for the correction of pincer nail deformity. *Ann Plast Surg.* 2007;58(5):496-500.
7. Kosaka M, Asamura S, Wada Y, Kusada A, Nakagawa Y, Isogai N. Pincer nails treated using zigzag nail bed flap method: results of 71 toenails. *Dermatologic Surg.* 2010;36(4):506-11.
8. Zook EG, Chalekson CP, Brown RE, Neumeister MW. Correction of pincer-nail deformities with autograft or homograft dermis: modified surgical technique. *J Hand Surg Am.* 2005;30(2):400-3.

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