



Treatment of hook nails using the Bakhach's technique: a retrospective study

Tratamento da unha em gancho com a técnica de Bakhach: estudo retrospectivo

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ABSTRACT

Introduction: The cause of the hook nail is the trauma of the hyponychium. The nail plate presents longitudinal hypercurvature of volar concavity, causing functional loss, aesthetics concerns, and pain.

Objective: To evaluate the research results of 20 medical records of patients submitted to hook nail correction surgeries of traumatic etiologies.

Methods: Epidemiological, cross-sectional, retrospective study of patients' medical records who were submitted to Bakhach's surgical technique, from 2010 to 2018, in the Hand Surgery Outpatient Clinic of the Hospital do Servidor Público Municipal de São Paulo.

Results: We analyzed 20 affected fingers: 7 were victims of accidents with sharp objects, 5 with press machines, 5 with doors, 1 with window, 1 with motorcycle, and 1 due to a dog bite. The finger with the highest incidence was the middle finger (n=12), followed by the index finger (n=5), and ring finger (n=3). The main complaint was aesthetics (n=11); pain (n=6), and functional (n=3). All cases had type II distal digital transverse amputations and underwent surgical treatment. The reconstruction surgery occurred between 4 and 25 months after the trauma.

Conclusion: 15 patients were satisfied and two felt pain: one in the distal interphalangeal joint and the other in the hyponychium. The follow-up ranged from 6 months to 2 years.

Keywords: Finger injuries; Hand injuries; Nail diseases; Nails malformed

RESUMO

Introdução: a causa da unha em gancho é o trauma do hiponíquio. A lâmina ungueal se apresenta com hipercurvatura longitudinal de concavidade volar, causando perda funcional, comprometimento estético e dor.

Objetivo: avaliar os resultados na pesquisa de 20 prontuários de pacientes submetidos a cirurgias de correções de unhas em gancho de etiologias traumáticas.

Métodos: estudo retrospectivo transversal epidemiológico, de 2010 a 2018, de prontuários de pacientes submetidos à técnica cirúrgica de Bakhach, no ambulatório de Cirurgia da Mão do Hospital do Servidor Público Municipal de São Paulo.

Resultados: 20 dedos acometidos. Sete vítimas de acidente com objetos cortantes, cinco com máquinas tipo prensa, cinco com portas, um com janela, um com motocicleta e um por mordida de cachorro. O dedo com maior incidência foi o médio (12 casos); seguido do indicador (cinco casos) e do anelar (três casos). A queixa principal foi estética (11); dor (seis) e funcional (três). Todos tiveram amputações digitais distais transversas do tipo II e foram submetidos a tratamento cirúrgico. A cirurgia de reconstrução ocorreu entre quatro e 25 meses pós-trauma.

Conclusão: 15 ficaram satisfeitos, embora dois destes tenham relatado dor: um na articulação interfalângica distal e o outro no hiponíquio. O acompanhamento variou de seis meses a dois anos.

Palavras-chave: Doenças da unha; Traumatismos dos dedos; Traumatismos da mão; Unhas malformadas

Original Article

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INTRODUCTION

Amputations of the end of the distal phalanx can result in bone and tissue loss, making it difficult to close the wound. The hook nail is a deformity caused by traumatic injury to the hyponychium, and the nail plate presents a longitudinal hypercurvature with volar concavity. The patient complains of functional incapacity, aesthetic impairment, and pain.¹⁻⁵

This study aims to demonstrate the necessity of Bakha-ch's surgical technique for the functional rehabilitation of the affected finger of the hook nail with the esthetic satisfaction of the patient.

MATERIAL AND METHODS

We assessed 20 medical records of patients treated at the Hand Surgery Outpatient Clinic of the Hospital do Servidor Público Municipal of São Paulo between 2010 and 2018. All patients presented hook nails with traumatic etiology. The Informed Consent Form (ICF) was not applied, considering the current coronavirus pandemic and the fact pointed out by the researchers that some surgeries were performed many years ago. Once the researchers explicitly committed to the secrecy and care with the confidentiality of the data, the research ethics committee considered the waiver of the informed consent pertinent.

According to the medical records, surgeries were performed under anesthesia, with an injection of 3 ml 2% lidocaine without epinephrine in the flexor tendon sheath. The tourniquet was performed using the finger of a glove. The nail plate was removed, and two lateral incisions were made on each side of the paronychia. Between these incisions, a rectangular skin graft was taken from the region proximal to the eponychium.⁴ The nail matrix was carefully separated from the phalanx, preserving the irrigation of the proximal portion. The nail matrix was reinserted proximally, with the distal interphalangeal joint as a limit. We used the "V-Y" flap, popularized by Atasoy,³ to reconstruct the hyponychium. Weekly dressings were performed, and the stitches were removed within 14 days (Figures 1 to 5).



FIGURE 2: Tourniquet - incision on the side of the paronychia - donor area - rectangular skin graft from the region proximal to the eponychium



FIGURE 3: Arterial branches originating from the distal dorsal digital arch allowing the elevation of the dermal-hypodermal flap. The arrow indicates an irrigation tunnel



FIGURE 1: MLOS, 29-year-old woman, teacher, amputation III finger (qd) due to crushing caused by a door nine months ago

RESULTS

Of the 20 fingers affected, 15 belonged to male patients and five to female patients. Seven patients were victims of accidents with sharp objects, five with press machines, five with doors, one with a window, one with a motorcycle, and one due to a dog bite (Chart 1).



FIGURE 4: Final operative aspect

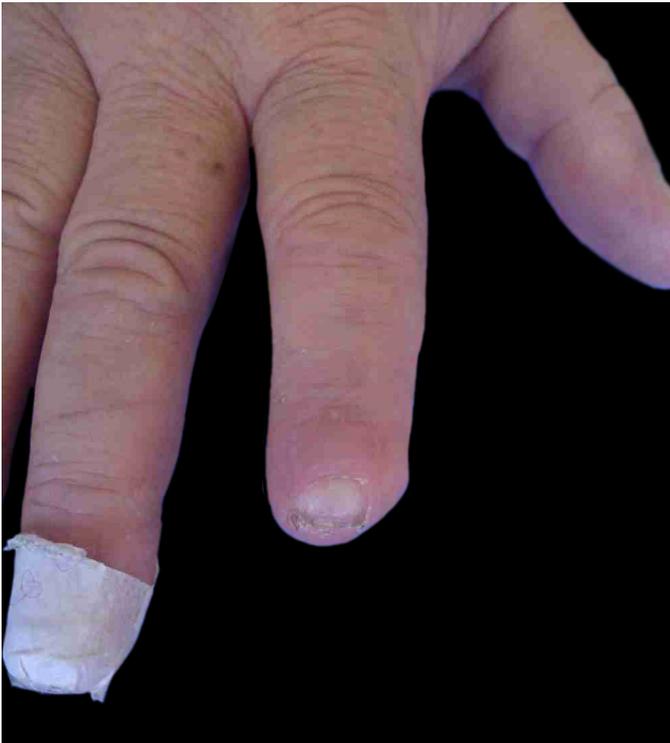


FIGURE 5: Six months postoperative

The most affected finger was the middle (12), followed by the index (5) and the ring (3) (Chart 2).

The main complaint of patients was aesthetic (11), followed by pain (6), and function (3). Shows these results (Chart 3).

All patients had undergone type II transverse digital amputations and underwent urgent surgical treatment at different hospitals. Reconstructive surgery took place between four and 25 months post-trauma. We obtained a proximal repositioning of the nail bed ranging from 3 mm to 5 mm (10 patients with 5 mm, five with 4 mm, and five with 3 mm). No flap showed necrosis. The surgical time ranged between 30 and 55 minutes. Fifteen patients were satisfied with the result, although two remained in pain, one in the distal interphalangeal joint and the other in the hyponychium. Follow-up time ranged from six months to two years, and all patients returned to their normal activities (Chart 4).

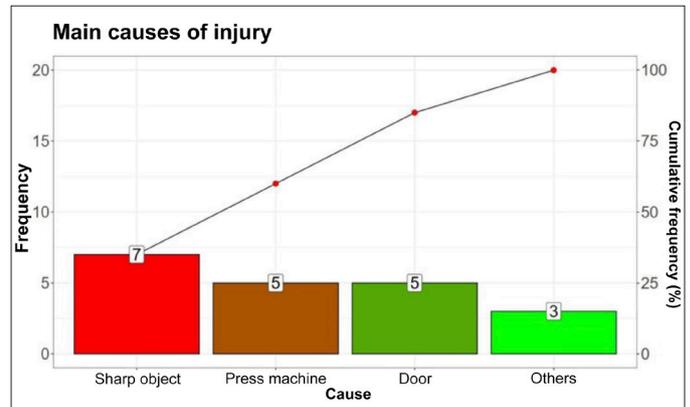


CHART 1: Causes of injury

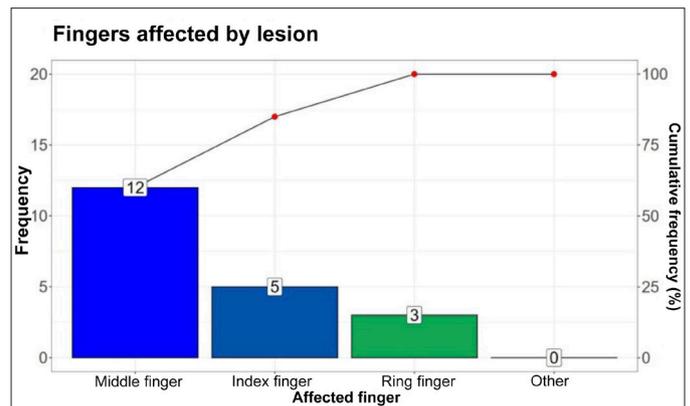


CHART 2: Fingers affected

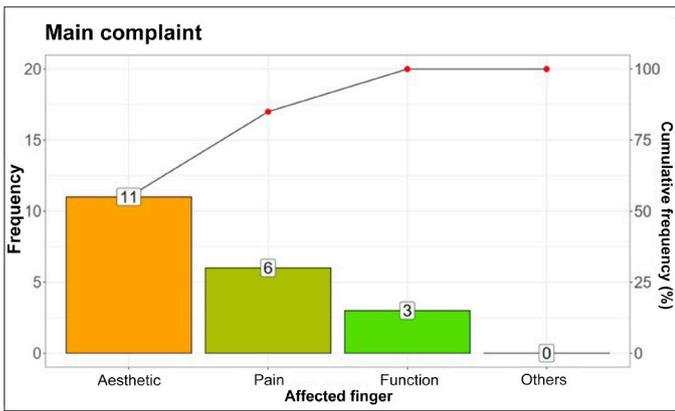


CHART 3: Main complaint

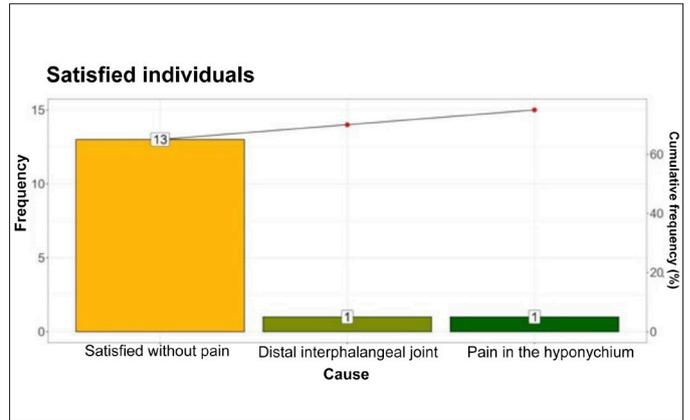


CHART 4: Result of follow-up

DISCUSSION

Acute nail bed injuries must be cared for urgently and adequately, as established deformities are challenging to treat.^{1,6} The attempt to obtain coverage of the shortened bone of the distal phalanx by traction of the nail bed towards the digital pulp generates the deformity known as a hook nail. Some authors have described techniques with variable aesthetic results^{6,7,8} and/or that require sophistication for microsurgical reconstruction with tissue donated from the first or second toe.^{9,10} The method described by Bakhach^{1,2} proved to be efficient precisely for its practicality, low complication rate, and good clinical and aesthetic improvement in acute cases or its long evolution, as demonstrated in our series.

Numerous arterial branches originating from the distal dorsal digital arch irrigate the eponychium flap,^{1,2} allowing the safe elevation of the dermal-hypodermal flap. We obtained the replacement of the nail in a more proximal position (3 mm to 5 mm) similar to that obtained by Bakhach et al.² This repositioning increases the area supported by the phalanx, favoring the growth of a nail plate with greater length and without longitudinal curvature. The V-Y advancement flap³ favored the reconstruction of the hyponychium and a better quality digital pulp.^{3, 10-13}

CONCLUSION

The hook nails surgical treatment using the Bakhach technique is a safe surgical option, with good aesthetic and functional results. ●

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Study design and planning; preparation and writing of the manuscript; data collection, analysis, and interpretation; active participation in research orientation; intellectual participation in propaedeutic and/or therapeutic conduct of studied cases.

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Statistical analysis; critical literature review; critical revision of the manuscript.