Case Report

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Combination therapy for recurrent ingrown toe nail

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ABSTRACT

Ingrown toe nail is one of the commonest foot lesion affecting young individuals. The recurrence rate with a variety of treatment modalities continues to be quite significant. Hence the need to develop a comprehensive combination therapy to reduce the recurrence rate. Onychocryptosis or ingrown toe nail is a common and painful form of nail disease. It affects adolescents and young males very commonly. A combination therapy comprising of wedge resection of the nail, matricectomy, phenol cauterization and wedge excision of hyper granulations for recurrent advanced presentation of ingrown toe nail is presented. A 32-year-old male with a history of recurrent ingrown toe nail, operated twice previously presented with an advanced stage of ingrown toe nail. Hypertrophic granulation tissue covered both lateral and medial nail plates. The patient was treated with an integrated surgical approach comprising of wedge resection of medial as well as lateral border of nail ensuring removal of spicules on either side, followed by wedge resection of underlying nail bed. This was followed by phenol cauterization and elliptical excision of hypertrophic granulations. The predisposing factors, natural history and treatment modalities are discussed. Combination therapy is a safe and the best option for recurrent ingrown toe nail. It can also be used as a form of primary treatment in fresh cases to prevent recurrence.

Keywords: Ingrown toe nail treatment recurrence, Nail plates, Onychocryptosis

INTRODUCTION

Onychocryptosis or ingrown toe nail commonly affects teenagers and young adults. The commonest symptom is pain followed by infection and discharge eventually leading to difficulty in walking. A variety of treatment approaches exist ranging from conservative to extensive surgical interventions. A case of recurrent ingrown toe nail treated by a combination approach of procedures is presented to highlight the therapeutic validity of such an approach in recurrent cases.

CASE REPORT

A 32-year-old male patient presented with a right sided ingrown toe nail affecting both the lateral and medial

borders (Figure 1). There were hyper granulations on both side. There was continuous oozing of blood stained discharge interfering with use of routine footwear. Patient had already undergone surgery twice with recurrence developing within 6 months on each occasion. An integrated approach comprising of 3 surgical modalities was used. Lateral wedges of the nail both medially and laterally were excised along with the protruding spicules and underlying portion of the nail matrix (Figure 2 and 3) Phenol cauterization of the raw areas was done for 3 minutes (Figure 4).

This was followed by irrigation with absolute alcohol to remove any residual phenol. An ellipse of hypertrophic granulations was also excised from both medial as well as lateral side (Figure 5). The wound was allowed to heal by secondary intention. Patient has been following up for 1 year without any recurrence (Figure 6).

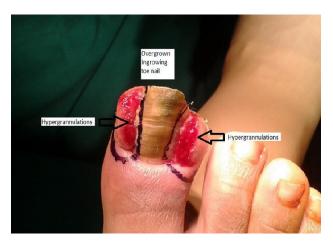


Figure 1: Recurrent ingrown toe nail affecting both sides of the right big toe nail with hypergrannulations covering the nail. (surgical incision to be made has been marked).



Figure 2: Ingrown component of the toe nail resected along with the adjacent underlying nail bed.



Figure 3: Longitudinal wedges of the ingrown component or spicules excised.



Figure 4: Phenolisation of underlying nail matrix.



Figure 5: Final outcome after wedge resection and phenolisation with excision of the two chunks of proud flesh on both side and proper trimming of the nail.



Figure 6: Final outcome after complete healing.

DISCUSSION

Ingrown toe nail continues to be a challenging problem. Understanding the natural history and complications of this disease is pivotal in deciding the surgical modality of treatment. A variety of hypothesis have been postulated for the aetiology of this disease. The big toe is commonly affected in majority of cases. Whether the primary fault is in the nail itself or in the adjacent soft tissues of the nail continues to be a topic for debate. The lateral nail folds are penetrated by the edge of the nail plate resulting in pain, edema and sepsis.^{1,2}

This eventually leads to growth of granulation tissue which covers the medial and lateral border of the nail. Penetration by spicules of the edge of nail plate elicits a strong inflammatory response eventually leading to infection and sepsis. Secondary infection of the nail fold is a common accompaniment. The commonest organisms are staphylococcus, pseudomonas, candida and various superficial dermatophytes. Controlling infection prior to surgical intervention is pivotal for rapid healing of wound without complications

A variety of predisposing factors may be attributed to the aetiology of this condition.² Poorly fitting shoes, improperly trimmed toe nails, hyperhidrosis, nailbed infections, abnormalities of nail apparatus and many other anatomical anomalies may serve as predisposing factors. Patients usually present with pain, redness, swelling and pus formation. Untreated it will lead to hypertrophic granulation tissue formation.

A classification system by Mozena serves as a road map for deciding the best therapeutic option.³ Stage 1 disease comprises of the inflammatory stage wherein there is redness, edema and pain on pressure applied on the lateral nail fold. The nail fold does not extend over the nail plate. Stage 2 is the abscess stage where in addition to the features of the previous stage there is oozing and infection.

Depending upon the severity of extension of the nail fold over the nail plate stage 2 is further subdivided into 2a where nail fold extension measures less than 3mm and stage 2b where nail fold extends more than 3mm. Stage3 is the hypertrophic stage where granulation tissue develops leading to chronic hypertrophy of nail fold, and extensive covering of lateral nail plates. Stage 4 where distal hypertrophic stage assumes such severity that there is severe deformity of the toe nail, Hypertrophic tissue completely covers lateral medial and distal nail plates.

A variety of treatment modalities have been proposed.⁴ Conservative techniques are used for early stages or mild presentations of ingrown toe nail. These include guttersplint technique, cotton wick insertion therapy, dental floss technique, nail wiring and angle correction. However, the recurrence rate with these techniques is quite high. Therefore, a more aggressive approach needs

to be adopted to reduce the recurrence rate to a bare minimum.⁵

Wedge excision of the ingrown end of the toe nail along with resection of the protruding spicules is the primary treatment.⁶

However, the underlying matrix needs to be resected as well.⁷ This ensures that regeneration of the nail does not happen. Phenol cauterization of the matrix is a very effective method to prevent recurrence.⁸⁻¹⁰ But utmost care needs to be exercised to prevent contact of phenol with the surrounding skin. 3 cycles with minimum contact time of 1 min each, amounting totally to 3mins is the most acceptable practice. The area is then irrigated with alcohol to remove the excess phenol. The wound can heal by secondary intention. The time required for healing may vary from 3 to 12 weeks.

However once healed, recurrence rate is extremely low. In the case presented wedge resection of lateral edges was done, the lateral spicules were excised, underlying nail matrix was excised and cauterized with phenol. The hypertrophic granulation tissue is excised in an elliptical fashion which allows for flattened epithelialization.

The cosmetic outcome is also superior after excising the lateral granulations. In the case presented patient has been following up for a period of 1 year without any recurrence. Therefore, a combination therapy is best suited to prevent recurrence despite the fact that healing process may take some time. ¹¹

Abnormal transmission of forces while walking may lead to abnormal transmission of pressure through the nail into surrounding soft tissues.⁷ This needs to be addressed by supportive care which includes proper cutting of nails exactly perpendicular to long axis, use of footwear with broad forefoot and use of toe distractors to alter lines of transmission of force.

CONCLUSION

A combination therapy for ingrown toe nail yields lowest recurrence rates. Lifestyle modification adds to the success rate in preventing recurrence.

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