

Outcome of Partial Nail Avulsion Followed by Matricectomy Either With Phenol (80-88%) or With Electro Cautery for Stage 2 & 3 Ingrown Toenails

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ABSTRACT

Aim: To compare partial nail avulsion followed by matricectomy either with phenol (80-88%) or with electro cautery for Stage 2 & 3 ingrown toenails for early and late postoperative complications.

Methods: This study was conducted at department of surgery Nawaz Sharif social security teaching hospital Lahore for one year from 01-01-2018 to 31-12-2018. One hundred patients full filling inclusion criteria were included in the study and divided into two equal groups A and B. Partial nail avulsion done in both groups followed by chemical matricectomy with phenol (80-88%) in group A and patients in group B matricectomy done with electrocautery.

Results: The mean age in group A is 19.7 ± 8.08 years and in group B is 20.20 ± 6.9 years, both groups comparable p-value (0.74). In early post-operative complications in group A 17(34%) patients and 14(28%) patients in group B experienced mild pain p-value is (0.66). 6(12%) of group A patients and 6(12%) of group B patients experienced moderate pain p-value (01). 1(2%) of group A patient and 2(4%) of group B patients experienced severe pain p-value (01). 02(4%) patients of group A and 02(4%) patients of group B had serous discharge p-value(01). 1(2%) of group B patients have purulent discharge, however, no patients in group A patients have purulent discharge p-value (01). 1(2%) patients of group A and 2(4%) patients of group B had recurrence at three months follow up p-value (01). 2(4%) patients of group A and 4(8%) patients of group B had recurrence at six months follow up p-value (0.68).

Conclusion: Partial nail avulsion followed by matricectomy either with Phenol 80-88% or with electrocautery are comparable in early and late complications.

Keywords: Ingrown toenails, partial matricectomy

INTRODUCTION

The ingrown toe nail (onychocryptosis) is a common painful inflammatory disease¹. About 20% of patients seen by family physician have an in grown toe nail². It occurs when the nail plate grows into adjacent periungual skin and acts as a foreign body which leads to inflammation and infection resulting in a painful draining and foul smelling lesion¹. The big toe is commonly affected however any toe may be affected. The ingrown toe nail is a common condition with the highest incidence occurring in teenagers and adult age between years 11-30³.

The feet in adolescent years perspire more often than adults causing skin and nails to become soft resulting in easy splitting. This produces nail spicules that pierce the lateral skin⁴. In older persons, spicule formation can become a chronic pattern caused by reduced ability to care for their nails in addition reduced mobility and aging process causes the toe nail to thicken and this exerts pressure on lateral skin often becoming infected⁵. In grown toe nails are classified into three stages^{6,7,8}. Stage I: of Inflammation: characterized by swelling of the nail fold, edema, erythema, and pain. Stage II: of Infection: characterized by swelling with sero-purulent discharge, infection and ulceration. Stage III: of granulation: consists of chronic inflammation and granulation as well as nail hypertrophy⁷. Indication for the treatment of an in grown toe nail include significant pain, infection and chronic

inflammation of the nail fold. Pain can be so severe that it can disable one from daily activities such as school, work and physical activities⁸.

There are non operative and operative treatment options largely depending on the stage of presentation as well as patient's preference.^{9,10}

Non-operative treatment comprises general measures such as nail care tips and techniques, including avoidance of tight fitting foot wear and overzealous nail trimming. Affected toe soaked in warm soapy water for ten minutes followed by the application of a topical antibiotic at least twice daily¹¹.

Non-operative management for 1GTN is often recommended for stage I and stage II, clinical improvement may not be immediately obvious¹⁰.

Operative therapy, however, is the option reserved for stage III disease or those for whom non-operative treatment has not been successful.¹² Common operative options include partial or complete nail avulsion (matricectomy) associated with germinal matrix ablation¹⁰. Partial matricectomy maintains functional role of nail plate and preserves cosmetic role¹². Nail plate avulsion without germinal matrix ablation also has high recurrence rate^{12,14}. Germinal matrix ablation (matricectomy) may be achieved either with surgical excision or with physical or chemical agents^{9,10}. In chemical agents we have phenol (80-88 %) is the Gold Standard cuatrant^{13,15}, other chemical cuatrants include Trichloroacetic acid 100%, Bichloroacetic acid and sodium hydroxide (NaOH). Matricectomy can be

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achieved by physical agents like electrocautry¹⁴, radiofrequency ablation and carbon dioxide (Co₂) laser¹⁴.

This prospective study aimed to compare outcome of operative treatment under local anesthesia (xylocain 1%) of stage III and unsuccessful medical treatment of stage II of ingrown toe nail by partial nail avulsion followed by matricectomy either by phenol (80-88%) or with electrocautry regarding early outcome: pain (mid, moderate, severe), serous or purulent discharge and late outcome: Recurrence at 03 months or six months follow up

PATIENTS AND METHODS

This study was conducted in the Department of Surgery Social Security Teaching Multan Road Lahore for one year from 01-01-2018 to 31-12-2018 after approval from Ethical Review Board. One hundred patients full filling inclusion criteria were included in the study and divided into two equal groups A and B by using the tables of random numbers. Patients in group A treated with partial nail avulsion followed by chemical matricectomy with phenol (80-88%). Patients in group treated with partial nail avulsion followed by matricectomy achieved by electrocautry. Operative treatment was performed as day case surgery under local anesthesia 1% xylocain. Patients followed up at 7th and 14th day for wound inspection and then at 4th and 6th week for early post-operative complications and then at three and six months intervals for recurrence.

RESULTS

Group A: partial nail avulsion with matricectomy by phenol 80-88%.

Group B: partial nail avulsion with matricectomy by electrocautry.

The age distribution is shown in table 1. The mean age in group A is 19.7± 8.08 years and mean age in group B is 20.20± 6.9 years. The mean age in both groups is compare able p-value (0.74).

Table 1: Age distribution in years in two groups

Groups	n	Mean	S.D	p-value
A	50	19.7	8.08	0.74
B	50	20.20	6.9	

Table II: Early postoperative complications

Complications	Group A	Group B	p-value
Mild pain	17	14	0.66
Moderate pain	06	06	01
Severe pain	01	02	01
Serous discharge	02	02	01
Purulent discharge	01	02	01

Table III: Late postoperative complications

Recurrence	Group A	Group B	p-value
At three months	01	02	01
At six months	02	04	0.68

While in early post-operative complications in group A 17(34%) patients and 14(28%) patients in group B experienced mild pain p-value is (0.66). 06(12%) of group A patients and 06(12%) of group B patients experienced moderate pain p-value (01). 01(2%) of group A patient and

02(4%) of group B patients experienced severe pain p-value (01). 02(4%) patients of group A and 02(4%) patients of group B had serous discharge p-value(01). 01(2%) of group B patients have purulent discharge, however, no patients in group A patients have purulent discharge p-value (01). 01 (2%) patients of group A and 02(4%) patients of group B had recurrence at three months follow up p-value (01). 02 (4%) patients of group A and 04(8%) patients of group B had recurrence at six months follow up p-value (0.68).

DISCUSSION

In grow toe nails are thought to be caused by improper nail trimming which is repetitive or inadvertent trauma¹. Risk factors predisposing to development of ingrown toe nails include genetic and behavioral mechanisms⁵. Wider nail folds and fatter nails increase the risk of in grown toe nails. Genetic predisposition and family history hyperhidrosis and poor foot hygiene predispose one to develop the ingrown toe nail³.

Diabetes, obesity, thyroid, cardiac and renal disorders increase the likelihood of in grown toe nail⁵. Infections of the lateral nail fold are most commonly caused by staphylococcus aureus and less frequently by Gram negative species e.g (Pseudomonas and streptococcus)⁸.

Although the use of oral antibiotics before or after matricectomy is wide spread. Several studies have indicate that once the ingrown toe nail is removed and matricectomy performed, the localized infection will resolve without need of antibiotics¹¹. This prospective study compares early and late complications of matricectomy for group A matricectomy achieved with phenol (80-88%) and for group B with electrocautry¹⁴.

The overall occurrence of complications in both groups was similar. In this study 17(34%) in group A patients and 14(28%) patients in group B experienced mild pain patients and 06(12%) of both groups A and B patients experienced moderate pain. 01(2%) of group A patient and 02(4%) of group B patients experienced severe pain. Mild and moderate pain managed with oral analgesics (NSAID) for 48 hours, however, severe pain managed with injectables (NSAID) for 24 hours then shifted to oral analgesics for further 72 hours. On 14th day follow up 2(4%) in group A and 2(4%) in group B developed serous discharge managed with dressings and foot care. Only 01(2%) in group B developed purulent discharge managed with oral antibiotics (Amoxicillin-Clavolunac acid) for 72 hours and dressings, however, no one in group A developed purulent discharge. 01 (2%) patients of group A and 02(4%) patients of group B had recurrence at three months follow up. 02 (4%) patients of group A and 04(8%) patients of group B had recurrence at six months follow up all patients managed with reoperation.

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