



## OUTCOME OF WEDGE RESECTION WATSON-CHEYNE TECHNIQUE IN INGROWN TOE NAIL, A PROSPECTIVE STUDY.

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**ABSTRACT** Among the various conditions affecting the foot, ingrown toe nail is a major cause of significant morbidity. It affects a wide range of age group and there is often a history of inappropriate nail trimming habits or ill-fitting foot wear. Initial stages respond to non-operative measures like pain killers, anti-inflammatory drugs, warm soaks, and antibiotics in case of infected cases. Operative measures are reserved for advanced and progressive cases not responding to conservative treatment. Many operative techniques are employed with each having its pros and cons. We carried out a prospective study on a group of 30 patients from March 2017 to March 2019. Watson-Cheyne technique of Wedge resection of nail, nail bed, and nail fold to include nail matrix was used. At the final follow up of one year we recorded the complications, recurrence rate and patient satisfaction. Thirty four (34) Toes in thirty (30) patients underwent surgical treatment. Three (8.82 %) toes got infected post-operatively with five (14.7 %) out of 34 toes operated had recurrence. The combined satisfaction rate in our study group was 70%. Watson-Cheyne technique is a safe procedure, however there are chances of recurrence of nail spicules and mild cosmetic deformity.

**KEYWORDS :** Ingrown toe nail, Watson-Cheyne technique

### INTRODUCTION

Ingrown toe nail is a significant cause of morbidity affecting the foot. It affects a wide range of age group (1). Great toe is involved in a majority of cases. Inappropriate trimming of nails, ill fitting footwear, excessive sweating of feet, or nail abnormalities have been found to be the risk factors for development of ingrown toenail (2,3). If left untreated, it can progress through various crippling stages of acute inflammation, erythema, swelling and leading to acute infection followed by suppuration and pus discharge with some cases progressing to chronic hypertrophic granulomatous stage. This results in difficulty in wearing foot wear, and affecting the activities of daily living. A wide spectrum of population with adolescents and young adults constitute the majority of patients. People who do not wear shoes are rarely affected and the most likely explanation in such cases is the absence of extrinsic pressure. Ingrown toe nail is a clinical diagnosis, and management options vary depending upon the stage of the disease. Classifications systems like Heifetz, Frost (4,5) have been used to stage the ingrown toenails (Table-1).

**Table-1 :**

HEIFETZ CLASSIFICATION		FROST CLASSIFICATION	
Stage I	Slight erythema and swelling of the nail grooves in the nail bed.	STAGEI	Nails have spur formation in the lateral nail fold that occurs due to irregular nail growth in a normal nail bed.
STAGEII	Presence of acute infection and suppuration.	STAGEII	Nails have inwards folding of the lateral border of the nail bed (concave nail).
STAGEIII	Chronic infection, the formation of granulation tissue surrounding the nail groove and hypertrophy of the surrounding tissues.	STAGEIII	Nails have a normal nail bed accompanied by soft tissue hypertrophy in the lateral border, hypertrophy of the surrounding tissues.

Management options vary according to the stage of disease. Early stages are treated conservatively which includes avoidance of ill-fitting shoes, careful trimming of nails and avoid deep cutting of nails. Hygienic measures like washing feet in luke-warm soap water or using iodine or hydrogen peroxide have been found to be useful (6). High

risk factors like Diabetic patients need to be identified and aggressive treatment must be initiated. Soft tissue intrusion by sharp nail edge needs immediate intervention to prevent further progression. Measures like nail edge separation with dental floss, gutter treatment, nail-splinting have proved to be beneficial (7,8). Late stages with severe pain and purulent discharge need surgical intervention. There are various surgical techniques available ranging from total removal of the nail, partial or total excision of the germinal matrix or chemical matrixectomy using phenol and alcohol. Simple nail avulsion alone leads to high recurrence rates, up to 70 % (9). The aim of this study is to determine the efficiency, patient satisfaction and complications of the Watson-Cheyne surgical procedure.

### MATERIALS AND METHODS

This prospective study was done on a group of 30 patients (34 toes) in Govt. medical college and Associated Hospitals, Jammu, jammu and Kashmir from March 2017 to March 2019. Patients were staged according to Heifetz classification and late stages (2 and 3) were included in the study. We excluded the patients with diabetes having peripheral neuropathy and hypoaesthesia, and peripheral arterial disease. Base line lab investigations like Hb, complete blood count, bleeding time, clotting time, screening for HIV 1 & 2 and hepatitis B and C, and blood sugar levels. Watson-Cheyne surgical procedure was done in the study group of patients. Patients were followed up to a period of twelve months. Recurrence rate of the procedure in our study was calculated at the end of follow up. At final follow -up p patients were asked to rate procedure satisfactory or unsatisfactory and complications were observed.

### SURGICAL TECHNIQUE

The operative procedure 'Watson-Cheyne technique' was performed under all aseptic precautions by preparing the part using chlorhexidine and draped. Digital nerve block of great toe was achieved by infiltration of local anaesthesia (3 -5 ml of 2% Lidocaine Hcl). Preoperatively, 1.5 g of cefuroxime was given half an hour before commencement of surgical procedure. A well padded tourniquet in the form of a sterile glove was used. Incision is given as shown in figure-1. The rationale for partial nail fold and matrix removal is to eliminate all parts of the pathological condition leaving the normal nail and soft tissue intact. It involves wedge resection of the nail, nail bed, and nail fold. The removal of the germinal matrix is crucial in preventing formation of spicules. The lateral fourth of the nail plate is removed by lifting it from its bed with a small, flat dissector that reaches the most proximal end of the nail root. Using straight scissors, remove this

portion of the nail. Non-adherent dressing like bactigrass was done followed by a sterile compression wrap. Patient was discharged on the same day after explaining the instructions to be followed at home. Oral antibiotics for 5 days and analgesics were advised. The patients were advised to keep foot elevated for 48 hours after surgery. The dressing was removed and warm soaks for 10 to 15 minutes several times a day was advised. The patients were advised to avoid closed shoe wear for 2 weeks postoperatively. Stitches were removed at 2 weeks. Patients were followed up 2 weekly for 1st month, 6 weekly afterwards till 6 months, and then twelve weekly till one year.

**Figure no.-1**



## RESULTS

We included 34 toes in 30 patients in our study. We had only 4 (13.33%) females out of 30 patients. The age ranged from 20 years to 60 years with average age of 34.2 years. We had 4 (13.33 %) patients with bilateral involvement, 14 (46.66%) with right great toe involvement and 12 (40%) left toe involvement. 24 (70.5%) toes had stage 2 and 10 (29.41%) toes had stage 3 disease. We had 5 (14.7%) recurrences which needed another procedure. Secondary infection occurred in 3 toes (8.82%). We had a wound breakdown in two cases which settled after regular dressings. 21 (70%) patients were satisfied with the procedure, while 9 (30%) patients were not satisfied. Four out of seven patients (3 females and one young male) were not satisfied due to cosmetic reasons. The results were comparable to the literature.

## DISCUSSION

The ingrown toenail is a common source of morbidity involving a wide range of age group and affects the activities of daily living. In early stages of ingrown toe nail non-operative treatment remains a rational approach. It proves to be an economical option with mild disability and pain (10). Measures like Careful cutting of the nails, avoiding tight shoe wear, keeping the foot dry and clean have been found to be beneficial (11). There are many surgical procedures for the treatment of ingrown toe nails. In our study we observed 14.7 % recurrence rate, 8.82 % infection rate, and 70 % satisfaction rate. Secondary Infection, recurrence along with the cosmetic reasons especially in case of female cases contributed to the dis-satisfaction rate.

## CONCLUSION

The crucial factor in Watson-Cheyne technique to prevent spicules is removal of the germinal matrix. The portion of the nail plate and lateral nail fold removed with the wedge is adequate and seems to be based on sound reasoning. It's a safe procedure, with acceptable recurrence rates and complications. If the patient accepts that a part or all of the nail may regrow and be mildly deformed, the method of treatment is an acceptable option. The possibility of recurrence and cosmetic disfigurement must be explained to patients particularly female patients.

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