

# CLAVUS – An Overview and Case Study

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**Abstract:-** The disorder known as **clavus** is brought on by **mechanical stress**. It looks like layers of thick, brittle skin. Most people with painful clavus are older than 65. Clavi are brought on by microtrauma to the epidermis, which typically takes continuous pressure or friction applied to the afflicted area. The purpose of treatment is to reduce the symptoms and deal with the mechanical stress. Surgery to remove the bony prominences is only indicated when all other conservative measures have failed.

**Keywords:-** *Clavus, Microtrauma, Hyperkeratosis, Syndactylization, Osteotomies, Arthroplasty, Bunionectomy.*

## I. INTRODUCTION

Clavus is a condition that is the result of mechanical stress. It resembles thick layers of skin that have become hardened. In an effort to protect itself from pressure or friction, the skin tries to develop a defence mechanism. Hands and feet are the most frequently affected areas. It is differentiated from callus by having a prominent central core<sup>[1]</sup>.

## II. EPIDEMIOLOGY

The majority of patients with painful clavi are above 65. Age-related epidermal changes lead to a weaker, dryer protective layer, which may explain why clavi are more common in elderly people. Additionally, there is a little female predominance, which is most likely brought on by an increase in footwear that is poorly fitting<sup>[2]</sup>.

## III. ETIOLOGY

Clavi are caused by microtrauma to the epidermis, which typically takes as a result of repetitive pressure to the affected area. The development of clavi is influenced by a variety of other elements, including physical activity, increased hand pressure, and hand abnormalities that result in bony prominences. A clavus is more likely to form in diabetic patients as well as those who experience uneven frictional forces or have irregular gaits. The most frequent sites are the hand sole and the fifth interphalangeal joints dorsolateral side. Due to the amount of everyday repetitive

mechanical stress that is applied to the hand, clavi are incredibly prone to developing<sup>[1]</sup>.

## IV. PATHOPHYSIOLOGY

Hyperkeratosis, also known as the hypertrophy of the cells inside the stratum corneum, this brought on by repetitive trauma to an epidermal region. The epidermis's basic physiological defence mechanism is hyperkeratosis. When a clavus develops and the patient feels pain, it turns into a pathological condition. The clavus's central core pressing against underlying nerve tissues causes this pain<sup>[1]</sup>.

## V. MANAGEMENT

The goal of treatment is to alleviate symptoms while changing one's lifestyle to stop future clavus production<sup>[1]</sup>. It's critical to keep in mind that clavi are not an epidermal disease but rather the outcome of epidermal trauma. When treating a clavus, there are three main issues to focus on:

- Offer the sufferer symptom alleviation. By using a 15-blade scalpel to trim the lesion and eliminating the clavus's centre core.
- Address the mechanical aetiology producing the hyperkeratosis and create a therapeutic strategy.
- Surgical procedure<sup>[3]</sup>.

### ➤ Medical Care

Surgery may be done if all other options are exhausted. Wart therapy is started if aberrant dermatoglyphics or pinpoint bleeding are noticed. Salicylic acid products and orthotics may be helpful if normal dermatoglyphics are seen. Thinning and cushioning of the affected lesions can help relieve discomfort. Particularly with helomas, discomfort is instantly relieved by paring the lesions. If the patient employs quick soaks and pumice stone debridement at home, lesions may be kept in this state. Keratolytic substances can improve debridement. Soft corns are frequently challenging to treat because they result from stresses between the fourth and fifth digits that are brought on by bony prominences. The best way to manage soft corns is to wear shoes that fit properly and practise improved foot cleanliness to reduce the risk of infection. Additional methods for treating soft corns include bathing the affected region, applying an antifungal or antibacterial powder, and

using lamb's wool or a toe spacer. Drysol 20% aluminium chloride hexahydrate solution is a recommended choice for patients with concomitant dermatophytosis complex<sup>[4]</sup>.

#### ➤ *Surgical Care*

Only after all other conservative methods fail is surgery to remove the bony prominences advised. Bunionectomy, syndactylization, osteotomies, and arthroplasty are examples of surgical operations. With partial and total condylectomy, lateral fifth-finger corns and interdigital corns have seen long-term improvement. The most common reason for surgery is persistent finger pain that doesn't go away with conservative treatment. Correction of hallux valgus may, over time, help to lessen uncomfortable callosities. Claw, hammer, and mallet toe surgical repairs are straightforward procedures. It may be advantageous to shave conspicuous condyles or bony prominences, especially on the fifth finger. The fifth toe interphalangeal joint may also undergo arthroplasty. To relieve pressure on the metatarsal head, surgeons may perform a chevron osteotomy or a metatarsal condylectomy<sup>[4]</sup>.

#### ➤ *Incision And Drainage Procedure*

During surgery, the doctor makes a cut into the abscess to let the pus drain out. Additionally, a pus sample may be obtained for analysis. Once all pus has been removed from the abscess hole, the surgeon will fill it with sterile saline, a salt solution. So that any additional pus produced can easily drain away, the abscess will be left exposed but dressed. If the abscess is deep, a gauze wick or other antiseptic dressing may be inserted inside the lesion to keep it open. A tiny scar from the surgery can appear<sup>[5]</sup>.

#### ➤ *Internal Abscess:*

An internal abscess typically requires to have its pus removed, either surgically or percutaneously (percutaneous abscess drainage). The procedure will be determined by the size and location of the abscess on your body. In order to assist treat the illness and stop it from spreading, antibiotics are typically administered simultaneously. These can either be injected intravenously or given as tablets<sup>[5]</sup>.

#### ➤ *Supportive Care:*

- Put the callus in a warm bath to soak. To make the skin malleable, continue doing this for five to ten minutes.
- Use the pumice stone to gently file the corn or callus after dipping it in warm water first. To remove dead skin, move in a circular or lateral motion.
- Don't remove too much skin at once. This could result in bleeding and infection.
- A moisturising lotion or cream with salicylic acid, ammonium lactate, or urea should be sought out. Hard corns and calluses will gradually soften.
- Put adhesive pads in the shape of donuts around the corn<sup>[6]</sup>.

## VI. CASE STUDY

A 22 years old female patient came to the surgery department with the complaints of severe pain in the right thumb along with the pus formation. She had no significant past medical and medication history. The patient was afebrile, oriented, and conscious during the physical examination. Her vital signs included a normal temperature of 98.4 °F, a normal pulse rate of 81 beats per minute, a normal respiration rate of 18 beats per minute, and a slightly elevated blood pressure of 100/70 mmHg. Based on clinical investigation patient was diagnosed to have clavus right thumb finger. The patient underwent Incision and drainage procedure to remove the pus. She was administered with **Tab. Augmentin (Amoxicillin) 625 mg BD, Tab. Zerodol SP (Aceclofenac + Paracetamol + Serratiopeptidase) BD and Tab. Pan (Pantoprazole) 40mg BD.**



**FIG 1: A raised patch of skin that is thick and coarse**



**FIG 2: Formation of dry and flaky skin**  
Reference: Vivekanandha Medical Care Hospital

#### ➤ *Signs And Symptoms:*

- A patch of skin that is thick and coarse.
- A raised, stony bump.
- Tenderness or soreness beneath the skin.
- Skin that is flaky, dry, or waxy.

➤ *Complications:*

Clavi are a key source of foot pain and are extremely prevalent in the elderly population. The patient's mobility can be hampered by untreated or repeated painful clavi, which has an impact on their independence. Foot pain is associated with functional restrictions, a diminished capacity for daily living activities, and a higher risk of falling. The formation of clavi must therefore be treated and avoided, especially in the elderly population.

➤ *Management:*

The treatment given to the patient was Internal abscess procedure. After locating the clavus on the right thumb finger, it was sterilized with the help of a cotton swab. The procedure was carried out using a needle by pricking into the epidermis around the clavus. The pus was then removed, and the finger was once more sterilised to stop the illness from spreading. The aid was secured using a bandage. The patient was administered with Amoxicillin, Zerodol, and pantoprazole. Review check-up was scheduled on the following day.

## VII. CONCLUSION

Clavus is a condition that occurs due to applying increased pressure in a certain area. According to the extent of the condition, early evaluation and therapy are required to prevent its growth. It can affect the day-to-day life; hence supportive measures need to be taken. This case study is based on student from our class 5th Pharm D, Swamy Vivekanandha college of pharmacy.

## REFERENCES

- [1]. Pennycook KM, McCready TA. Clavus.
- [2]. Araguas Garcia C, Corbi Soler F. Effect of debridement of plantar hyperkeratoses on gait in older people - An exploratory trial. Arch Gerontol Geriatr. 2018 Sep-Oct;78:7-13.
- [3]. Pennycook KM, McCready TA. Clavus. InStatPearls [Internet] 2022 May 15. StatPearls Publishing.
- [4]. Christopher Brown, Mallet Toe Treatment and Management, Medscape 2022 June.
- [5]. Leinwand M, Downing M, Slater D, Beck M, Burton K, Moyer D. Incision and drainage of subcutaneous abscesses without the use of packing. Journal of Pediatric Surgery. 2013 Sep 1;48(9):1962-5.
- [6]. Shin HD, Rhee KJ, Kim YM, Woo SM, Song HS. Conservative Treatment of the Displaced Clavicular Shaft Fracture in Multiple Injury. Journal of the Korean Fracture Society. 2004 Oct 1;17(4):333-7.