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"Understanding and Managing Foot Corns: Causes, Prevention, and Treatment Strategies"

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Abstract

Foot Corn (FC) or Heloma has another name, Hyperkeratosis, in which appearance of part of the foot is pinkish and having yellowish spots. This is generated due to friction to lose shoes wearing. Using imperfect shoe or shoe size may also develop FC. FC usually develop in older age, but not necessary, it depends on several factors like the condition of the body, sweating of sole etc. Three type of FC 1. Soft FCs, 2. Hard FCs 3. Seed FCs. Symptoms may be the spot in foot, gradually number of spots may increase day by day. Within few days it seems as multiple layers of skin that develops from your skin's response to friction and pressure. Soaking feet in lukewarm water and baking soda powder/salts are the preventive measure and cure of FC. Using shoes having proper fit and scrubbing feet with Pumice stone on FC side. Proper care and Salicylic acid Cream/Ointment/Gel can be over the counter treatment for FC.

Keywords: Foot Corn, Heloma, Loose Shoes, Lukewarm water.

Introduction

Foot corn is a highly concentrated, confined hyperkeratosis lesion with an inner conical core of keratin. It is sometimes referred to as clavus, heloma durum, or intractable forefoot hyperkeratosis (IHypK). Friction causes corn production in numerous areas of the body in both humans and animals, but medical professionals seldom ever detect it since it usually does not cause significant problems. Corns both injure and shield people. Bipedalism helped early hunters and gatherers by increasing mobility along the course of human development by freeing up hands for other chores and offering extra length in an erect position to have a clear perspective of animals and predators. All of these advancements, though, weren't without cost. Problems with bearing weight developed in a number of bodily parts, chiefly the feet. To protect the foot, callosities and corns developed; they can occasionally be uncomfortable and cause limping. If improper footwear was worn, the situation grew worse. According to several research, these illnesses are more common among girls. The reasons for these hyperkeratosis diseases included going barefoot, taking off shoes for religious purposes, getting hurt while dancing ballet, and using inferior shoes. While the practice of Chinese foot binding has been well publicised as the horrifying technique of making one's feet unbearably 'beautiful', women are now developing corns and calluses from the relatively new Western fashion trend of wearing stiletto heels with pointed, narrow shoes. Twenty to sixty-five percent of persons over 65 suffer from hyperkeratotic lesions, or corns and calluses, on their feet. Although keratotic lesions are sometimes considered a minor worry, they can really cause a great deal of discomfort and damage. It has been demonstrated that older persons with plantar keratotic lesions performed poorly on balance tests and had greater difficulty walking on level ground and climbing and descending stairs. Furthermore, especially in those with diabetes, untreated keratotic lesions can damage deeper tissues and ultimately lead to ulceration.

Figure 1: Soft Foot Corn (Right Side) and Hard foot Corn (Left Side)

Though there is no evidence to support it, it seems plausible to assume that early hominids were aware of how uncomfortable and challenging walking was, and that they must have discovered ways to take care of their feet. The earliest evidence of foot hygiene may be seen close to Ankmahor's tomb (2400 BC). Leg foot care included treating calluses and corns; for optimal results, a foot massage is also required. (1) As a result of pressure or friction on the skin, calluses and corns grow beneath the skin, acting as the skin's protective mechanism.

Anywhere there is frequent touch, like the fingertips of a musician or the hands of a mechanic, calluses can grow on the body. The pressure of the bones on the skin causes corns to form. The balls of the foot and the tips and sides of the toes are where they are most frequently found. Corns can be soft and mushy, or solid and dry. Common causes of corns include poor shoe fit and arthritis.

Hard patches of skin that develop as a result of tension and abrasion make up foot corns. You may have foot corns if you notice any of these symptoms on your toes or extremities:

- Yellowish, roughened skin with ridges or warts
- skin that's sensitive to touch
- Pain while wearing shoes

Treatments for foot corn are frequently effective, and you may even be able to stop future outbreaks. Read on to find out how to take care of your existing maize while lowering your chances of getting more.

Type of Foot Corn:

Three different types of foot corns are -

Soft Corns: The sensitive skin on the side of your toes or in the space between your toes is usually where soft corns originate. They have a squishy, rubbery feel and are more whitish-grey than yellow.

Hard corns: Where bone pressure is exerted, they often appear on the tips of your toes. They are compact and robust.

Seed Corn: Typically, seed corn grows in clusters on the bottom of your foot. They form via pressure and friction, just like hard and soft corns, although they are smaller than other corns (2).

Ailments of Foot Corns and Calluses:

Here are a few methods to distinguish between various types of calluses and corns. Anywhere on the body when friction is present, a compacted region of dead skin can develop into a callus. Calluses go by several different colloquial names.

On the outside of the little toe or on the toe's crown, a hard corn is a compact region of hard skin with a thick center.

A fragile, reddish patch of skin is called a soft corn. It is situated in between the toes and has a smooth, thin center.

A dead skin plug called a "seed corn" usually hurts and occurs near the base of the foot or heel. One that develops on the plantar surface or bottom of the foot is called a plantar callus.

Prevention of Foot corns

To ensure that your corns do not grow or return following therapy, you must first address the underlying causes. Here are some techniques to reduce stress and prevent corn from developing:

- *Verify that socks and shoes fit correctly.* Measure your foot to ensure the right fit, then buy shoes that are just the right amount of snug but not too tight. Purchasing footwear towards the end of the day, when your feet have some swelling, is an effective strategy to ensure you receive the correct size.
- *File down your toenails.* Maintain short toenails as they can push your toes against your shoe, causing pressure that eventually leads to the formation of corn.
- *Apply corn pads.* Corn pads offer protection around your corn from excessive pressure or friction. These pads usually have an adhesive backing and are formed like doughnuts to disperse pressure around the corn. The corn should be placed in the middle of the holes.
- *Retain personal hygiene.* Every day, wash and scrub your feet using soapy water and a good-sized scrub brush or stone.
- *The secret is to moisturize.* Maintain foot hydration. Apply foot cream every day to prevent dryness and friction. (3).

Cure of Foot corns (FC)

Prior to treating corns, you must identify the cause of the friction. Usually, as the pressure or friction that generated them is released, they will disappear on their own.

In the case that avoiding further inflammation is insufficient to resolve the issue, doctors recommend the following actions to remove corns:

Prior to treating corns, you must identify the cause of the friction. Usually, as the pressure or friction that generated them is released, they will disappear on their own.

In the case that avoiding further inflammation is insufficient to resolve the issue, doctors recommend the following actions to remove corns:

1. Dip your toe into some warm water.

To soften the skin, make sure the corn is submerged thoroughly for ten minutes.

2. Use a pumice stone to scrub the corn.

A rough, porous volcanic rock called a pumice stone is used to exfoliate dry skin. Before using the pumice stone to gently file the corn, soak it in the hot water. The removal of dead skin may be aided by sideways or smooth circular movements.

Advice: Avoid taking off too much skin. An excessive amount of filing might cause bleeding and infection. You run the risk of infecting the surrounding tissues with a possibly fatal infection if you attempt to chop or shave your corns. Corns should only be cut or shaved by a doctor.

3. Lotion the corn: Use a salicylic acid-containing moisturiser or cream. The keratin protein in maize is broken down by salicylic acid, exposing dead skin. Salicylic acid, however, is not recommended for those with diabetes, cardiovascular issues, or delicate skin.(4)

Figure2: Soak in Warm Salted Water

4. Allopathic Medication

The goal of pharmacotherapy is to minimize morbidity and prevent issues. Debridement can be facilitated by keratolytic agents, such as ureas, alpha-hydroxy acids (like glycolic, malic, or lactic acid), or beta-hydroxy acids (like salicylic acid). Small children and pregnant women should not use these substances. The concentration range of many salicylic acid compounds is between 10 and 17%. In diabetics, high concentrations of salicylic acid (e.g., 40%) can result in severe maceration and open sores on the foot. The best treatment for thick lesions is to use self-adhesive pads; for maintenance, lotions, creams, and drugs containing petrolatum work well. Topical vitamin A acid derivatives and intralesional triamcinolone may also be helpful for localised hyperkeratosis. Due to its limited absorption, trimethoprim can be given during pregnancy; nonetheless, it may cause localised hypopigmentation. Since the safety of topical vitamin A derivatives varies from category C to category X, it is not advised to provide them to expectant or pregnant women.

Physician-administered combination medication of 1% vesicant cantharidin, 30% salicylic acid, and 5% podophyllin has been shown to be effective for most patients after just one session. (5).

There is a topical ointment called Canthacur-PS that is sold commercially. It has 1% cantharidin, 30% salicylic acid, and 5% podophyllin. After 72 patients had this treatment, we found that 65 (90.3%) had corn on their feet and 7 (9.7%) had corn on their hands. Using a No. 15 blade, the thick, tough, and hyperkeratotic skin was scraped off. Using a cotton pad, the solution was applied to the lesion and its surroundings (up to 1-2 mm), and an antibiotic dressing was left on for five days. A year of patient follow-up and routine clinical examinations were conducted. A patient satisfaction questionnaire was also used to evaluate. For 57 (79.2%) of the corn patients, this single treatment session was effective. Nine patients (12.5%) needed two treatments, five corn patients (6.9%) needed three sessions, and one patient (1.4%) needed four sessions. There was just one recurrence (1.4%). No adverse effects or scars were noticed. The information indicates that this method of treating calluses is simple, non-invasive, and successful.

Household Remedies

Household methods for corn removal may be effective against minor corns. These treatments include eliminating the cause of friction with the following approach:

Choose shoes that reduce friction where the corn is located:

Select more roomy, non-constricting footwear to relieve pressure on the feet.

• Refrain from donning shoes that are too baggy as this might irritate your toes.
• To ensure a correct fit, measure your feet.

• When your feet are swollen and their full size towards the end of the day, shop for shoes.
• Wearing sandals or shoes with high heels may increase the strain on your forefoot. Don't use them.

• When wearing excessively big socks, wear them to reduce friction from the tight seams and to prevent your feet from slipping. (6).

Cut your toenails:

- Excessively long toenails might cause a corn to grow between the toes and shoe.
- Trim your toenails evenly, leaving an enough area for the corners to rest gently on the sides of skin (7).

Over-the-Counter (OTCs):

OTCs medicines may assist alleviate friction and can also help in shrinking the size of corn. The possibilities may include the following:

Soaking the corn in lukewarm water before using a pumice stone:
• To soften the skin of maize for at least 20 to 30 days, soak it for at least 5 to 10 minutes each day.
• Soak the naturally abrasive, porous pumice stone in warm water.
•Scrub the corn with the stone.
• To remove dead skin, gently push in both horizontal and rotating directions. Be careful not to press too hard as this might result in bleeding or infection.
• After each usage, be sure to rinse the pumice stone.

Use moisturizing lotions or creams:

To soften a hard corn, use lotion and moisturiser after cleaning. Invest in a lotion or cream that contains urea, ammonium lactate, or salicylic acid (beta hydroxy acid), any one or two of these keratolytics (drugs that progressively eliminate excess skin).

(Warning: Follow label instructions)

Pads soaked in the aforementioned medications can also be used.

Foot padding:

Place an adhesive corn pad—typically shaped like a doughnut or a piece of moleskin—on top of the hard corn. This foot cushioning keeps toes from rubbing against shoe tops, which may lessen corns.
• If you want to cushion a delicate corn between your toes, use lamb's wool rather than cotton.

Put insoles in your footwear.**:**

- Select insoles to help your feet and toes line up.
- To reduce pressure and friction in the affected area, wear shoe inserts. (8).

Discussion:

Small, round, scaly patches of skin on the foot, particularly on the toes and sides of the foot, are called foot corns. Foot corn is a condition brought on by pressure and friction, typically by ill-fitting footwear, repeated activities, or aberrant foot anatomy. Two distinct groups of corns are Hard Corns (Heloma Durum) and Soft Corns (Heloma Molle). causes pressure and friction, ill-fitting footwear, abnormalities of the toes, and treatment Foot Baths It might be simpler to remove dead skin from the feet by soaking them in warm water to soften the skin. Using a pumice stone or ery board, moisturising lotions, and moisturisers helps maintain smooth skin and stop corns from coming back. Medical Procedure Treatments using Salicylic Acid: With a doctor's supervision, over-the-counter medications containing salicylic acid can be utilised.

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