

# ONYCHOCRYPTOSIS (INGROWN NAILS): A HOMOEOPATHIC REVIEW

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## Abstract

The nail is structure of the hands and feet; they are susceptible to various traumas in relation to the occupation of the person their personal lifestyle. It can ingrown on any of its four margins, lateral ingrowing being the most common pattern and the great toes are those most often affected. This review presents an overview of the etiology, risk factors, clinical presentation and homoeopathic approach to ingrown nails.

**Keywords:** onychocryptosis, ingrown nail, unguis incarnatus, homoeopathy, *Magnetis polus australis*.

## INTRODUCTION:

The nail is a part of the integumentary system and is present on the dorsal aspect of the tips of fingers and toes. It has important protective and sensory functions and besides that it is also a main aesthetic part in the body where people paint and decorate them.<sup>1</sup>

Nails start forming in utero between 7 and 8 weeks and is fully formed at birth. Anatomically, it consists of 4 epithelial components: the matrix or the visible portion of the nail forms the nail plate, the nail bed that firmly attaches to the tips of finger; the hyponychium that forms a natural barrier at the physiological point of separation of the nail from the bed; and the eponychium that represents the undersurface of the proximal nail fold which is responsible for the formation of the cuticle.<sup>1</sup> The nail is firmly attached to the nail bed; it is less adherent proximally, apart from the posterolateral corners. Approximately one-quarter of the nail is covered by the proximal nail fold, and a narrow margin of the sides of the nail plate is often occluded by the lateral nail folds.<sup>2</sup> Various nail diseases occur due to the trauma of nails, infection or any systemic illness as in clubbing.

When a sharp irregular nail edge is produced at the distal and lateral corners of nails this edge will irritate the surrounding soft tissue and skin with a low-grade infection occurring. This is an ingrown toe nail.<sup>3</sup> It is also known as **Onychocryptosis** or **Unguis incarnatus** and is the lateral ingrowing with congenital malalignment of the big toenails in young adults.<sup>2</sup> It occurs when the periungual skin of the lateral nail fold is penetrated by its adjacent nail plate, resulting in an inflammatory foreign body reaction which causes pain, discomfort, inflammation and, later, the formation of granulation tissue<sup>2,4</sup>

There are four main types of ingrown nail. These are distal nail embedding, juvenile (subcutaneous) ingrown nail, hypertrophy of the lateral nail fold (lip), and pincer nail.<sup>5</sup>

Infection is not typically associated, but the pain, swelling, redness causes the person to seek management or treatment for the same.<sup>2</sup> They may also persist or progress if not properly addressed, which results in a

progressively more painful digit which may disturb the person's functional ability. Chronic onychocryptosis is the growth of granulation tissue which later on undergoes epithelialization.<sup>6</sup>

## **DISCUSSION**

### **EPIDEMIOLOGY:**

Onychocryptosis is one of the most common nail problems with a bimodal age distribution.<sup>7</sup> The highest incidence is seen in the second and third decade with a male: female ratio of 2:1.<sup>8</sup> Onychocryptosis affects both the medial and lateral nail folds of the hallux equally; however, a few studies have demonstrated a predominant lateral toe involvement over the medial side.<sup>9</sup>

### **AETIOLOGY:**

The various etiological factors include abnormally long toes, hyperhidrosis, poor foot hygiene, ill-fitting footwear like pointed toed or high heeled shoes, incorrect cutting of nails in semicircle rather straight across, hereditary conditions such as congenital excessive convexity of the nail plate and malalignment of the great toe nail, imbalance between the width of the nail plate and that of the nail bed, prominence of the nailfolds and improper care of foot.<sup>10</sup> Sports with the toe impacting on the inside of the shoe through kicking or other movements, can be a contributory factor.<sup>2</sup>

In infancy, ingrowing toenail most commonly occurs before shoes are worn and is associated with crawling, 'pedalling' or wearing undersized 'jumpsuits'; acute paronychia may be associated. In children, ingrowing is commonly distal rather than lateral.<sup>2</sup>

Obesity causes more soft tissue mass throughout the body and this causes constriction by footwear. Similarly, diabetes, as well as, thyroid, cardiac, and renal disorders can increase lower extremity edema mimicking the effect of obesity on the nail unit<sup>11</sup>

### **PATHOPHYSIOLOGY (NATURAL HISTORY):**

The method of trimming nail in semicircular shape with rounded edges causes a barb to appear. As the nail grows it penetrates the tissues deeply and downwards causing pain, without treatment there is risk of chronic recurrency of the symptoms. The puncture of periungual skin by its corresponding nail plate, results in a cascade of foreign body, inflammatory, infectious, and reparative processes. The local inflammatory processes can lead to enzymatic digestion of the nail portion which can lead to a granuloma, and it can result in permanent hypertrophy of the nailfold.<sup>4,12</sup>

In trauma of nails there is dislodging of the nail upwards with a new nail growing beneath. The proximal aspect of the old nail then impacts on the ventral aspect of the proximal nail fold. Proximal nail in growing is known as retronychia and is self-limiting over a matter of several months as eventually the older nail is shed.<sup>2</sup>

### **CLINICAL FEATURES**

The first symptoms are pain and redness, and later there is swelling and pus formation. Granulation tissue then forms and adds to the swelling and discharge. More severe infection may follow. The pain is sharp focal pain at the lateral end of the toe that becomes worse with weight bearing and moving about. The hallux may feel warm on touching.<sup>2</sup>

Ingrown toenails can be classified into three stages: mild (or stage I), moderate (or stage II), and severe (or stage III).

- Mild cases are characterised by nail-fold swelling, oedema, erythema, and pain (with pressure), resulting from the puncture of the skin by the nail plate.
- Moderate cases are associated with the same symptoms as in mild cases, but they also lead to inflammatory granuloma tissue, accompanied by seropurulent discharge which is foul smelling; infection; and sometimes ulceration of the nail fold.
- The most severe cases resemble mild and moderate cases, but they mostly exhibit chronic inflammation; the formation of epithelialized granulation tissue; and sometimes marked nail-fold hypertrophy.<sup>12,13</sup>

### **DIAGNOSIS:**

The diagnosis of onychocryptosis can be established by clinical examination. However other tumors, primary or metastatic may mimic the presentation of an ingrown toenail therefore thorough examination and case history is needed.<sup>14</sup> Standard radiographs of the affected toe should be done to visualize these tumors.

### **COMPLICATIONS**

Paronychia or secondary infection of the nail fold is common and can be caused by various bacteria, fungal infections therefore, care is to be taken to prevent secondary infections. Scarring of the nail fold and skin and rarely, cellulitis and osteomyelitis can occur.<sup>15</sup>

### **TREATMENT:**

The main aim of treatment is to relieve the pain and symptoms, prevent worsening of the toenail, and to prevent recurrency in the long run. The main vital step is to advice and ensure that the patient wear sufficiently wide, high and pliable shoes to remove lateral pressure. Any anatomically different foot/toe function to be corrected. The patient must also be instructed to cut the nail straight across instead of in a semicircle. The nail must be allowed to grow until its edges are clear of the end of the toe before it is cut; to avoid creating sharp spicules.<sup>2</sup>

Non-surgical interventions are most likely to be of use when the ingrowing toenail is at a mild or moderate stage of development (stage I and stage II).<sup>4,16</sup>

Conservative treatments have included the use of astringent soaks such as hypertonic solution of Epsom salts or the application of 25% silver nitrate solution may be beneficial but are rarely used today.<sup>17</sup> In the early stages, twice-daily warm water baths and careful drying and powdering are helpful. Dental floss inserted obliquely under the ingrown nail corner is also effective in mild to moderate cases, relieving pain and causing no secondary infections and helps resume normal activities.<sup>18</sup> Treatment is continued until the normal nail grows past the edge of the lateral fold, which typically occurs in two to 12 weeks.<sup>19</sup>

Ozoile is a pool of molecules obtained through a patented process by reaction of a defined mixture of oxygen-ozone with the olefinic fatty acids bonds of extra virgin olive oil +OIL. Ozoile-based hydrogel and barrier cream formulations has anti-inflammatory and analgesic properties and thus helps in alleviating pain, inflammation and improving function in patients with onychocryptosis.<sup>11</sup> Gutter splints is a sterilized vinyl intravenous tube with one end cut diagonally for smooth insertion over the side of the ingrown nail affixed with tape, cyanoacrylate adhesive, suture, or wound closure strips are used for treatment onychocryptosis especially those with granulation tissue.<sup>4,20</sup> Wisps of cotton placed in a U shape between the nail plate and the affected nail fold using a nail elevator and is secured and hardened with

cianoacrylate adhesive and to replace it as and when needed. There has shown to be improvement in these patients.<sup>4,21</sup>

Orthonyxia involves placing a small metal brace which hooks on both sides on the nail and tension applied to the brace and attached to nail plate with an adhesive after the involved part of the nail is removed. The metal brace has an omega shape in the centre and U-shaped hooks on both sides. After the hooks are placed around both edges of the nail, tension is applied to the brace, and then it is attached to the nail plate with an adhesive.<sup>4,22</sup>

Band-aid method is with an adhesive bandage, the nailfold is pulled away from the nail which helps in reducing the pressure of the nail on the edge.<sup>4</sup> A toe spacer between the first and second toes may be effective in the treatment of stage I onychocryptosis.<sup>23</sup>

Liquid nitrogen spray cryotherapy is a quick, simple, and cheap nail sparing procedure which produces fully reversible functional changes in peripheral nerves and thus produces rapid relief of pain in treatment of patients with onychocryptosis most cases.<sup>24</sup>

If conservative measures fail, surgery is necessary. Removing the nail alone is likely to result in recurrence of ingrowing when the nail returns and thus needs to be combined with a curative procedure such as phenolization of the relevant part of the matrix.<sup>6</sup>

**Surgical interventions** Surgical interventions aim to remove the affected part of the nail along with the destruction of matrix. These interventions are most likely to be of use when the ingrowing toenail is at a more severe stage of development (stage II and stage III)<sup>4</sup>

Between 60% and 80% of patients with onychocryptosis treated with partial or complete nail plate avulsion have recurrence of their ingrown toenails and may need subsequent surgical intervention including either partial or total ablation of the nail matrix.<sup>25</sup> Surgical management involves partial or total nail plate avulsion along with chemical or surgical removal of the lateral part of nail. Phenol matrixectomy is the application of phenol which is a caustic agent and causes denaturing of proteins and preventing nail growth in growing part. The recurrence rate is low, but in complete phenol matrixectomy recurrence may occur. Surgical excision of the lateral nail matrix involves reflecting the proximal nail fold and scalpel excision of the lateral portion of the nail matrix, including the lateral horn is also done.<sup>6</sup>

### **HOMOEOPATHIC APPROACH:**

Homoeopathic treatment comprises that the medicine selected be based on individualised symptoms. Hahnemann in aphorism 7 has spoken about exciting or maintaining cause which if not removed cure will not take place. Therefore, along with the medicine the maintaining cause is to be removed. In aphorism 190 he spoke that all true medical treatment of a disease on the external parts of the body which has not been caused by external injuries, must be directed to whole and must annihilate and cure the general malady by means of internal remedies so that the treatment is judicious, sure, efficacious & radical. In aphorism 191-193-A well selected remedy homoeopathic to the case is administered internally, will not only cure the local maladies but also improve the general health of the patient.<sup>26</sup>

### **HOMOEOPATHIC REPERTORY:<sup>27</sup>**

In Chapter Generals Rubric Nails subrubric: ingrowing, nails., the high-grade remedies are *causticum.*, *GRAPHITES.*, *natrum muriaticum.*, *nitric acidum*, *phosphoric Acidum*, *sulphur thuja occidentalis*,

**MAGNETIS AUST., SILICEA, TEUCRIUM**

In a case in a male aged twenty years, with ingrowing nail on the right large toe with swelling and ulceration around the margin of the nail with thick and brittle nails and offensive sweat and cracked heels especially in cold One dose Graphites 200 cured the patient. In another case of female of seventy-seven years who had applied for surgical relief from ingrowing nails on both feet but was unable to wear shoes for several months due to inflammation of even the nails not affected. Magnetis-polus Australis healed her<sup>28</sup>.

In a study to study the efficacy of homoeopathic medicine Magnetis polus australis 7cH and 30cH in treatment of onychocryptosis revealed the effectiveness of 30 cH than 7cH.<sup>29</sup> Another study on Magnetis polus australis 30ch in repeated dose with 2M single dose on treatment of onychocryptosis of hallux there was no significant difference.<sup>30</sup> Magnetis polus australis 200cH and 1M showed the efficacy of 1M than 200cH.<sup>31</sup>

**HOMOEOPATHIC MEDICINES<sup>32,33</sup>**

The indications of few homoeopathic remedies are:

**GRAPHITES:** Toe nails are brittle and crumbling, nails are deformed, painful, sore with cracks and fissure in ends of finger, offensive perspiration on feet with ingrowing nails. Unhealthy skin every little injury suppurates.

**MAGNETIS POLUS AUSTRALIS:** ingrowing of toe nails, sore pain on inner side of nail of big toe when walking as if had grown into flesh and the side is painful to touch. The feet are painful when hanging down when sitting with throbbing sensation feels as if a nail is in hallux.

**SILICEA:** Silica can stimulate the organism to re-absorb fibrotic conditions and scar-tissue. Dry finger tips. Eruptions itch only in daytime and evening. rachs at end of fingers, with dry finger tips, abscesses with ingrown nails and offensive discharges. Panaritium; lancinating pains; inflammations extend deep to tendons and cartilages and bones. Hands and feet are sweaty and the sweat is generally offensive.

**TEUCRIUM MARUM VERUM:** Very dry skin. Suppurating grooves in the nails. Pain in toenails as if had grown into the flesh. Burning in tips of finger ingrowing of toe nails with ulceration. Nails of right hallux grows in and ulcerates.

**CONCLUSION:** Ingrowing toenails are a common nail lesion which causes pain and disturbances in day-to-day activities. It is caused due to any trauma or improper grooming of nails or wearing wrong fitting shoes. The aim of treatment is to relief the patient of their sufferings, counsel and strict awareness regarding improper shoes and nail trimming. Homoeopathy offers many medicines for the treatment of onychocryptosis in reducing pain, inflammation and prevent recurrences. This review is an attempt in synthesising the existing literature on the effectiveness of homoeopathy in the treatment of onychocryptosis and further clinical trials with larger sample size are required to obtain more data on the effect of homoeopathic drugs.

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