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PITTED KERATOLYSIS- A COMMON YET OVERLOOKED CONDITION IN RESPECT TO HOMOEOPATHIC PERSPECTIVE

Dr. Sreeraj A.S[1], *Dr. Juveria Fathima[2], Dr. Papani Renu Sree[2], Dr. Gonela Venkatesh[2]

[1]Associate Professor and HOD- Department of Anatomy, Hamsa Homeopathy Medical College, Hospital & Research Centre

[2]Interns- Hamsa Homeopathy Medical College, Hospital & Research Centre

Corresponding Author's Email ID: juveria5599@gmail.com

ABSTRACT

Pitted keratolysis, also known as keratolysis plantare sulcatum or ringed keratolysis, is a superficial bacterial skin infection characterized by crater-like pits and malodor. The commonly affected regions are Heels, soles, toes (especially between toes), Palms (Less common) and Fingers (rarely).[3] Understanding the anatomy of pitted keratolysis helps in developing effective treatment strategies, including homeopathic remedies, to manage symptoms and prevent recurrence.

KEYWORDS: Pitted keratolysis, definition, anatomy, epidemiology, Etiology,Clinical features, complications, Diagnosis general and homeopathic management.

INTRODUCTION

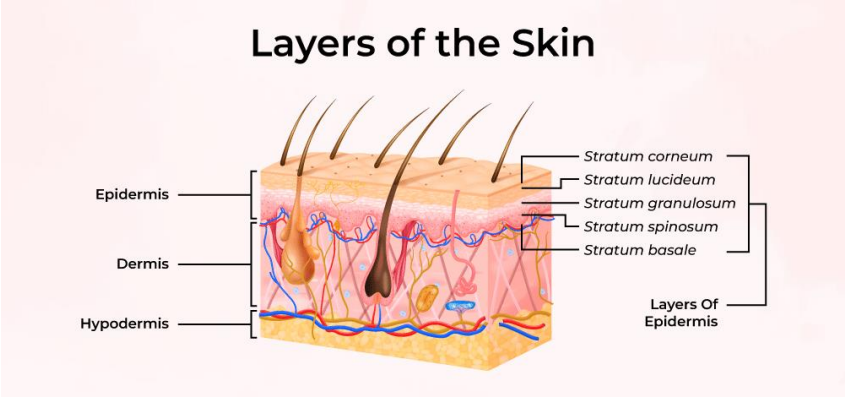
Pitted Keratolysis is a Common yet Overlooked Condition. It is a chronic, bacterial infection of the skin that affects millions worldwide. Characterized by small, shallow pits or depressions on the surface of the feet, it can cause discomfort, embarrassment, and impaired quality of life.

Despite its prevalence, it often goes misdiagnosed or undertreated, leaving sufferers to endure persistent symptoms.[3]

ANATOMY OF SKIN

LAYERS OF SKIN[12]

1. Epidermis (outermost layer)
    a. Stratum corneum (dead cells)
    b. Stratum lucidum (clear layer)
    c. Stratum granulosum (granular cells)
    d. Stratum spinosum (polyhedral cells)
    e. Stratum basale (basal cells)
2. Dermis (middle layer)
    a. Papillary dermis (thin, irregular layer)
    b. Reticular dermis (thick, dense layer)
3. Hypodermis (subcutaneous tissue)

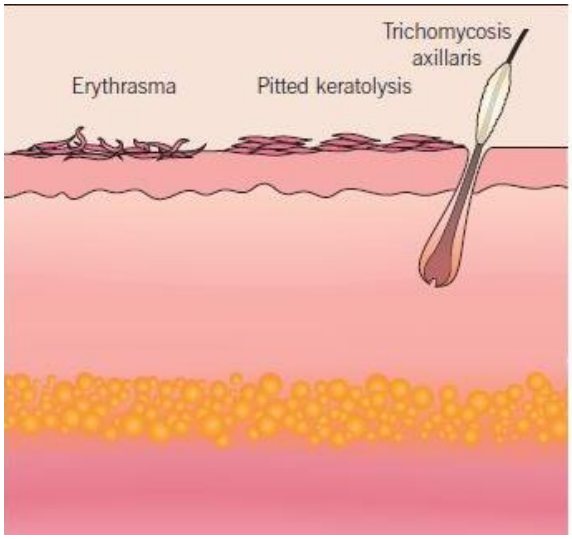


DEFINITION

Pitted keratolysis is a bacterial infection of the stratum corneum, the outermost layer of the epidermis, leading to hyperkeratosis, desquamation, and fissuring.[1,2]

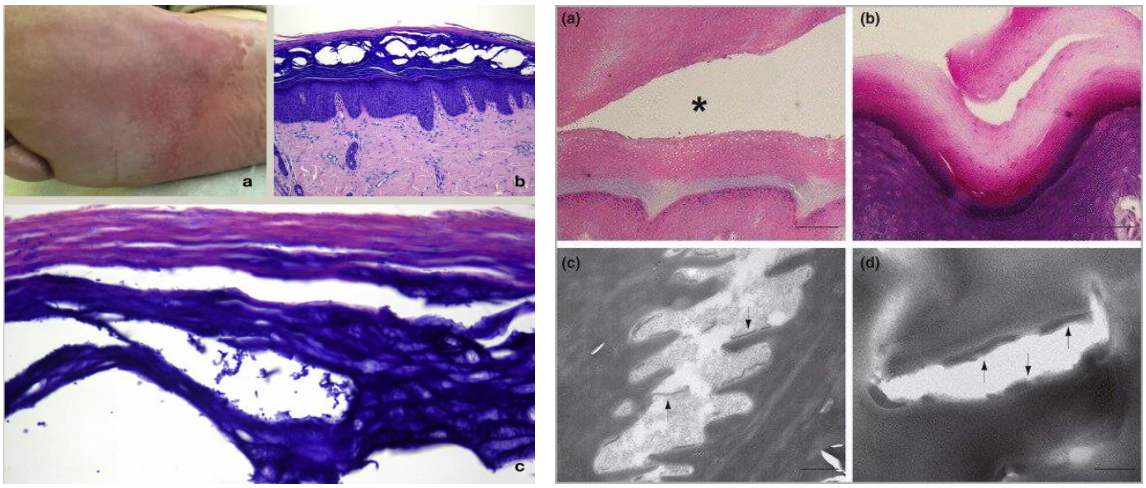
ANATOMICAL FEATURES

1. Pits or Depressions: Small, shallow lesions on the skin surface, typically 1-5 mm in diameter.
2. Hyperkeratosis: Thickening of the stratum corneum, leading to rough, scaly skin.
3. Desquamation:Flaking of the stratum corneum, resulting in skin shedding.
4. Fissures: Deep cracks in the skin, often accompanied by pain and bleeding.
5. Sweat Gland Involvement: Eccrine glands become clogged, leading to increased sweat retention and bacterial growth.[2,12]



HISTOPATHOLOGICAL CHANGES

1. Bacterial Colonization: Corynebacterium, Actinomyces, and Streptomyces bacteria infect the skin.
2. Keratin Degradation: Bacterial enzymes break down keratin, leading to skin weakening.
3. Inflammation: Mild inflammatory response, characterized by increased blood flow and immune cell infiltration.[13]



EPIDEMOLOGY: It affects up to 50% of adults, with higher prevalence in warm, humid climates and among individuals with poor foot hygiene.[3]

ETIOLOGY

Primary Causes

1. Bacterial Infections: Corynebacterium, Actinomyces, and Streptomyces bacteria are commonly implicated.
2. Fungal Infections: Dermatophytes, yeast, and mold can contribute to PK.
3. Hyperhidrosis (Excessive Sweating): Creates a warm, moist environment ideal for bacterial growth.[4]

Contributing Factors

1. Poor Foot Hygiene: Infrequent washing, drying, and trimming of toenails.
2. Warm and Humid Climate: Tropical environments foster bacterial growth.

3. Occlusive Footwear: Tight shoes and socks trap moisture.
4. Hyperkeratosis: Thickening of the stratum corneum provides a habitat for bacteria.
5. Skin pH Imbalance: Alkaline skin pH favors bacterial growth.
6. Nutritional Deficiencies: Lack of essential nutrients, such as zinc, vitamin B, and iron.
7. Hormonal Changes: Hormonal fluctuations during puberty, menopause, or pregnancy.
8. Genetic Predisposition: Family history of PK or other skin conditions.
9. Immune System Dysfunction: Weakened immune response allows bacterial overgrowth.
10. Certain Medical Conditions: Diabetes, eczema, psoriasis, and obesity.[5]

Other Factors

1. Age: PK affects adults more frequently than children.
2. Occupation: Individuals working in humid environments (e.g., farmers, athletes).
3. Footwear Materials: Synthetic materials trap moisture.
4. Socks and Hosiery: Wearing same socks multiple times.
5. Sharing Personal Care Items: Sharing towels, razors, or footwear.[6]

Homeopathic Perspective

1. Constitutional Susceptibility: Individual predisposition to pitted keratolysis.
2. Miasmatic Influence: Psoric, sycotic, or syphilitic miasms.
3. Suppression of Symptoms: Ignoring or suppressing symptoms can lead to chronicity.

CLINICAL FEATURES[4,5,6]

Primary Clinical Features:

1.Pitted or depressed lesions: Small, shallow pits or depressions on the skin surface.
2.Hyperkeratosis: Thickening of the stratum corneum, leading to rough, scaly skin.
3.Desquamation: Flaking or shedding of the skin.
4.Fissures: Deep cracks in the skin, often accompanied by pain and bleeding.
5.Foot odor: Foul or pungent smell due to bacterial breakdown of sweat.

Secondary Clinical Features:

1.Itching or burning sensations
2.Redness or erythema
3.Skin tenderness or pain
4.Crusting or scaling
5.Skin thickening (callus formation)

COMPLICATIONS:

1. Bacterial superinfections (e.g., cellulitis)
2. Fungal infections (e.g., athlete's foot)
3. Chronic skin thickening (callus formation)
4. Skin cracking or fissuring
5. Secondary infections (e.g., abscesses)[6]

CLINICAL DIAGNOSIS[4]

1. Medical History: Assessing patient's symptoms, medical history, and lifestyle.
2. Physical Examination: Visual inspection of the affected area.
3. Diagnostic Criteria:
    a. Presence of small, shallow pits or depressions on the skin.
    b. Hyperkeratosis (thickening of the skin).
    c. Desquamation (flaking of the skin).
    d. Fissures (deep cracks).
    e. Foot odor.

DIAGNOSTIC TESTS[3]

1. Wood lamp examination which shows coral red fluorescence (erythrasma)
2. Bacterial Culture: To identify causative bacteria.
3. Fungal Culture: To rule out fungal infections.
4. Gram Stain: To identify bacterial morphology.
5. Skin Scraping: To collect skin cells for examination.
6. Biopsy: Rarely performed, but may be necessary to rule out other conditions.

DIFFERENTIAL DIAGNOSIS[1]

1. Plantar warts
2. Calluses
3. Corns
4. Athlete's foot
5. Eczema
6. Psoriasis
7. Dermatitis

Homeopathic Diagnosis

1. Constitutional Analysis: Assessing patient's overall health and susceptibility.
2. Miasmatic Evaluation: Identifying underlying miasms (psoric, sycotic, syphilitic).
3. Symptom Evaluation: Assessing physical and emotional symptoms.

GENERAL MANAGEMENT[2]

1. Foot hygiene: Wash feet daily with soap and water
2. Dry feet thoroughly: pay special attention to areas between toes
3. Trim toenails: keep short and clean
4. Wear clean socks: change socks daily
5. Use orthotics: customized insoles can reduce pressure and friction
6. Avoid excessive sweating
7. Eat a balanced diet

HOMOEOPATHIC MANAGEMENT [8, 9, 10]

1. **SILICEA**(Silica): Often prescribed for skin conditions where excessive sweating, especially on the feet, is present with a tendency toward foul odors. Silicea is ideal for

individuals who experience recurrent infections or have a predisposition to cold and damp conditions.

2. **HEPAR SULPHURIS CALCAREUM**: Suitable for cases where there is a bacterial infection causing pus formation or sensitivity. It's indicated in patients with painful, smelly feet and sensitivity to touch.
3. **GRAPHITES**: Recommended for skin conditions with cracked, rough, and sore skin, Graphites is helpful when there is a persistent odor and signs of bacterial infection.
4. **THUJA OCCIDENTALIS**: Thuja is often used for conditions associated with bacterial or fungal infections, especially when there is thickened skin with a tendency toward sweating.
5. **BOVISTA**: This remedy is helpful when there is significant foot perspiration leading to skin irritation and susceptibility to infections, making it useful for pitted keratolysis.
6. **CALCAREA CARBONICA**: Effective for people with profuse sweating on the feet and a sour smell, particularly those who are prone to dampness and skin infections.
7. **SULPHUR**: Known for its broad-spectrum action on skin issues, Sulphur can help when there is offensive odor, itching, and burning in the affected area.
8. **TEA TREE OIL**(Melaleuca): Antimicrobial properties.
4. **HYPERICUM**: For nerve pain and discomfort.
5. **CALENDULA**: For skin healing and soothing.
9. **ANTIMONIUM TARTARICUM**: For excessive sweating

REFERENCES

1. Davidson S. Davidson's essentials of medicine. Elsevier Health Sciences; 2009.
2. Karnad A, Verghese A. Harrison's principles of internal medicine. JAMA. 1994 Aug 24;272(8):642-.
3. https://dermnetnz.org/topics/pitted-keratolysis
4. Bristow IR, Lee YL. Pitted keratolysis: a clinical review. Journal of the American Podiatric Medical Association. 2014 Mar 1;104(2):177-82.
5. Singh G, Naik CL. Pitted keratolysis. Indian J Dermatol Venereol Leprol. 2005;71:213-5.
6. Makhecha M, Dass S, Singh T, Gandhi R, Yadav T, Rathod D. Pitted keratolysis–a study of various clinical manifestations. International Journal of Dermatology. 2017 Nov;56(11):1154-60.

7. https://www.researchgate.net/figure/Representative-clinical-images-of-pitted-keratolysis-at-toes-a-and-forefeet-b-and-c_fig3_355579501
8. Boericke W. Pocket manual of homoeopathic Materia Medica & Repertory: comprising of the characteristic and guiding symptoms of all remedies (clinical and pahtogenetic [sic]) including Indian Drugs. B. Jain publishers; 2002.
9. Benjamin A. The homœopathic treatment of skin diseases. British Homeopathic Journal. 1950 Oct;40(04):291-301.
10. Palaniappan V, Murthy AB, Karthikeyan K. Pitted keratolysis. Clinical and Experimental Dermatology. 2023 Sep;48(9):978-83.
11. https://images.app.goo.gl/NhkNZPsKks2eXmYQ9
12. Chaurasia BD. Hand book of General anatomy. New Delhi, India: CBS Publisher; 2004., 10th edition.
13. Mohan H. Textbook of pathology. Jaypee Brothers Medical Publishers; 2018 Nov 30.