



وزارة التعليم العالي والبحث العلمي العراقية
جامعة بابل
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Histological alteration of the skin in corn cases

التغيرات النسيجية في الجلد في حالات تأليل القدم

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

(قُلْ هَلْ يَسْتَوِي الَّذِينَ يَلْمُونَ وَيَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ ^{قُلْ} إِنَّمَا يَتَذَكَّرُ أُولُو الْأَلْبَابِ)

الزمر (9)

الإهداء

إلى صاحب السيرة العطرة، والفكر المُستنير؛

فلقد كان له الفضل الأوّل في بلوغي التعليم العالي

(والدي الحبيب)، أطال الله في عُمره

إلى من وضعتني على طريق الحياة، وجعلتني رابط الجأش،

وراعتني حتى صرت كبيرًا

(أمي الغالية)، طيّب الله ثراها

إلى إخوتي؛ من كان لهم بالغ الأثر في كثير من العقبات والصعاب

إلى جميع أساتذتي الكرام؛ ممن لم يتوانوا في مد يد العون لي

أُهدي إليكم بحثي في

Abstract:

A corn (also termed clavus) is a thickening of the skin due to intermittent pressure and frictional forces. These forces result in hyperkeratosis, clinically and histologically. After separating the lesion of corn of skin were preserved in 10% formalin. The tissue was dehydrated and followed by embedding in paraffin and 5 micron serial sections were generated with the help of rotator microtome. The sections were stained with hematoxylin and eosin, xylene, cover slid and microscopic examination display the lesion of corn. Histopathology corns exhibit changes within the epidermis, dermis, and adipose layer. Corns demonstrate a parakeratotic plug within the stratum corneum, with a pressure-related loss of the stratum granulosum as well as atrophy of the stratum malpighii. The dermis displays significant fibrosis and scar tissue replacement of subcutaneous fat. Overall, the histologic changes in corn are pronounced, and include a thickened stratum corneum separated intact stratum granulosum.

الخلاصة:

الثآليل هي عبارة عن التغيرات النسجية في الجلد في حالات ثآليل القدم هي عبارة عن تثخنتات في الجلد بسبب التعرض الى الاحتكاك الذي يؤدي الى الترقن في الجلد بعد فصل القطعه المصابه حفظت في الفورمالين 10% ثم جفف النسيج من السوائل ووضع في البرافين وقطعت بسمك 5مايكرون بجهاز التقطيع وبعدها صبغت بلهيماتوكسلين والايوزين واثم توضع في الزايلين وغطيت الشريح وتم معاينتها بالمجهر الضوئي وتصويرها . أظهرت الدراسه النسيجه تغيرات بطبقات الجلد لوحظ تثخن الطبقة المتقرنه وفقدان الطبقة الحبيبيه وضمور طبقه مالبيجي وتليف وظهور قشور .

INTRODUCTION

A corn (also termed clavus) is a thickening of the skin due to intermittent pressure and frictional forces. These forces result in hyperkeratosis, clinically and histologically. The extensive thickening of the skin in a corn may result in chronic pain, particularly in the forefoot; in certain situations, this thickening may result in ulcer formation. The word clavus has many synonyms and innumerable vernacular terms, some of which are listed in the Table below; these terms describe the related activities that have induced clavus formation.

Synonyms for clavus include callosity, a hyperkeratotic response to trauma; corn, heloma, or a circumscribed hyperkeratotic lesion that may be hard (ie, heloma durum) or soft (ie, heloma molle); and callous, callus, or a diffusely hyperkeratotic lesion. Localized callosities of the soles, which do not resolve, are termed plantar callus, heloma, tyloma, keratoma, or plantar corn

History

Corns and calluses produce painful symptoms often described as burning, especially when the affected area is weight bearing and/or shoes are worn. This discomfort is thought to result from microtearing of the thickened, inflexible skin.

Cutaneous Lesions

Corns [clavi or helomata (singular: clavus or heloma)] are, respectively, keratotic papules and plaques that occur in areas that are subject to sustained excessive mechanical shear or friction forces

Diagnosis and Clinical Course

If left untreated, corns and calluses result in painful ambulation and also in subhelomal bursitis and blistering that can rupture to the surface. Because of the close proximity of some corns to joints and bone, septic arthritis and/or osteomyelitis can ensue. The mechanical forces that cause corns and calluses can also rupture portions of the subcutaneous vascular plexus, which leads to hemorrhage into keratotic tissue. In healthy patients, such findings are of minor significance,

but in other cases (e.g., in diabetic patients and patients with connective tissue disease), they may herald extensive skin ulceration or vasculitis.

The need for lower extremity amputation is a dominant fear in most diabetic patients. Such amputations are most often preceded by a history of foot ulceration . Although a number of comorbidities contribute to the development of ulceration (e.g., peripheral vascular disease, neuropathy, and limited joint mobility), minor trauma via repetitive pressure is the pivotal precipitating event. As markers of repetitive friction and shear, corns and calluses in the diabetic foot are of special significance. Simple débridement of these hyperkeratotic lesions decreases peak plantar pressures by as much as 26%.⁵ In a retrospective review of more than 200 diabetic foot ulcerations, patients who had their corns and calluses pared frequently experienced a statistically significant decrease in the incidence of foot ulceration, hospitalization, and surgical intervention.⁶ Hemorrhage within a corn or callus is an especially ominous sign, indicating subcutaneous breakdown with a strong potential for ulceration. Therefore, ulcer care should include paring of calluses. The use of proper footwear by the diabetic as well as the nondiabetic patient may also play a role in not only preventing but also reducing the development of callosities. Shoes should be correctly sized to accommodate the width and length of the patient's foot, and the heel should be elevated minimally, if at all, to prevent pathology and pain.^{7,8}

Prevention

Corns and calluses can be prevented only by reducing or eliminating the mechanical forces that created them. Usually, this is a daunting, if not impossible, task. Repetitive occupational motions are often unavoidable, patients are commonly reluctant to alter shoe styles, and osseous architecture is predetermined through heredity

Materials and Methods:

After separating the lesion of corn of skin were preserved in 10% formalin. The tissue was dehydrated and followed by embedding in paraffin and 5 micron serial sections were generated with the help of rotator microtome. The sections were stained with hematoxylin and eosin, xylene, cover slid and microscopic examination display the lesion of corn .

Results and Discussion

Histopathology corns Figure 1, figure 2 and Figure 3 exhibit changes within the epidermis, dermis, and adipose layer. Corns demonstrate a parakeratotic plug within the stratum corneum, with a pressure-related loss of the stratum granulosum as well as atrophy of the stratum malpighii. The dermis displays significant fibrosis and scar tissue replacement of subcutaneous fat. Overall, the histologic changes in corn are pronounced, and include a thickened stratum corneum separated intact stratum granulosum.⁴Because corns are the result of mechanical friction and shear alone figure .

Corns result from the prolonged application of excessive mechanical shear or friction forces to the skin. In theory, these forces induce hyperkeratinization, which leads to a thickening of the stratum corneum, although the precise mechanism by which this occurs remains unknown. In contrast, a corn will form if the same forces are applied to a focused location, with the lamellae of the stratum corneum becoming impacted to form a hard central core known as the radix or nucleus). Dehghani F et al

A simple corn beneath the fifth metatarsal head. Note the white central radix or nucleus, which has been partially pared. This radix must be pared to provide comfort.

Mechanical keratoses are not determined genetically. Heredity does play a role, however, in configuring the individual's skeletal architecture. A family history of bony abnormality or ligamentous laxity predisposes the person to the presence of sites of increased cutaneous friction or shear. The prevalence of these lesions has also proven to be significantly higher in females, certain ethnic groups, and mentally ill patients.^{2,3}

Corns can make a person feel as if they are walking on stones. The following signs or symptoms may indicate a corn :

- a raised, hardened bump
- a thick and rough area of skin
- pain or tenderness under the skin

If a corn becomes very painful, leaks fluid, feels warm, or looks red, a person should seek medical advice. These may be signs that the area is infected

Figure 1



Figure 2

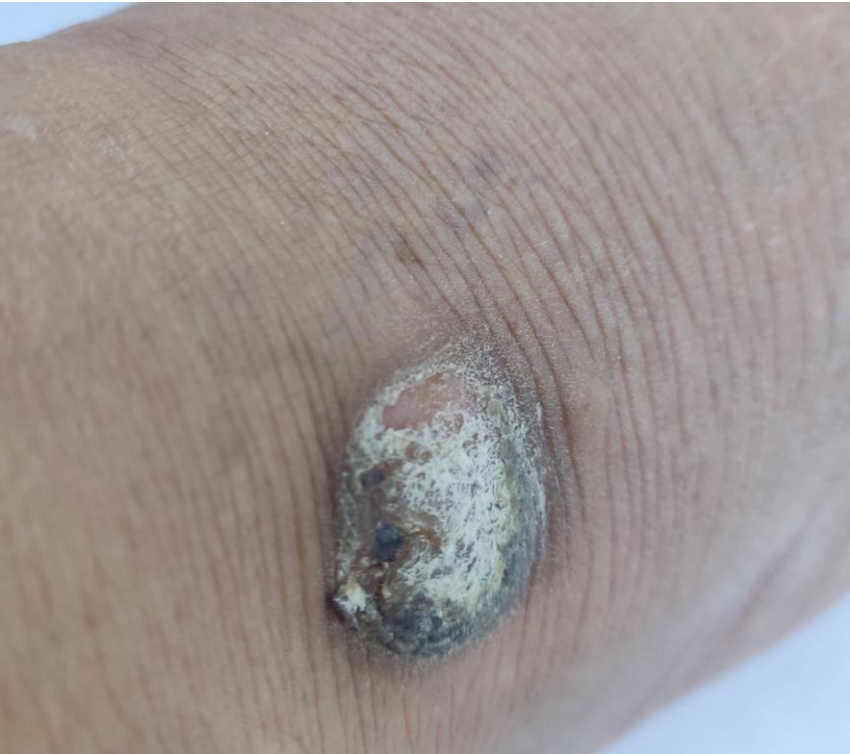
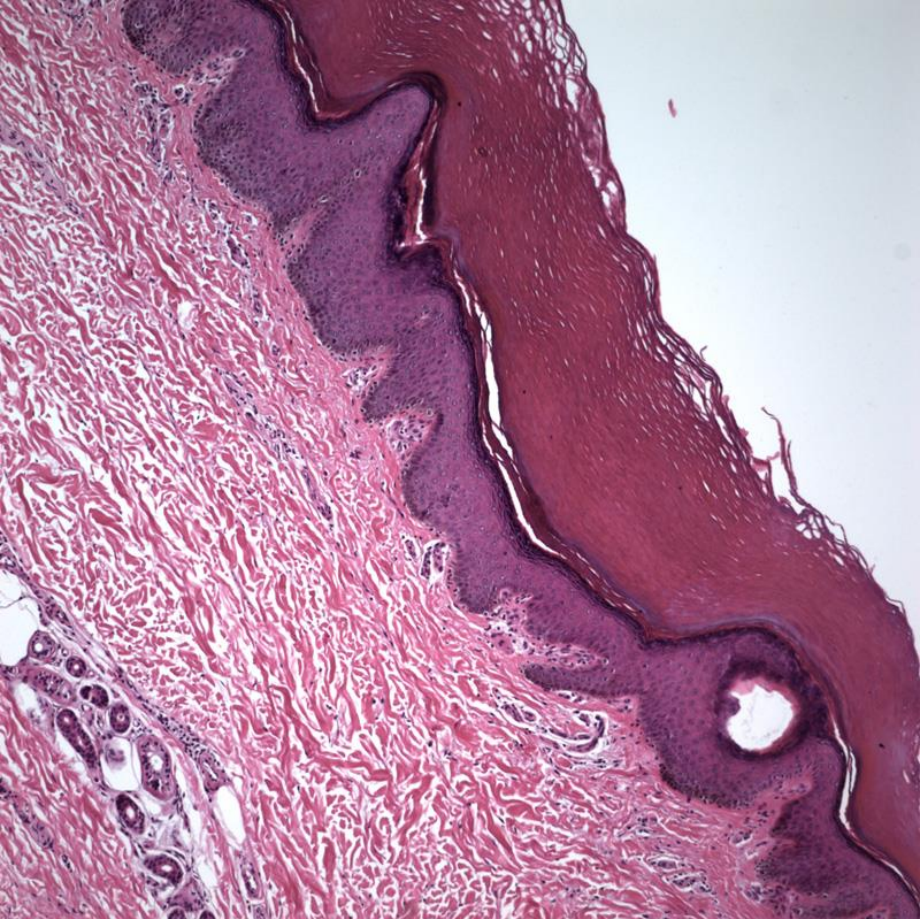


Figure 3



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