

Unusually Located Keloids- The Role of Cultural Practices in its Etiology

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Abstract

Keloids are an exuberant growth of scar tissue extending beyond the boundaries of the original wound causing it and are mainly due to excessive collagen tissue synthesis. They have predilection for certain sites in the human body.

There is an increasing trend for the location of such keloidal scars in parts of the body where they are not supposed to be.

Certain cultural practices are responsible for this situation particularly in the African context. One of such practice that leads to this type of unusual complication is presented below and the pathogenesis as well as other aspects of keloidal growth are reviewed in general.

Keywords: Keloids; Unusual sites; Cultural practices

Introduction

Keloidal scars are an extreme overgrowth of scar tissue that grows beyond the limits of the original wound and shows no tendency to resolve [1]. They are biologically identical to hypertrophic scars which are an extension of normal scar behaviour however while hypertrophic scars remain within the boundaries of the original wound and almost always regress over a period of time, keloids extend beyond the boundaries of the original wound and usually do not regress. This is due to the fact that the rate of collagen synthesis in keloid tissue is greater than in normal skin and in normal scar tissue resulting in a net increase in the quantity of collagen synthesized by fibroblasts in the wound area. The fibroblasts within keloids may be different in terms of their biologic responsiveness from those within normal dermis [2].

Keloid scars are more frequent in Afro-Caribbeans [3] and oriental races [4]. They often occur in wounds that healed perfectly without complications. They are more common in certain sites such as the central chest, the back and shoulders and the ear-lobes.

When keloids appear in unusual locations then other extraneous factors may be responsible for such appearance. Such factors include



Figure 1: Below is also another perfectly healed scar done while the patient was young. Healing here is similar to the figure above. However, note the discolouration (? bluish hue) of the scars with its cosmetic effect! In some tribes, this is the reason for this practice.

aesthetic practices such as ear piercing [5] and hair cut which results in excessive trauma to the nape of the neck [6]. These factors that have lately been recognised as serious causes of keloids in these parts of the body which were previously considered not to be affected by keloid formation. In the African setting, there are various traditional practices that have contributed to the citing of keloids in unusual locations [7]. One of such practice is the act of inflicting cuts (incisions) on the anterior abdominal wall to treat splenomegaly of various causes. Such incisions results in massive keloidal growth as a sequelea in some of the patients. This practice is a long term one among the Esan people of the northern part of Edo state of Nigeria. This is similar to the tribal marks found in other tribes in Nigeria such as the facial marks found among the Yoruba people of south western Nigeria [8]. This practice among the Esans is widely believed to be a remedy for abdominal swelling resulting from splenic enlargement. Ibadin et al found the practice of abdominal scarification to treat childhood malaria to be a widespread and deeply ingrained habit among nursing mothers in their study in Edo State Nigeria and this was mainly due to the perceived effectiveness of the practice, its low cost and accessibility of the practitioners to the target populace [9]. However while facial tribal marks which are traditional marks inflicted by the Yorubas and other tribes solely for the purpose of identification is declining in its popularity and practice due to aesthetic awareness and sophistication, the abdominal marks which are made for the therapeutic purpose of treating splenomegaly of various causes by the Esan tribe appears to be gaining more popularity because of the perceived therapeutic effectiveness for which it is being made. This can sometimes result in the development of unsightly keloidal scars on the anterior abdominal wall. Such keloids may result in complications which are capable of negatively affecting the quality of life of these persons (figures).

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Received July 07, 2011; **Accepted** August 29, 2011; **Published** September 15, 2011

Citation: Salami TAT, Irekpita E (2011) Unusually Located Keloids- The Role of Cultural Practices in its Etiology. J Clin Exp Dermatol Res 2:128. doi:10.4172/2155-9554.1000128

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Figure 2: Below is a scar tissue that is already outgrowing its boundaries. The excessive connective tissue growth can be appreciated around the left flank where there is overgrowth of scar tissue. The bluish discolouration is also obvious. These incisions were made in adulthood, hence the excessive tissue response.



Figure 3: This is an established keloidal scar complicating this type of cultural practice. There are areas of ulcerations due to friction with the worn clothing of the patients. These may cause further ulceration, infection and chronic irritation which may predispose to malignant change.

A few of the patients with this type of scarification, tattoos, keloids and keloidal ulcerations are shown below.

Discussion

The events involved in normal healing begin and end in a controlled fashion, producing flat, unobtrusive scars¹⁰. Wound healing is the summation of a number of processes which follow injury including coagulation, inflammation, matrix synthesis and deposition, angiogenesis, fibroplasia, epithelialisation, contraction, remodelling and scar maturation. In normal wound healing in the human skin, regeneration is limited to epithelium. Where wound edges are properly apposed healing proceeds rapidly to closure; this is known as primary healing or healing by first intention. Where the wound edges are far apart, such as when there has been tissue loss, the same biological processes occur, but rapid closure is not possible. Angiogenesis and fibroblast proliferation result in the formation of granulation tissue. These contracts to reduce wound area and allow epithelialisation across its surface to achieve wound closure. This is known as healing by second intention or secondary healing. This process is slower, the

contraction involved may cause contracture and functional restriction and the resultant healed surface is a thin layer of epithelium on scar tissue that may not prove durable in the long term. In general, healing by second intention gives a worse aesthetic outcome usually leading to scar formation.

A scar is the inevitable consequence of wound repair [10]. The final phase of wound repair is the process of remodelling and scar maturation. The fibroblasts, capillaries, glycosaminoglycans, and immature collagen of granulation tissue and the newly healed wound are replaced by relatively acellular, avascular scar tissue composed of mature collagen with scattered fibroblasts. This biological process is manifested by a change in appearance of the scar from a, raised, firm, contracting, and perhaps itchy nodule to a pale, flat, softer, static, symptom less plaque of mature scar. The rate at which any given scar passes through this process can vary widely depending on the age of the individual, the site of the wound, the time the wound took to heal, the direction of the scar, the tension across it, the presence of complication such as infection.

Excessive healing can result in a raised, thickened scar with both functional and cosmetic implications. If the scar is confined to the margins of the original wound, it is called a hypertrophic scar [11].

Hypertrophic scars are more cellular and more vascular than mature scars. There is increased collagen production and collagen breakdown, but the balance is such that excess collagen is produced. Such scars will eventually mature to become pale and flat, and it is this spontaneous resolution which distinguishes hypertrophic scars from keloid scars [12]. Hypertrophic scars typically occur in wounds where healing was delayed, perhaps where complications such as infection or dehiscence occurred. They tend to be commoner in children [13] perhaps because of the evolving immune system at this stage of life. They also occur where skin tension is high such as the tip of the shoulder or any scar that runs across relaxed skin tension lines [14].

Keloids extend beyond the confines of the original injury, so that the original wound often can no longer be distinguished. Certain patients and certain wounds are at higher risk for abnormal scarring [15]. Dark-skinned persons (notably Africans and Hispanics) [16] and patients between the ages of 2 and 40 are at higher risk for the development of hypertrophic scars or keloids. Hypertrophic scars are more likely to be seen in light-skinned people; however both hypertrophic scars and keloids occur more frequently in dark-skinned people.

Wounds in the presternal or deltoid area, wounds that cross skin tension lines, and wounds in thicker skin have a greater tendency to heal with a thickened scar [17]. Some parts of the body, such as the genitalia, the eyelids, the palms of the hands, and the soles of the feet, almost never develop abnormal scars.

Certain patient and wound characteristics increase the relative likelihood of developing a hypertrophic scar as opposed to a keloid. Keloids are more likely than hypertrophic scars to be familial [18]. Hypertrophic scars generally develop soon after injury, whereas keloids may develop up to a year after an injury. Hypertrophic scars may subside in time, whereas keloids rarely do. Hypertrophic scars are more likely to be associated with a contracture across a joint surface.

Cultural practices can greatly affect the location of dermatologic lesions on the human body [19] as the pictures and illustrations above shows.

Tropical splenomegaly is a common sequelae of chronic malaria infection in holoendemic malarial zones of sub-Saharan Africa [20].

This is particularly obvious in children while developing immunity to this common protozoan infection [21]. In some parts of Africa, the splenic enlargement rate is a marker of endemicity of malaria infection in children [22] while the tropical splenomegaly syndrome is a common finding in adults in such environment and in adults with hyper immune malarial syndrome [23] due to the development of an excessive immune reaction to the chronic presence of the malarial antigen in the circulation. Chronic granulocytic leukaemia is also another common cause of splenomegaly in Nigeria [24]. All these causes, though not amenable to abdominal incisions in treating them either in childhood or in adulthood, deeply ingrained belief in these traditional modes of therapeutic interventions has continued to encourage this type of practice. This practices though it appears innocuous on cursory observation; it may however lead to debilitating illness for the bearer when poorly resolving keloids complicate it. This becomes particularly important when viewed in the current state of poor and sometimes inaccessible treatment options and the less than satisfactory cosmetic results obtained with the various therapeutic interventions available in the treatment of established keloid cases [25,26]. Education of the public on this type of complications may decrease the occurrence of this type of complications and hopefully reduce the use of abdominal incisions to treat a condition that only medications such as simple antimalarials can resolve [27].

It is our opinion that public health awareness and campaign and government legislature against of such harmful therapeutic interventions be brought to bear on these tribes so that like the facial marks by the Yorubas, this practice can also be halted.

Pictorial Case Illustrations

The following are stages in the creation of keloids in an unusual location in the human body. This is one example of a cultural practice that enhances location of keloidal scars in abnormal sites.

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