ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 12 | December - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CHICKENPOX TO KELOID – A RARE OCCURANCE

Maxillofacial Surgery

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ABSTRACT

Keloids present clinically as firm, rubbery, fibrous tumors within the site of prior injury or infection of the skin. They appear generally 3–9 months post trauma, extend far beyond the area of a pustule or injury, and do not spontaneously regress. They generally continue to grow over years and possibly decades. Keloids are of heterogeneous phenotype influenced by race, age, cause, hormonal state, and duration. The abnormal wound-healing process underlying keloid formation results from the lack of control mechanisms self-regulating cell proliferation and tissue repair. They have rarely been reported after chickenpox. Herein we report a case in a 23-year-old male and discuss the management of keloid scar in this peculiar situation.

KEYWORDS

keloid, infra-auricular, chickenpox, rhomboid flap, steroid injection

INTRODUCTION

Keloids are pathological scars presenting as nodular lesions that extend beyond the area of injury. They do not spontaneously regress, often continuing to grow over time. Keloids may lead to cosmetic disfigurement and functional impairment and affect the quality of life [1]. They occur within months of cutaneous trauma (surgical wounds, piercing, lacerations) or inflammation (acne, folliculitis, vaccination site). Chickenpox is a rare cause of keloids described since the 1960s. The lesions occur as either small eruptive keloids or gigantic and monstrous ones on the chickenpox scars.[2] The most frequently affected body areas are chest, shoulders, earlobes and upper back.[1] Numerous treatment options have been proposed with varying degrees of efficacy: surgical excision, intralesional corticosteroid injections, cryotherapy, topical silicone gel, laser therapy, and 5-fluorouracil and bleomycin injections. Reconstructive options such as rhomboid flaps have a decent outcome and are an effective modality to fill the defect. We, hereby present the case report of a patient who reported to our department with a huge infra-auricular mass present on his right side.

Case Report

A 23-year-old male reported to the department with the chief complaint of a huge mass in the right infra-auricular region since 3 years.(Fig. 1) He gave a history of developing chicken pox a while back . Lesions were restricted to the chickenpox scars but a few infiltrated into the surrounding normal tissue, favouring keloids. These were mostly observed over the chest, naval and arm areas along with a large lesion in the right infra-auricular region. Examination was otherwise unremarkable. There was no similar familial history. The swelling was firm, non-tender, round, measuring 10 x 10 cm, present in the right infra-auricular region slightly lifting the pinna. A clinical diagnosis of keloid was made and the patient was subjected to surgical excision followed by multiple injections of steroid.

The patient underwent surgical excision and reconstruction of the resultant defect with a rhomboid flap which was rotated and advanced to cover the raw area.(Fig. 2, 3) The excised specimen was sent for histopathological examination which revealed hyper-orthokeratinized stratified squamous epithelium with superficial dermis showing fibroblastic cells arranged parallel to the epidermal surface and diffuse chronic inflammatory cells. Mild to deep dermal sclerosis showing large dense bundle of glassy collagen, was characteristically seen. A final diagnosis of Keloid was hence formulated.

The patient recovered well and was then initiated on kenacort injections – Triamcinolone Acetonide 40 mg/ml injections , 5 sessions of which were implemented.

DISCUSSION

The natural response of the body to a traumatized tissue is the formation of a scar. The wound healing process has three different phases: the first is the inflammatory phase, the second is the proliferative phase and the third is the remodelling phase. Whenever there occurs an imbalance between anabolic and catabolic phases of the scar formation, the result is the appearance of a pathologic scar. Two types of excessive scars are described: hypertrophic scar and keloid, as a result of an abnormal healing process. Keloids, described in the Smith papyrus circa 1700 BC, were first discussed by Alibert in 1806. The keloid scar was observed to occur in individuals of all races, but more frequently in the darkly pigmented individuals, with an incidence of 6% to 16% in African populations.[3] Unlike the hypertrophic scar which stays within the original scar boundary, even if it continues to rise, the keloid scar grows beyond the boundaries of the initial wound. Keloid scars appear as firm nodules and generally do not spontaneously regress. Frequently, the patients complain of pruritus and pain. The keloid formation process is poorly understood. It is known that it appears in predisposed individuals in presence of a trigger, such as skin trauma. The skin trauma might be secondary to surgical wounds, burns, body piercings, folliculitis, acne. They have quite rarely been reported after chickenpox. Most of the keloids develop in the first 3 months, but some may appear up to 1 year after skin trauma.[4] Recent studies show that both the severity of inflammation and the type of immune response predispose to the formation of excess scar tissue. In the scar, densely populated by inflammatory cells, fibrogenic factors like transforming growth factor (TGF)-β1 and β2 are released. The decreased levels of TGF-β3 and matrix metalloproteinases (MMP) lead to accumulation of extracellular matrix (ECM). Development of a T helper(Th)-2 response stimulates fibrogenesis and Th-1 predominance attenuates the tissue fibrosis. The scar tissue of keloids presents a more prolonged inflammatory period. All these may help to explain why keloid scars spread beyond the margins of the original wound [5].

There are various treatment methods described in literature, such as surgical excision, intralesional injection of corticosteroids, compressive therapy, radiotherapy, laser therapy, cryosurgery, therapy with antitumor or immunosuppressive agents and combinations of these methods. The reported success rate is variable. Surgical removal of excessive scar tissue returns the wound to the initial state and further postoperative scaring can be reduced by adjunctive therapies (intralesional corticosteroid injections, radiotherapy, pressure therapy, immunomodulators) [6].

Effects of corticosteroids are primarily due to their suppressive effects on the wound inflammation and secondarily they reduction of collagen and glycosaminoglycan synthesis, inhibit the fibroblast growth, as well as enhance collagen and fibroblast degeneration. Side effects which include hypopigmentation or hyperpigmentation, telangiectasia, skin atrophy and pain upon injection can be encountered in up to 63% of patients. The latter can be reduced by using EMLA or the addition of lidocaine. A range of steroids can be employed, the one used most frequently is: Triamcinolone Acetonide at a concentration of 40 mg/mL, administered by intralesional injections, at monthly intervals for up to 6 months. [7,8,9]

Rhomboid flaps are a versatile geometric local transposition flaps commonly utilized for reconstructing small to medium-sized skin defects, particularly after resection of skin lesions in the head and neck area.[10] Like other local flaps, these flaps take the advantage of skin laxity adjacent to a defect to permit reconstruction with characteristics similar to those of the excised tissue. This approach enhances cosmetic outcomes compared to alternative reconstructive methods such as skin grafting and regional or free tissue transfer.[11] It is a "random pattern" local flap as it relies upon the unnamed vessels of the subdermal plexus for its blood supply. This plexus, situated at the junction of the reticular dermis and subcutaneous fat, gives rise to arterioles that supply the epidermis and dermis.[12] Thus , preserving the subdermal plexus is essential during flap elevation which is achieved by including a thin layer of subcutaneous fat on the flap's under surface and avoiding aggressive dissection at the flap's base.[13]

Simple total excision of a keloid stimulates additional collagen synthesis, thus prompting quick recurrence of a keloid, even larger than the initial one. For this reason, intra-marginal surgical excision of the keloid tissue is recommended along with reconstruction and adjunctive treatment modality to prevent the stimulation of additional collagen synthesis.

CONCLUSION

The standard treatment of keloids is surgical excision followed by additional Triamcinolone Acetonide injections as recurrence becomes obvious. Local flaps like the rhomboid flap offer advantages over skin grafting, such as better color and texture matching and fewer wound sites, as they use the skin adjacent to the defect for reconstruction. There is a plethora of therapeutic treatment options for keloids, and emerging treatments are constantly being investigated. Combined treatments are usually associated with better outcomes and higher patients' satisfaction.

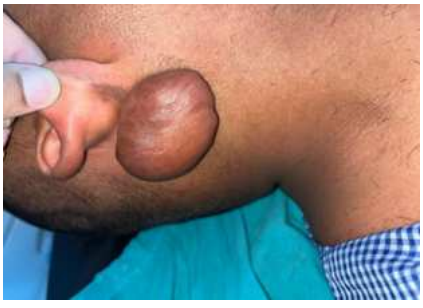

Fig. 1: Huge Mass in Infraauricular Region

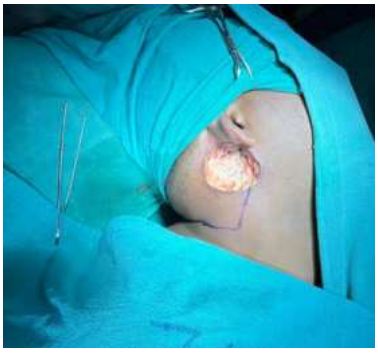

Fig 2: Resultant Defect After Excision And Marking For Rhomboid Flap

Fig. 3: Reconstruction With Rhomboid Flap

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