International Journal of Research in Dermatology
Anaba EL et al. Int J Res Dermatol. 2019 Nov;5(4):760-764
http://www.ijord.com

DOI: http://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20194664

Original Research Article

A prospective study of pattern of keloid and number of intralesional triamcinolone acetonide injections in a community based dermatology clinic in Lagos, Nigeria

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Received: 19 April 2019
Revised: 06 June 2019
Accepted: 11 June 2019

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ABSTRACT

Background: Keloid a benign tumor of the skin is said to be common in Africans, Hispanics and Asians. Triamcinolone acetonide is a known treatment for keloid and patients come to the clinic asking how many times they need to come in for treatment. The number of times patients need to be injected is not clearly documented. The aim of this study was to document the socio-demographic factors, symptoms, clinical characteristics and determine how many times patients need to be injected with triamcinolone acetonide.
Methods: This was a prospective descriptive study over a one year period in the outpatient Dermatology clinic of the General Hospital Lagos. Eighty six (86) patients were studied. Patients were clinically evaluated for keloid, a structured questionnaire for socio-demographic variables was administered to the patients. Patients were treated mainly with intralesional triamcinolone (40 mg/ml) every six weeks. Data was analyzed using the Epi-info 7.
Results: There were 47 men and 39 women. The mean age of the patients was 33.18±13.37 years. Keloid was found to occur mainly in people aged 20-29 years (45.88%). The commonest anatomical location was the head and neck (45.88%) with multiple keloids in 44.70%. Patients were injected on the average 4 times irrespective of the length of keloid.
Conclusions: Keloids are common, occur mostly in the third decade of life and require 3-5 injections of triamcinolone acetonide.

Keywords: Keloid, Triamcinolone acetonide, Number of times, Pattern, Dermatology, Nigeria

INTRODUCTION

Keloids are common benign tumors of the skin of unknown aetiology said to be more common in Africans, Asians, people of Mediterranean descent and Hispanics.[1-3] The prevalence of keloid ranges from 0.7% to 1.1%.[4-6]

Keloids occur following trauma which can be inflammatory, surgical, ear piercing, burns although in a few cases they can occur spontaneously.[7,8] Keloids grow over time and outgrow the original injury, occurring commonly in areas of stretch; sternum, earlobes, shoulder, arms, face.[3,9]

Most patients present to the clinic on account of pruritus, pain, size of the growth, how the keloid looks and poor quality of life.[1,10,11] Treatment modalities of keloid include; intralesional triamcinolone acetonide (TAC), cryotherapy, 5 fluorouracil and excision either alone or in combinations.[12-15]

Documentation on the epidemiology, treatment modalities and treatment outcomes of keloid in Nigeria are few. Majority of patients who attend the clinic for keloid treatment want to know how many sessions of treatment they will have. This question is usually difficult to answer as there is no documentary evidences for it in our environment hence the need for this study. This study aims to document the sociodemographic factors, clinical characteristics and how many times TAC will be injected for keloid to be flat.

METHODS

This was a prospective descriptive study conducted over a one year period at the outpatient dermatology clinic of the general hospital Lagos (GH Lagos) from October 2012 to September 2013. GH Lagos is a secondary center with two dermatologists and serves as a referral center for the 20 local government areas which make up Lagos State. Ethical clearance for the study was obtained from the ethical committee of the hospital, consent was obtained from patients, parents/ guardians of minors for the study.

All patients diagnosed to have keloid during the study period, who consented to the study were clinically evaluated for keloid. Diagnosis of keloid was clinical however, biopsy and histology was done as needed. A structured questionnaire for socio-demographic (age at presentation, age at onset of keloid, duration of keloid, family history of keloid, aetiology of keloids, history of recurrence), clinical features (site of keloid, size of keloid, number of keloid, number of times injected) and treatment outcomes of triamcinolone injections was administered to the patients. In this study, a diagnosis of keloid was based on;

- A post wound growth lasting more than 6 months.
- Growth not resolving spontaneously.
- Growth expanding beyond borders of wound or injury.

At the time of this study, intralesional triamcinolone acetonide (40 mg/ml) and excision were the only modalities of treatment available at the clinic. Intralesional triamcinolone acetonide (TAC) was administered every six weeks until the lesions were flat. In a few cases, excision followed by injections was done. Pregnant and lactating women were excluded from the study.

Data was analyzed using the Epi-info version 7.1.5 software, statistical programme (Centers for Disease Control and Prevention, Atlanta, GA 30333). Where data was incomplete, it was excluded from further analysis. Descriptive statistics such as frequencies, means, and percentages are presented as frequency and contingency tables. The t-test was used to compare means of continuous variables and chi-squared tests used to compare categorical data and proportions with the level of significance set at 5%.

RESULTS

Seven hundred and twenty seven new patients were attended to at the clinic during the study period of which 86 patients had keloid giving a point prevalence of 11.8%. Due to incomplete data only 84 cases were completely analysed. 68 patients completed the treatment outcome study giving an attrition ration of 19%. The study population was made up of 47 men (56%) and 37 (44%) women, M:F ratio 1.2:1 Age at presentation ranged from 13-80 years with a mean age of was 33.18±13.37 years years. The age range 20-29 years followed by 30-39 years was most frequently affected. Age at onset ranged from 8-75 years with a mean of 7 years; mostly in those aged 20-29 years followed by those aged 10-19 years (Table 1).

Table 1: Age at presentation and age at onset (n=84).

	Number of cases (N)	Frequency (%)
Age at presentation (years)		
10-19	11	13.10
20-29	38	45.24
30-39	18	21.43
40-49	6	7.14
50-59	6	7.14
≥60	5	5.95
Age at onset (years)		
10-19	26	31.0
20-29	31	36.9
30-39	11	13.1
40-49	7	8.3
50-59	6	7.1
≥60	3	3.6

The mean duration of keloid was 5.06±6.7 years (range 1-35 years). A family history of keloid was reported in 23.8%. In those with a family history of keloid; fathers accounted for more of this family history (40%), brothers 25%, mothers 20%, sisters 10% and uncles 5%. The reason for clinic attendance was pain in 35.71%, itch in 53.57%, size of keloid in 25.0% and "I don't like it" in 58.33%. Treatment prior to dermatology clinic attendance was reported in 88% of patients; this was self-medication in 22.7%, herbal medications in 25.0%, bumps centre in 11.4% and general practice clinic in 40.9%. Recurrence of keloid was reported in 37.2%.

Table 2: Site of keloid occurrence (n=143).

Site	Frequency (N)	Percentage (%)
Head and neck	58	40.55
Scalp	4	2.79
Lips	1	0.70
Eyelid	1	0.70
Cheeks	16	11.18
Ears	16	11.18
Neck	14	9.80
Lower jaw	4	2.79
Nose	1	0.70
Chin	1	0.70
Trunk	52	36.36
Trunk/ chest	32	22.37
Back	7	4.89
Breast	13	9.10
Upper limbs	19	13.30
Arms	12	8.39
Hands	7	4.89
Legs	13	9.10
Genitals	4	2.79

Previous treatment at a dermatology clinic was noted in 30%; treatment modalities included intralesional TAC in 74%, 5 flourouracil in 3%, triamcinolone cream in 10%, Retin A in 1% and surgery in 2%. 84 patients were seen in this study with 143 keloid lesions. Keloidal lesions were located in visible parts of the body (face, arms, legs) in 65.47% of patients (Table 2). Cases with multiple keloids were the most frequently seen (38 cases) 44.70% followed by the head and neck only (27 cases) 31.76%, the trunk only (11 cases) 12.94% and limbs only (eight cases) 9.41%.

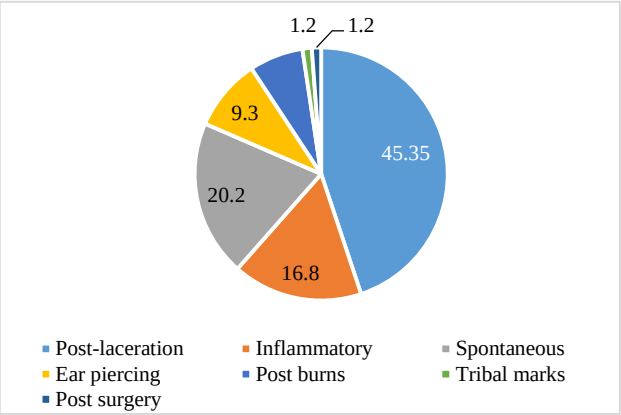

Figure 1: Histogram of cause of keloid.

Keloid was post-laceration in 45%, inflammatory in 17%, post-ear piercing in 9%, post burn in 7%, post-surgery in 1%, tribal marks in 1.2% and spontaneous in 20.2%. The length of keloid was <5 cm in 65.75%, 6-10 cm in 23.9% and >10 cm in 10>3% of patients. Treatment was completed by 80.5% of the patients. Biopsies were performed in 7.14%. Treatment given was excision only in 1.50%, excision and TAC in 5.89% and TAC only 92.65% (Figure 1).

Table 3: Number of people and times injected per length of keloid.

Length of keloid (cm)	Number of people and times injected for keloid flatness									Total
	1	2	3	4	5	6	7	9	10	
Less than 5	12	8	8	11	4	0	2	1	0	46
6 to 10	5	3	1	2	1	2	1	1	1	17
Massive	0	2	0	0	1	2	0	0	0	5
Total	17	13	9	13	6	4	3	2	1	68

Patients with lesions <5 cm were injected a mean number of 3.05 times, lesions of 6-10 cm were injected 4.5 times, >10 cm were injected 4.2 times. There was no significant difference in the number of times injected in comparison to length of keloid (p=0.078). Table 3 shows the number times patients were injected per length of keloid. People with keloid length of <5 cm and 6 to 10 cm were injected mostly once for keloid to be flat. Adverse effects noticed during treatment were atrophy, hypopigmentation and telangiectasia.

DISCUSSION

The prevalence of keloid in this study was high compared to the documented prevalence of keloid in patterns of skin diseases in Africa.[4-6,16] This high prevalence is thought to be spurious as the center where this study took place is a specialist referral center. Also, these African studies were conducted over 3 to 7 years with a larger population of patients while this study was over a one year period.

There were more males affected by keloid in this study. The main cause of keloid in this study was lacerations. It is hypothesized that more males had keloid because males tend to do more manual work that females with consequent exposure to injuries. This study is at variance with other studies of keloid. In some of these studies, a female predominance is reported and no gender predominance in others.[11,17-19]

The mean age at presentation was in the fourth decade similar to studies by Olaitan et al, Biljard et al and Rheinholz et al.[11,17,18] Keloid is noted to occur more in the ages 20 to 40 years.[17,18] This is the age group when inflammatory diseases and trauma which are causes of keloid occur. The age at onset of keloid was mainly in age 20 to 29 years followed by 10 to 19 years with a

decline in onset with increasing age. This is the age group when people are active, engage in outdoor activities, use clippers for shaving and have acne. Wounds following these activities can lead to keloid in predisposed individuals. A similar decline in onset with older age has been documented by other authors.[18] It is not known by the authors if the activity of fibroblasts decrease with age or just that inflammatory diseases and trauma decreases with age with consequent reduction in keloid onset with older age. The mean duration of keloid in this study was 5 years and this is comparable to that in similar studies.[17,18] Keloids are mostly asymptomatic and when patients do have symptoms, the symptoms do not appear to be burdensome hence the long duration before presentation for treatment.[18]

A family history of keloid was noted in some patients especially when it was the fathers who had had keloid. Keloid is not a hereditary disease but genetic predisposition is documented especially with the occurrence of keloid in twins.[7] A similar report of family history of keloid was reported from studies by Olaitan et al, Reinholz et al.[17,18] Attendance at clinic was due to mostly to dislike of the keloidal growth and symptoms of pruritus. Pain and size of keloid were not major reasons for clinic attendance in this study. Symptoms and dislike or embarrassment due to keloid as reason for clinic attendance has been reported in other studies.[11,16]

Majority of the patients studied reported a form of treatment prior to the dermatology clinic attendance and this was mostly by non-dermatologists. Typically, patients are attended to by non-dermatologists before referral to dermatology clinics for effective treatment. Other studies have reported a similar attendance at non-dermatology clinics prior to definitive treatment.[17,19]

Recurrence of keloid was reported in almost a quarter of the patients in this study. Keloid is a difficult disease to treat and recurrence is a well-known phenomenon in keloid disease.[12,20] Furtado et al in their study of 102 keloid patients reported recurrence in consonance with this study.[19] The few patients who had been to a dermatology clinic were treated mainly with TAC. The treatment of keloid is mostly with TAC which has an anti-fibrogenic and anti-collagen genic property.[12] In their study of the burden of keloid in 106 patients, Biljard et al reported intralesional TAC to be the main modality of treatment used as in this study.[11]

Multiple keloids were recorded in almost half of the patients studied. A similar report of multiple occurrence of keloid has been reported.[11,16,17] Keloid occurred on visible parts of the body in the majority of the patients studied. The documented areas of the body predisposed to keloid occurrence; the head and neck, upper limbs are usually visible parts of the body.[9,11,19] Other studies on keloid showing occurrence on visible parts of the body are in consonance with this study.[11,19] The site of occurrence of keloid in this study, was mostly the trunk followed by the ear and cheeks. The documented area of predisposition of keloid is areas of stretch and activity like the head and neck, trunk.[3,9] This study is at variance with the study from Lome where the head and neck followed by the trunk was the most frequently affected.[16] However, the study is in consonance with other studies, where trunk was the main area of involvement.[11,17]

Keloid was post traumatic, post inflammatory disease in the majority of patients and spontaneous in a few. The aetiology of keloid is not completely known but, they are noted to follow wound healing and sometimes be spontaneous.[3] Spontaneous keloid was reported by Biljard et al and kombate et al in their study of 106 and 78 keloid patients respectively.[11,16] Keloids following trauma especially ear piercing as in this study was reported by other authors.[8,11,18]

The length of keloid was less than 5 cm in majority of the patients seen. This is similar to findings in another clinical study of keloid.[21] Keloids are known to outgrow the original wound.[22] The original length of the injury in the patients in this study is not known, however, the complaints of patients was mostly the sight of the keloid leading the authors to conclude that, the growth was larger than the primary injury.

Treatment was completed by majority of the patients making observations about treatment outcome in this study to be valid. The modality of treatment was mostly intralesional TAC alone which was the only non-surgical method of treatment available at the clinic at the time of this study. The treatment of keloid with TAC either alone or in combination with other modalities of treatment is documented in several studies.[12,23] Intralesional TAC is used in keloid treatment as keloid is mainly a dermal growth and TAC works in the dermis as an anti-inflammatory, anti-collagen genic and anti-fibroblastic agent.[12] Excision was not commonly done as keloid is a recurrent lesion and further trauma could trigger more lesions.

Patients were injected an average of four times for the keloid to become flat irrespective of the length of the keloid. This study was undertaken in order to answer questions by patients on how many times they would need to come in to be injected. In this clinic, following this study, the researchers can give a patient a guide to the treatment schedule. In a similar study by Coppola et al on the use of intralesional TAC, they reported a similar number of times of injections as in this study for keloids to be flat.[24] Adverse effects were observed in a few patients and these were atrophy, hypopigmentation and telangiectasia. Srivastava et al reported telangiectasia and hypopigmentation in their cohort of patients following treatment with intralesional TAC.[24]

CONCLUSION

Keloids occur more in men, in the head and neck area mostly and mainly in the second and third decades of life. Family history of keloid is mostly due to fathers. Patients

present to the clinic mainly due to pruritus and dislike of lesions. The size of keloid is mostly less than 5cm and an average of 4 intralesional TAC have to be given for keloids to be flat.

Limitation to study

Intralesional TAC was the only modality of treatment available at the time of the study and so outcome of other modalities of keloid treatment cannot be commented on.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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Cite this article as: Anaba EL, Akwara I, Johnson O. A prospective study of pattern of keloid and number of intralesional triamcinolone acetonide injections in a community based dermatology clinic in Lagos, Nigeria. Int J Res Dermatol 2019;5:760-4.