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Epidemioclinical and therapeutic aspects of keloids at the Regional Hospital Center (RHC) of Dosso, Niger

Aspects épidémiocliniques et thérapeutiques des chéloïdes au Centre Hospitalier Régional (CHR) de Dosso, Niger

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Résumé

Contexte et objectif. La chéloïde est une cicatrice pathologique de la peau due à une accumulation de collagène de type I dans le derme, qui peut être spontanée ou acquise après divers traumatismes. Cette étude visait à décrire les aspects épidémiologiques, cliniques et thérapeutiques des chéloïdes. *Méthodes*. Il s'agissait d'une série de cas avec collecte prospective de données du 1er juin 2020 au 31 décembre 2022, incluant tous les cas de chéloïdes traités dans le service de dermatologie du CRH de Dosso. Les données ont été recueillies à l'aide d'un formulaire préétabli. Les variables d'intérêt comprenaient : âge, sexe, circonstances de l'apparition, symptômes, impact psychologique, modalité de traitement et résultat. *Résultats*. Sur un total de 6 868 consultations dermatologiques, 47 patients ont été identifiés (32 femmes et 15 hommes) présentant des lésions chéloïdes, soit une fréquence de 0,7 %. L'âge moyen était de 38,5 ans. La symptomatologie prédominante était une douleur associée à un prurit (44,7 %). Les lésions chéloïdes étaient localisées sur différentes parties du corps. Une excision chéloïde suivie d'une infiltration corticoïde différée a été réalisée chez 36,2 % des patients, une application de dermocorticoïde et une infiltration corticoïde différée chez 31,9 % des patients et un seul patient (2,1 %) a reçu un pansement avec un gel à base de silicone. *Conclusion***.** Les chéloïdes sont fréquentes dans notre pratique quotidienne. La douleur et les démangeaisons sont les principaux symptômes, la perception par les patients de la déformation d'une partie de leur corps semble être l'impact psychologique. L'excision chirurgicale suivie d'une infiltration retardée de corticostéroïdes donne de bons résultats thérapeutiques**.**

Mots-clés : chéloïdes, excision, infiltration, corticostéroïdes, Dosso
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Summary

*Context and objective***.** Keloid is a pathological scar of the skin due to an accumulation of type I collagen in the dermis, which may be spontaneous or acquired after various traumas. The present study aimed to describe the epidemiological, clinical, and therapeutic aspects of keloids in the Dermatology Department of the Dosso Regional Hospital Center (RHC). *Methods:* This was a series of cases with prospective data collection from June 1, 2020, to December 31, 2022, including all cases of keloids treated in the Dermatology Department of the Dosso RHC. Data were collected by using a pre-established form. The variables studied were: age, sex, circumstances of onset, symptoms, psychological impact, treatment modality and outcome. *Results:* Out of a total of 6868 dermatology consultations, we identified 47 patients (32 women and 15 men) with keloid lesions, i.e. a frequency of 0.7%. The average age was 38.5 years. The predominant symptomatology was pain associated with pruritus (44.7%). The keloid lesions were located on different parts of the body. Keloid excision followed by delayed corticoid infiltration was performed in 36.2%, the application of dermo corticoid and delayed corticoid infiltration in 31.9% patients and only one patient (2.1%) had received a dressing with silicone plate gel. *Conclusion***:** Keloids are encountered in our daily practice. Pain and itching are the main symptoms, patients' perception of the deformation of a part of their body appears to have a psychological impact. Surgical excision followed by delayed corticosteroid infiltration produces good therapeutic results.

Keywords*:* keloids, excision, infiltration, corticosteroid, Dosso

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Introduction

Keloids are a pathological scar of the skin due to an accumulation of type I collagen in the dermis. They can be spontaneous or acquired. In the acquired forms, they may appear after various traumas (burns, piercing, tattooing, shaving, biting, scarification, vaccination, scratching lesions), after a surgical procedure, or be secondary to a dermatological condition (acne, chickenpox, shingles, folliculitis) (1-2). Clinically, they present to be as a placard or tumor, indurated, raised and firm, with irregular edges. Their surface is hairless, hypo or hyperpigmented, smooth or bumpy (3). It is necessary to have 18 months of clinical hindsight before talking about keloid scars. Before this time, the clinical distinction between a keloid and hypertrophic scar (its main differential diagnosis) is hazardous. Their exact pathophysiology is poorly understood. They result from a disorder of collagen production, which is synthesized in excess and accumulated in the reticular dermis (4). In Europe, the prevalence of keloid scars ranges from 6 to 16%, with a clear predominance of black subjects. In particular, subjects with pigmented skin (black and Asian) have a higher risk of developing keloids and their prevalence can reach 16% in the African population, which in some cases can cause an inaesthetic and physical impact with important psychological and social repercussions (4-6).Several therapeutic methods can be used: surgical removal, corticotherapy, radiotherapy, pressotherapy, laser, interferon (7).The objective of this study was to investigate the epidemioclinical and therapeutic aspects of keloids in the Dermatology-Venereology Department of RHC of Dosso from June 1,2020 to December31, 2022.

Methods

This was a series of cases with prospective data collection from June 1, 2020, to December 31, 2022, including all cases of keloids treated in the dermatology and venereology department of the Dosso Regional Hospital Center. Data were collected from using a pre-established form. The variables studied were: age, sex, personal and family history, circumstances of onset, reason for consultation, psychological impact, treatment modality, and outcome. Data analysis was performed using SPSS software version 25. A consent form was presented to each patient in order to obtain their agreement to the study and a survey form was previously established and used to collect the data. The therapeutic modalities used were : excision of keloid followed by infiltration with corticosteroid solution two weeks later, or corticosteroid infiltration alone, or application of dermocorticoids followed by intra-lesional infiltration of delayed corticosteroid, or application of silicone plate gel. The delayed corticoid used was triamcinolone 40mg/ml and the infiltration was done with the Krenz Dermojet at a rate of one session every two weeks for a maximum of 6 sessions. Blood glucose and blood pressure were monitored before the start of treatment and periodically during the treatment. Blood pressure and blood sugar measurements were taken for pre-treatment purposes and to monitor side effects. The therapeutic result was judged by the remission of functional signs (pruritus, pain), by the total or partial subsidence of lesions, and the recurrence. All patients consented on condition that their anonymity be

preserved. We did not look for statistical associations between variables (P-value).

Results

Out of a total of 6868 dermatology consultations, we identified 47 patients with keloid lesions, i.e. a *frequency* of 0.7%. Women predominated with 32 cases (68.1%), the sex ratio was 0, 46. The age group 21-30 years is the most represented with 16 cases (34%) followed by the age group 11-20 years with 13 cases (27.7%). The predominant symptomatology was pain associated with pruritus found in 44.7% of the patients, while 31.9% had only pruritus. Family history of keloids was found in only 3 patients (6.4%). The keloid lesions were located on different parts of the body with a predominance of the thorax (34%) and the ears (17%)**.** In 51.1% of the cases, the size of the keloids varied according to the major axis from 1 to 5 cm and more than half of the patients, i.e. 26 cases (55.3%), had a single keloid. Most of the keloids were of traumatic origin and were distributed as follows: road accident (21.3%), piercing (17%), burn (12.8%), scratch (12.8%). The keloids post lesions of folliculitis (17%), post-surgery (4.3%) and post shingles (2.1%) ; however, there were 6 cases (12.8%) of spontaneous keloids **(Table 1).**

Table 1. Distribution of the 47 patients according to gender, age, Seat of keloid and Circumstances of appearance

Sex	**Number**	**%**
Male	15	31,9
Female	32	68,1
Age (years)		
0 -10	1	2,1
11 - 20	13	27,7
21 - 30	16	34,0
31 - 40	5	10,6
41 - 50	5	10,6
51 and over	7	14,9
Seat		
Neck	1	2,1
Ear	8	17,0
Thorax	16	34,0
Thoracic limb	6	12,8
Pelvic limb	5	10,6
Pubis	2	4,3
Cheek	4	8,5
Abdomen	3	6,4
Back	2	4,3
Circumstances of appearance		
Spontaneous	6	12,8
Folliculitis	8	17,0
Accident on public road	10	21,3
Piercing	8	17,0
Burn	6	12,8
Surgery	2	4,3
Post Shingles	1	2,1
Scratch	6	12,8

The psychological impact was mainly the feeling of body transformation reported by 15 patients (31.9%); 15 patients (31.9%) experienced a feeling of fear and inesthetic, especially in young girls. For the therapeutic modalities, surgical excision of the keloids followed by delayed corticosteroid infiltration (**Figure 1A, figure 1B**) was conducted for19 patients of whom 17 had a good result (36.2%) of which 27.7% of patients had a total collapse of their keloid and 8.5% of partial collapse were observed.

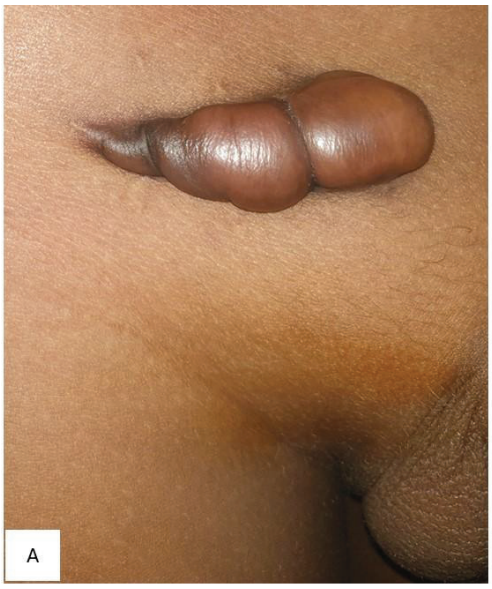

Figure 1A : Groin cheloid post injury

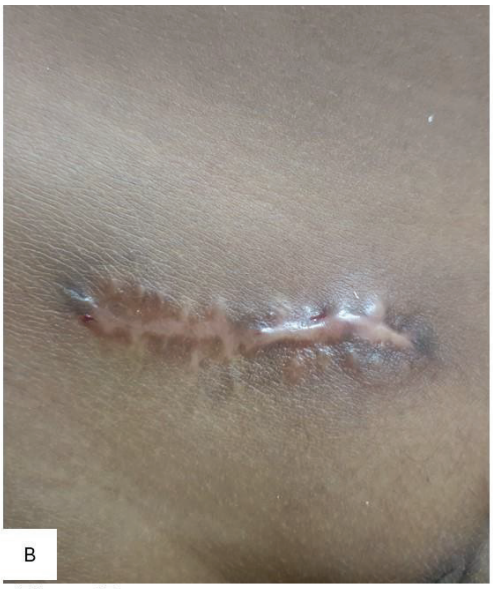

Figure 1B : Groin cheloid after excision followed by delayed corticosteroid infiltration

Application of dermocorticoid followed by corticosteroid filtration (**figure 2A, figure 2B**) were performed in 15 patients (31.9%): 19.1% of the patients had total collapse and 12.8% partial collapse; corticosteroid infiltration alone was performed in 10 patients (21.3%) whom 12.8% had total collapse and 8.5%had partial collapse.

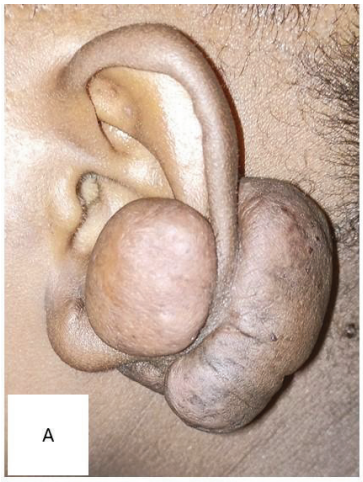

Figure 2A : Cheloid of the ear after piercing

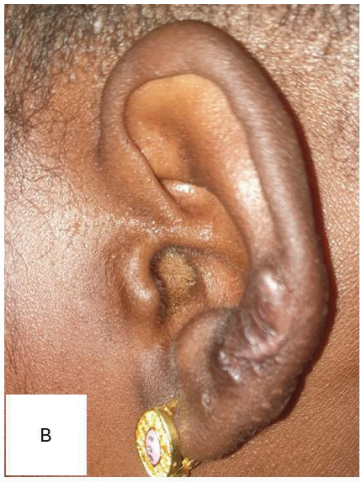

Figure 2B : Post-piercing ear cheloid after excision followed by corticosteroid infiltration

Dermocorticoid application alone was performed in 2 patients (4.3%) which had a partial collapse of their keloids and at the end only one patient (2.1%) had received a dressing with silicone plate gel that conducted to a total collapse of keloid (2.1%). Thus, all patients had reported a total improvement of the functional signs (pain, pruritus) ; total and partial collapse were obtained in almost all patients (95.8%) and a recurrence was observed in 2 patients (4.2%). A side effect of hypochromia was observed in 6 patients (12.8%). Therapeutic success according to the therapeutic modalities was observed in patients who underwent excision followed by delayed corticoid infiltration **(Table 2).**

Table 2. Distribution of the patients according to therapeutic modalities and outcome

Therapeutic Modalities	Results		
	Total Collapse N= 29	Partial Collapse N= 16	Recurrence N= 2
Local application of dermocorticoid	0	2 (4,2)	0
Corticosteroid infiltration alone	6 (12,8)	4 (8,5)	0
Excision followed by corticosteroid infiltration	13 (27,7)	4 (8,5)	2 (4,2)
Silicone plate	1 (2,1)	0	0
Dermocorticoid application and corticoid infiltration	9 (19,1)	6 (12,8)	0

Discussion

Keloid lesions mainly affect young adults as shown by the rate of 34% in the age group [21-30 years] observed in our study, and this is in line with the studies of Rakotoarisoa (7) who reported a rate of 42.3% in the same age group as ours. Kibadi *et al* (8) also reported a high frequency in the 20-28 age group. Women are more affected (68.1%) than men in our study; this female predominance has been reported in several studies such as Carmassi (4), Rakotoarisoa (7) and Traoré (9). This may be related to the aesthetic impact of keloids and piercing, which is mostly done in women. Pain and pruritus were the predominant functional signs in our patients with a rate of 45% while Allah (1) and Bouhamidi (10) reported a rate of 65% and 70% respectively. This is explained by the fact that pain and pruritus are the main functional signs of keloid scars. In our study the main site of lesions was the thorax in 34% followed by the ears in 17 %; this corroborates the study of Bouhamidi *et al.* (10) who reported 50% cervico-facial and pre-sternal localization as well as the study of Carmassi (4) where localization in the ears and thorax were predominant in 44.4% and 33.3% respectively. In contrast to our study, Traore (2) in Ouagadougou reported a predominant location of keloids in the thoracic limbs (42.4%) and pelvic limbs (38.4%) in young school children; this difference can be explained by the nature of the traumatic cause exposing the affected site such as piercing and wounds in our study, whereas accident on public road exposes the limbs much more. Depending on the circumstances, a notion of trauma has always been found in the history of keloids occurrence. Thus, in our series, accident on public road, piercing and burns represented respectively 21.3%, 17% and 12.8% of the causes of keloids; compared to Traore (2) who reported rates of 27.2%, 48% and 3.2% respectively for accident on public road, injuries and piercing. The psychological impact of keloids was found in our study in 32.6% of patients who reported a perception of transformation of their body, and 30% felt a sense of fear, as for the patients it is mainly an aesthetic impact that was reported. In their series, Allah (1) reported discomfort in the daily life of 66.3% of their patients, and Traoré (2) reported psychological and inesthetic repercussions in a study of secondary school students in Ouagadougou. As reported by Kadio (14), the therapeutic modalities most commonly used in our study were excision followed by delayed corticosteroid infiltration with a result of 36.2%, of which 27.7% of patients had a total collapse of their keloid and 8.5% of partial collapse observed; where as for the application of dermocorticoid followed by delayed corticoid infiltration 12.8% of patients had total collapse and 8.5% partial collapse. This result corroborates that of the studies by Berman (11) Assi (5), and Rakotoarisoa (7) who reported response rates of 50-100%, 73%, and 69.28% respectively for excision followed by inesthetic infiltration. A response rate ranging from 40 to 70% was reported by Jaloux (12) and 57.5% total

collapse of keloid lesions observed by Salissou (13) for corticosteroid infiltration alone. Only two cases of recurrence, i.e. 4.2%, were observed in our study and this was due to the fact that the two patients had not returned to receive infiltration sessions after excision. This shows the need to combine intra-keloid excision with delayed corticosteroid infiltration in order to prevent recurrence, as reported by Kadio (14) in his study.

Our study has limitations because our center does not have a sufficient technical platform for the realization of some of therapeutic modalities such as laser and radiotherapy; in the same way, the distance of certain patients constituted a constraint for the regularity of the sessions of retarded corticosteroid infiltration.

Conclusion

Keloids are encountered in our daily practice. Pain and itching are the main symptoms, patients' perception of the deformation of a part of their body appears to be the psychological impact. Surgical excision followed by delayed corticosteroid infiltration produces good therapeutic results.

Conflict of interest

No conflict interest

Contribution for authors

Harouna Moussa drafted the protocol and manuscript, monitored patients, and provided iconography.

Laouali Salissou, Issa Abdou Kadidia, and Djibrilla Moussa read and corrected the protocol and manuscript.

Ibrahim Mamadou Abdoul Kadir researched and compiled the bibliography.

Ibrahim Mamadou Abdoul Kadir, Djangnikpo Martine, and Hamadou Mazou read and corrected the manuscript.

Sidi Zakari Oumalkhair took the images, read, and corrected the manuscript.

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Profil thérapeutique et issue clinique des urgences traumatiques maxillo-faciales dans la ville province de Kinshasa, République Démocratique du Congo