Fibrosing Folliculitis of the Neck (FFN) and associated factors: a prospective Study of 37 Cases

Abstract

Introduction: The objective of this study was to describe FFN and associated factors. **Methodology**: Prospective study conducted in the dermatology department of Aristide Le Dantec Hospital, identifying all cases of FFN and associated factors. The diagnosis of FFN was clinical.

Results: We collected 37 patients with FFN, all phototype VI and male. The average age of our patients was 34.45 years (19 to 55 years). Pruritus was noted in 17 cases and pain in 6 cases. The average duration of evolution was 6 years with extremes from 1 year to 10 years. Family history of FFN was noted in 3 cases. The type of shaving was clippers in 35 cases (94.6%) and razor blades in 2 cases. Patients shaved one to five times per month (48.65%), with an average of three shaves. The clinical lesional aspects were dominated by papules in 37 cases and nodules in 32 cases. The associated defects, hypertension in 3 cases, overweight and obesity in 19 cases. Diabetes was noted in 10 cases and three patients had a lipid imbalance. A statistically significant association between the use of comb and the presence of nodule ($P < 0.001$) was found.

Conclusion: FFN is a relatively frequent reason in male subjects of phototype VI. A high frequency of diabetes and obesity was noted.

Comment [PKH1]: Methodology should be a separate sub heading.

Comment [PKH2]: 1.Frequent reason is not correct. Please rectify with a suitable word like lesion.
2. The sentence is not appropriate. Please rectify to a suitable form like – « A high frequency of diabetes and obesity were found to be associated with FFN.
3.There are no Key words. Please add some key words.

Introduction

Fibrosing folliculitis of the neck (FFN), formerly known as "keloidal acne of the nape", is a chronic inflammatory process involving the hair follicle of the neck and occipital scalp after excessive shaving; occurring almost exclusively in young men of African descent with frizzy hair [1, 2]. It is a disease of unknown etiology and represents a common reason for medical consultation in patients of phototype VI in sub-Saharan Africa as well as in Europe, the United States and the Caribbean [3, 4, 5, 6]. No study has been done exclusively on the factors associated with the occurrence of folliculitis of the neck in Senegal. We therefore considered it appropriate to carry out this study, the objective of which was to investigate the factors associated with the occurrence of fibrosing folliculitis of the neck

Methodology

We conducted a retrospective descriptive study of the different factors associated with the occurrence of FFN in the Dermatology Department of Aristide le Dantec Hospital, during the period from August 10 to December 31, 2020. The dermatology department of HALD is the reference center for dermatology in Dakar and even in Senegal. The interview and clinical examination were performed by the same person. The associated factors sought were: type of shaving, number of shaves, and

metabolic syndrome (blood pressure, waist circumference, hip circumference, weight gain, fasting blood sugar, and lipid profile).

The diagnosis of fibrosing folliculitis of the neck was clinical based on clinical examination presenting as papule, nodule, pustule, erythema, hypertrophic scar and scarring alopecia. Then the fibrosing folliculitis of the neck was classified into three stages:

Stage 1: inflammatory lesions with papulo-pustular lesions.

Stage 2: cicatricial papules.

Stage 3: presence of keloids.

The analytical study was done with cross-tabulations of variables using double entry contingency tables. To compare frequencies, the KHI 2 test and the Fischer test were used according to their applicability condition, with an alpha significance threshold lower than 0.05

Results

We collected 37 patients with fibrosing folliculitis of the neck. They were all patients of phototype VI according to Fitzpatrick's classification and whose hair type was frizzy. Our series was composed exclusively of men, i.e. a total of 37. The average age of our patients was 34.45 years and the extremes of age were 19 to 55 years. The functional signs were pruritus in 17 cases (45.95%) and pain in 6 cases (16.22%). The average duration of evolution was 6 years with extremes of 1 year to 10 years. A particular terrain was noted in 7 cases; it was atopy in 3 cases, diabetes in 3 cases and hypertension in one case. A family history of FFN was noted in 3 cases, i.e. 8.11%. For habits and lifestyle, the type of shaving most used was the clippers in 35 cases (94.6%) and the razor blade in 2 cases. No cases of shaving with scissors were reported. The use of wooden or plastic combs was found in 11 cases of our patients (29.73%) and there was a statistically significant association between the use of combs and the presence of nodules ($P < 0.001$). Patients shaved one to five times per month (48.65%), with an average of three shaves. A statistically significant association between the number of shaves and stage 3 ($P < 0.027$) was found. The distribution according to the number of shaves per month is shown in Table I. The different clinical lesion aspects found were papules in 37 cases (Figures 2), nodules in 32 cases (Figures 3), hypertrophic scars in 31 cases (Figures 4), pustules, erythema and scarring alopecia in 27 cases, 4 cases and 2 cases respectively. There was no statistically significant relationship between the different clinical aspects of folliculitis and the type of shaving.Superinfection of the lesions was noted in 2 patients or 5.4%. The topography was occipital in 35 cases and parietal in 2 cases. These topographies could be reached in the same patient. Clinical stage 2 was the most frequent in 62.16% of cases. In the search for associated defects, hypertension was found in 3 cases, and overweight and obesity (moderate/severe) were observed in 19 cases (51.35%). Six patients (16.22%) had a high waist to hip ratio (> 0.95). Diabetes was noted in ten of our patients (27.03%). Three patients had

Comment [PKH3]: Instead of Figures, write Figure.

Comment [PKH4]: It should be associted comorbidities not defects.

a lipid imbalance (hypertriglyceridemia and hypercholesterolemia), i.e. 8.11%. The quality of life evaluated in 29 patients, i.e. 78.38%, had been considerably impacted due to the display nature of their pathology; resulting in a refusal to go out, or the systematic wearing of helmets, in order to wrap up the lesions. On the therapeutic level, therapeutic education is the key to prevention. It is based on the avoidance of rubbing and short haircuts, especially along the root of the posterior hair. The use of razors and clippers was forbidden during growth. Later on, the use of clippers may be possible if the direction of the hair is respected. Various treatments were prescribed for our patients, as shown in Table I, depending on the stage of development

Comment [PKH5]: There should be a full stop (.) at the end of the sentence.

On the evolutionary plan, a monthly follow-up of the patients was respected and it was favorable in 19 cases (51,35%), stationary in 14 cases (37,84%). An unfavourable evolution was noted in one case (2.7%) and three patients (8.11%) were lost to follow-up.

Discussion

Fibrosing folliculitis of the neck is an increasingly frequent reason for consultation in phototype VI subjects.

In the United States, France (Guadeloupe) and Benin, fibrosing folliculitis of the nape of the neck represented respectively 0.45%, 0.7% and 0.7% of all dermatoses affecting people of phototype VI (Afro-American, Afro-Caribbean) [7, 8, 9]. This could be related to hairstyles, mode of dress and aesthetic concerns.

The mean age of our study population was 34.45 years, which is consistent with the Togolese study that reported a mean age of 34.9 years [10]. However, a relatively lower mean age was noted in studies from the United States, Benin, Nigeria, and Côte d'Ivoire [14,9, 12,13, 14].

Our series was exclusively male, which is consistent with data from other African series, notably in Benin, Nigeria and Ivory Coast [12]. However, in Morocco 8% of the patients were female [15].

In fact, the predilection of fibrosing folliculitis of the nape of the neck in male subjects of African descent of phototype VI would be related, according to many authors, to the oblique growth and the frizzy character of the hair, making it easily embodied after cutting.

In our study, three of our patients had a family history of fibrosing folliculitis of the neck (8.11%). Our results are consistent with those found in Morocco [15].

The disease evolved from one year to 10 years with an average duration of 6 years. This delay was shorter than those reported in the literature, notably in Morocco (4 years), Benin (29 months), Nigeria (15 months) and Togo (5 years) [15, 9, 12, 10].

Comment [PKH6]: The statement seems to be wrong. In author's series the duration was 6 years, but quoted references showed less than 6 years. Hence, it should be longer instead of shorter.

In our series, the use of clippers was found in 94.6% of cases, razor blades in 5.4% of cases and no cases of cutting with scissors were found. On the other hand, in the Ivorian and Nigerian studies, cutting hair short with a blade was reported in 79% and 10.7% of cases respectively [16,12]. Nevertheless, other factors were found to be associated with the disease, such as the use of helmets, particularly in the United

States, Morocco and Benin [8, 15, 9]. Friction of the collars of clothing, stress and anticonvulsants have been described as contributing factors in Benin [9]. George et al. found that 40% to 58% of patients had used a wooden or plastic comb. These investigators pointed out that the use of this type of comb mechanically scratches the surface of the scalp and could thus be involved in the development of lesions of fibrosing folliculitis of the neck [17]. A lower rate was found in our study in 11 of our patients or 29.73%. The association between the use of comb and the presence of nodule had shown a statistically significant relationship ($p < 0.001$).

Many authors have reported that local trauma to the scalp favors the formation of fibrosing folliculitis lesions of the nape of the neck. Moreover, the elective topography of the lesions at the nape of the neck, reported in all the series, has not yet been clarified. Would the skin of the nape of the neck be more sensitive to microtrauma than the rest of the scalp? More studies are necessary to establish the particularities of the skin at this level and their implications in the physiopathological process of fibrosing folliculitis of the nape of the neck. In our study, the number of shavings varied between one and five times per month, with an average of three shavings per month, i.e. 48.65% of our patients, which is in line with a Togolese study which found a frequency of shaving of four times per month [10]. The cross-tabulation between the number of shaving per month and stage 3 of fibrosing folliculitis of the nape of the neck had shown a statistically significant relationship ($p < 0.027$). Pruritus was the most common symptom in 45.95% of our patients. Our results are in agreement with Moroccan and Togolese studies where pruritus was found in 89% and 81.5% respectively.

Comment [PKH7]: Prticularities of yhe skin is wrong in this sentence. Please modify the sentence.

In our population, 27.03% of our patients had diabetes (n=10). This rate is higher than the frequency of diabetes in the general population in Senegal which is 10.4% [16]. In a Jamaican study, a lower rate was found, 11.6% (n=5) versus 7.9% in the general population. Nineteen of our patients (51.35%) were overweight/obese (moderate to severe), i.e., one patient out of two was obese, which was higher than the rate found in the Jamaican study by Althea et al (21%) [18].

Comment [PKH8]: Instead of » in our population », please write » in the study population « .

A Togolese study had found that the risk of fibrosing folliculitis of the neck increases with body mass index. They had concluded that the high body mass index (overweight or obesity) was a risk factor simply mechanical. Indeed, the more folds there are in the occipital region, the greater the risk of ingrowth [10].

In our series, three patients had dyslipidemia (8.11%), while Athléa et al found a lower rate of 2.3% (n = 1) [18].

Although these percentages need to be normalized for age and gender for comparison, there is an indication that diabetes and obesity/overweight may be more prevalent in individuals with fibrosing folliculitis of the neck. Therefore, further studies may determine whether insulin resistance plays a role in the etiology of this dermatologic disease.

Conclusion

FFN is an increasingly frequent reason for consultation in subjects of phototype VI and affecting adult males. We found a high frequency of diabetes and obesity in patients with FFN.

Key words: FFN, associated factors, Dakar

Comment [PKH9]: Key words should come after Abstract.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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Table I: Distribution according to the number of shaves per month

Number of shaves / month	Number	Percentage %
1	2	5,4
2	13	35,14
3	18	48,65
4	3	8,11
5	1	2,7
Total	37	100

Table II: Distribution of treatments according to the evolutionary stages of fibrosing folliculitis of the neck

Stage	Stage 1	Stage 2	Stage 3
Cyclins (100mg)	20		
Local antibiotic	17	7	
Dermocorticoid	12	10	
Corticosteroid infiltration		15	6
Association of antibiotic and a dermocorticoid		17	
Antiseptic	11	9	

Figure 1: Papulo-pustular lesions of fibrosing folliculitis of the neck

Figure2: Keloidal lesions of fibrosing folliculitis of the neck

Figure 3: Fibrosing folliculitis of the neck with a predominant keloidal component