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Original Article

Hair digging folliculitis of the nape of the neck and occiput: Outbreak of cases following hair styling by close shaving of non-curly hair

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Abstract

Background Folliculitis nuchae is chronic inflammatory process of hair follicles of the nape of the neck and occiput and is usually seen in persons with curly hair of African descendants. This condition might continue for months and years that often end with keloid formation if not stopped.

Objective To do full clinical evaluation of this condition in patients with non-curly hair and non-African descendants.

Methods This is a cross sectional study with therapeutic trial that had been carried out during the period from 2019-2023 where all patients with folliculitis of the nape of the neck and occiput with or without keloidal formation were collected. All demographic and clinical features were screened, including all patients with Fitzpatrick's skin types III-IV. The disease process was passed in three phases according to the type of inflammatory process. In phase one, there were folliculitis, while in the second phase, there were small hypertrophic scars with some features of folliculitis and the third phase consisted mainly of keloidal papules and nodules. Treatment was applied according to the phase of the disease process; phase one, patients were treated by topical clindamycin solution with oral desloratadine 5 mg tablet twice a day and oral sulfamethoxazole/ trimethoprim (400mg/80mg) 2 tablets twice a day for two weeks, then 2 tablets a day. Phase two was managed similarly to the phase one with edition of topical steroid. Phase three included only oral desloratadine 5 mg tablet with topical mometasone cream twice a day and therapy continued for several months.

Results Sixty male patients with non-curly hair were included in this study, their ages ranged from 20-45 years with mean age of 28 years while the duration of the disease ranged from 0.5-5 years. All patients gave history of very close hair short cutting and shaving of hair of back and sides of scalp and neck. Itching and scratching were practiced by all patients while pain was mentioned in 13 (21.66 %) patients. Regarding the phase of the disease, 48 (80%), 8 (13.33%) and 4 (6.66%) of patients were in phase one, two and three respectively. The response to treatment was variable and depended on the phase of the disease as phase one showed rapid and best response to treatment regimen with more satisfactory results than phase two and three.

Conclusion There is major outbreak of digging folliculitis of neck among adult males with non-curly hair following hair styling by close/ short cutting and shaving of back, sides of scalp and neck hair.

Key words
Folliculitis keloidalis nuchae; Acne keloidalis nuchae; Digging folliculitis.

Introduction

Folliculitis is an inflammatory reaction of hair follicles with possible involvement of the follicular opening and the perifollicular area.[1]

Folliculitis keloidalis nuchae (FKN) is a chronic inflammatory process involving principally the hair follicles of the occiput and nape of the neck and when severe, it can affect the entire scalp. It begins as small, firm, smooth papules and

pustules and with time, these lesions resolve and leave small areas of transient alopecia. In many patients, the papules coalesce together to form keloid-like plaques. It occurs most commonly in males with darkly pigmented skin of African descent between the ages of 14-25 years.[2]

The term FKN is preferred to acne keloidalis to avoid confusion with keloid formation in association with acne vulgaris.[3]

The exact etiopathogenesis of FKN is not well clear but chronic irritation or occlusion of the follicles due to close hair cutting practices, friction, and trauma, are well known inciting factors. Additionally it might be elicited by infections like bacteria or Demodex. Other possible potential contributory agents include excess androgens or increased sensitivity to androgens, autoimmunity, medications (e.g., cyclosporine) and seborrhea. Staphylococcus aureus may be isolated from skin swabs but it is unsure whether this microorganism can be involved as a primary pathogen.[4,5]

Education is the initial step in management, which is an important way to prevent the progression of the disease. Patients are advised not cut hair very short as FKN is exacerbated by short haircuts and close shaving. Initiating treatment during the first phase of the disease decreases the chance of keloidal formation and long term cosmetic disfigurement.[6] Therapy usually involves use of topical or intralesional steroids in combination with antibiotics and/or retinoids.[7,8]

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As there are outbreaks of folliculitis of the occiput and nape of the neck as result of new hair styling by very close hair cutting and shaving of these areas, so the aim of the present work is to do full clinical evaluation of this condition in patients with non-curly hair and non-African descendants. In addition, new therapeutic regimen was tried.

Methods

This was a cross sectional study with therapeutic trial that had been carried out during the period from October 2019 to March 2023 where all patients with folliculitis of neck and back and sides of scalp with or without keloidal formation were collected. All demographic features were screened. Full history and clinical evaluation were performed including age, sex, duration of the disease, the way of hair styling and cutting of hair of neck and back of scalp, the associated signs and symptoms, involved sites, type of the lesion, and any past history of treatment. The diagnosis of digging folliculitis was established depending on clinical features.

The disease was passed into three phases according to the type and severity of inflammatory process.

In phase one, there were numerous small, red papules and pustules and this continued for few to several months. While in second phase, there were firm papules of hypertrophic scars that were pierced by hair together with features of folliculitis. The third phase consisted mainly of keloidal papules and nodules of different severity with or without few folliculitis.

Therapeutic management was applied according to the phase of the disease process, explained below:

Phase one: topical clindamycin solution 1.5% twice a day, oral desloratadine 5 mg tablet twice a day for two weeks combined with oral sulfamethoxazole/ trimethoprim (400mg/80mg) 2tablets twice a day for two weeks, then 2tablets a day. This regimen was continued for at least one month.

Phase two: was managed similarly to the phase one with edition of topical steroid, like mometasone cream.

Phase three: only oral desloratadine 5 mg tablet twice a day with topical mometasone cream and therapy continued for several months.

Follow-up was done every two weeks in the first month then monthly until complete clearance or full satisfaction of patients.

Results

Sixty male patients with Fitzpatrick skin type III-IV and with non-curly hair, non-African descendants were included in this study. Their ages ranged from 20-45 years with mean age of 28 years while the duration of the disease ranged from 0.5-5 years with a mean of 2.1 years. On examination, all patients had very close hair short cutting and shaving of hair of back of scalp and nape of the neck and sides of scalp in periodic time in almost once a month. The back of the neck and occiput were involved in all cases while some scattered lesions were seen on sides of the scalp **(Figures 1-4)**. Itching and scratching were practiced by all patients while pain was mentioned in 13 (21.66%) patients. Hypertrophic scar and/or keloidal lesions were seen in 4 (6.66%) of patients.

According to the phase of the disease, 48 (80%), 8 (13.33%) and 4 (6.66%) of patients were in phase one, phase two and phase three respectively.

The response to treatment was variable and depended on the phase of the disease as phase one showed rapid and best response to treatment regimen with more satisfactory results than phase two and three. Phase two showed some resistance to treatment and needed longer duration than phase one but shorter duration of treatment than phase three. Fully developed keloidal lesions were seen in phase three, so this phase was the more resistant than the others. At the end of therapy, all patients were satisfied with the results but with variable ratios ranging from very good to good satisfaction depending on the phase of the disease.

Figure 1 Twenty-three years old male patient showing marked picture of folliculitis as part of phase one digging folliculitis.

Figure 2 Twenty-two years old male patient showing small early hypertrophic scars combined with multiple follicular erythematous papules and pustules as a part of phase two of digging folliculitis.

Figure 3 Thirty-one years old male patient with multiple papules of keloid rash with some folliculitis as part of phase three of digging folliculitis.

Figure 4 Thirty-five years old male patient with large matted keloidal masses as a part of phase three of digging folliculitis affecting the occiput.

Discussion

FKN is a common disorder, which can lead to significant scarring, alopecia and negatively impact quality of life. The etiopathogenesis of FKN is not well elucidated, but cutting or shaving the hair very short, wearing a helmet,[9-11] friction,[10,11] emotional or physical stress[12] and medications (e.g., cyclosporine)[4] are thought to play a role in different and variable grades. Familial component or cutaneous manifestation of metabolic syndrome have been suggested to play a role in disease progression.[13,14]

The aim of this study is to shed light on short haircuts as a common but unrecognized etiological agent for digging folliculitis in Iraqi men and potentially, over the world. As found in this study, that short haircuts were the only possible causative agent recorded in our patients.

In the current work, all cases were men and this finding was very supportive for close hair shaving as a cause of folliculitis. This result was consistent with other studies,[6,15] while differs from some studies where female cases were reported to be affected.[11,12]

The mean duration of disease before presentation was 2.1 years. This result is comparable to another study.[6] The reason for this long duration of disease before presentation is not well known but the most acceptable reason is that most of the patients regarded digging folliculitis as a simple disease and they tried many medications before consulting dermatologists.

The age of our cases ranged from 20-45 years with mean age of 28 years. These results were in agreement with the conclusions of other studies that had shown FKN was rare before puberty and after the age of 50 years.[6,11]

Although, FKN occurs mostly in African descendents with curly or kinky hair,[6,9,15-17] all patients in this study were Arabian (Iraqi) origin with Fitzpatrick skin type III-IV and nonoe were of one was African descent or with curly or kinky hair. In Iraq, probably like many other countries in the past (especially in the period from 1970 to 2000), these cases were rarely seen as the hair styling at that time was long hair (khanaffus) with no close hair cutting. Nowadays FKN has become a common medical problem due to wide appearance of short hair styling among adult males which is locally called haffer, (digging) disease.

The exact mechanism behind short haircuts inducing folliculitis is not well clear but we can speculate that shaving of pubic and axillary hair over a long period often induces folliculitis as a result of hair follicle irritation. Similarly, short hair cutting of the back of the neck and scalp regularly, usually monthly, can induce folliculitis. In the past, all barbers used scissors or manual razors for hair cutting while in the last few years, barbers replaced these old devices with electric razors. This frequent hair cutting in a short hair style using electric razors can lead to repeated trauma to hair follicles and this can trigger and induce inflammatory reaction of hair

follicles which is an essential step for digging folliculitis formation. Furthermore, these follicular lesions might be caused by infection[4,5] as a result of using electric razor which cannot be sterilized properly, hence, this machine can transfer the infection between customers.

Itching and scratching that might exacerbate this condition were practiced by all of our patients while pain was mentioned in 13 (21.66%) patients. Hypertrophic scar and/ or keloidal lesions were seen in 4 (6.66%) patients. These results differ from another study in which enlarging keloidal lesion was the main presenting symptom in 60 % of patients and all these patients were of African descent and more prone to keloid formation than our patients.[15]

Management of FKN is challenging, and no single treatment has emerged as definitely first-line.[18] Different modalities have been used from topical antibiotics to surgical excision of the keloidal lesions with varying degrees of success. While in the present work, the response to treatment was variable and based on the phase of the disease. Phase one showed complete clearance of the lesions within one-month duration while phases two and three needed more time with some resistance to treatment (especially phase three) but with somewhat satisfactory results. It is very important to catch these patients in phase one with early initiation of treatment combined with advice not to cut the hair too short at surface of the skin in order to prevent scarring and keloid formation that are seen in phase two and three of the disease.

Conclusion

There is a major outbreak of digging folliculitis of neck among adult males following new hair styling by close short cutting and shaving of back of scalp and neck hair. This is followed by an inflammatory process that consisted of folliculitis, follicular hypertrophic scarred papules followed by keloidal formation. The main preventive and therapeutic measure is stopping this new hair styling and early initiation of effective treatment.

References

1. Sharquie KE, Jabbar RI. Chronic folliculitis of the scalp: New classification of one spectrum related variants. *J Pak Assoc Dermatol* . 2022;**32(2)**:239-47.
2. Sperling L C, Sinclair R D , El Shabrawi-Caelen L. Alopecias. In: Bolognia J, Schaffer J, Cerroni L, editors. Dermatology. 4th ed. Philadelphia; Elsevier; 2017. p. 1162–84.
3. Hay RJ, Morris-Jones R, Jemec GB. Other acquired disorders of the pilosebaceous unit. Rook's Textbook of Dermatology, Ninth Edition. 2016.p.1-14.
4. Adotama P, Tinker D, Mitchell K, *et al*. Barber knowledge and recommendations regarding pseudo folliculitis barbae and acne keloidalis nuchae in an urban setting. *JAMA Dermatol*. 2017;**153(12)**:1325-6.
5. Loayza E, Vanegas E, Cherrez A, Cherrez Ojeda I. Acne keloidalis nuchae in Latin America: is there a different phenotype? *Int J Dermatol*. 2017;**56(12)**:1469-70.
6. Adegbidi H, Atadokpede F, do Ango-Padonou F, Yedomon H. Keloid acne of the neck: epidemiological studies over 10 years. *Int J Dermatol*. 2005;**44(1)**:49-50.
7. Goh MSY, Magee J, Chong AH. Keratosis follicularis spinulosa decalvans and acne keloidalis nuchae. *Australas J Dermatol*. 2005;**46(4)**:257–60.
8. Stieler W, Senff H, Janner M. Folliculitis nuchae scleroticans–successful treatment with 13-cis-retinoic acid (isotretinoin). *Hautarzt*. 1988;**39(11)**:739–42.
9. Glenn MJ, Bennet RG, Kelly AP. Acne keloidalis nuchae: treatment with excision and second-intention healing. J Am Acad Dermatol. 1995; 33: 243–246.
10. Knable AL Jr, Hanke CW, Gonin R. Prevalence of acne keloidalis nuchae in football players. *J Am Acad Dermatol*. 1997; **4**:570–4.
11. Kelly AP. Acne keloidalis nuchae. eMed Dermatol. 2004; (accessed online July 2004).

12. Kantor GR, Ratz JL, Wheeland RG. Treatment of acne keloidalis nuchae with carbon dioxide laser. *J Am Acad Dermatol*. 1986;**14**:263–7.
13. Verma SB, Wollina U. Acne keloidalis nuchae: another cutaneous symptom of metabolic syndrome, truncal obesity, and impending/overt diabetes mellitus? *Am J Clin Dermatol*. 2010;**11(6)**:433–6.
14. D'Souza P, Iyer VK, Ramam M. Familial acne keloidalis. *Acta dermato-venereologica Norway*. 1998;**78(5)**:382.
15. .Salami T, Omeife H, Samuel S. Prevalence of acne keloidalis nuchae in Nigerians. *Int J Dermatol*. 2007;**46**:482–4.
16. Dunwell P, Rose A. Study of the skin disease spectrum occurring in an Afro-Caribbean population. *Int J Dermatol*. 2003;**42(4)**:287–9.
17. George AO, Akanji AO, Nduka EU, *et al*. Clinical, biochemical and morphologic features of acne keloidalis in a black population. *Int J Dermatol*. 1993;**32(10)**:714–6.
18. Maranda EL, Simmons BJ, Nguyen AH, *et al*. Treatment of acne keloidalis nuchae: a systematic review of the literature. *Dermatol Ther (Heidelb)*. 2016;**6(3)**:363-7.