Association of Acne Keloidalis Nuchae with Diabetes Mellitus and obesity

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Abstract

BackgroundA chronic scarring folliculitis, acne keloidalis nuchae (AKN) is more common in black men (1, 2). Its incidence varies between 1.6% and 16.1%. Nape and occipital region almost solely affected. Earlier research has shown a significant link between AKN and MS (5), with a focus on the link between obesity and AKN (6). Patients with a high body mass index are not necessarily diagnosed with insulin resistance and metabolic syndrome. Patients with AKN tend to be overweight, which shows that the two conditions may occur simultaneously. (7) Patient and methodFrom the months of August 2020 through January 2022, we surveyed a sample of residents of Hilla city for a case series study. 33 of these patients were found to have AKN. Participating patients were scouted at dermatology clinics that serve the general public. Body mass index was determined after a general physical examination (height and weight) and samples were sent off to be tested for HBA1C and RBS.Aim To know whether the obesity or diabetes consider a risk factor for acne keliodalis nuchae and which one condition is more effective. Results A case series study was done in a total of 33 patient, all males, with a mean age of of 42 years (range19-70years) were included .and median BMI (body mass index) 34 (range21.9-45.9). overweight and obesity were found in 30 patients (90.9%). normal BMI less than 24.9 were found in 3 patients (9%) patients. Regarding hyperglycemia were found in 20(60.6%) diabetic patients while 13(39.4%) was nondiabetic and 12(60%) patients from those diabetics were HBA1c is high more than 7 and 14 (42.42%) patients were high RBS. Percentage of obesity in AKN was 90.9% while percentage of DM was 60.6% meaning that obesity more associated than DM in AKN but still considered as risk factor

ConclusionThis investigation hypothesizes that excess body fat and diabetes may have a role in the development of AKN, an often-overlooked scalp condition. To confirm these findings, larger-scale research is needed.

Keywords: -Obesity, Diabetes, Acne, Medications, Inflammation

1. Introduction

Males of African ancestry are disproportionately affected with acne keloidalis nuchae (AKN), a kind of chronic scarring folliculitis (1, 2). Its incidence varies between 1.6% and 16.1%. That are felt virtually solely in the back of the head and neck. Androgens, inflammation, infections, trauma, friction, genetics, and ingrown hairs (3) are all mentioned as possible causes, as well as folliculitis decalvans, seborrhea, metabolic syndrome, and the use of certain drugs (4). Previous research has shown a correlation between AKN and MS (5), with a focus on the link between obesity and AKN (6). An accumulation of adipose tissue at the nape, the scalp's only movable region, was postulated to cause a superfluous skin fold, increased friction, and inflammation, ultimately leading to the development of AKN. Patients with a high body mass index are not necessarily diagnosed with insulin resistance and metabolic syndrome. Patients with AKN tend to be overweight, which shows that the two conditions may occur simultaneously. (7) Chronic folliculitis and perifolliculitis characterize acne keloidalis nuchae (AKN). Multiple itchy papules form in the nape area, and they are prone to infection, leading to cicatricial alopecia and keloid-like plaque if left untreated (8). Although it may look like a keloid, AKN is not caused by acne and does not involve actual keloid formation. In addition, it is unusual for there to be keloid in other parts of the body at the same time. African American guys have an increased risk of AKN. Kaposi coined the term "dermatitis papillaris capillitii" to describe the condition in 1869. (9). Its cause is a matter of conjecture, but some have suggested that it is a mechanical form of folliculitis. Other explanations connect it to metabolic syndrome (10). Radiation, oral antibiotics (especially rifampicin and clindamycin), topical steroids, intralesional steroids, retinoids, and extended courses of antibiotics are all techniques that have been recorded for treating AKN. Some surgical options include removal and immediate closure, secondary intention healing, removal and immediate grafting, and the use of a tissue expander. However, attaining satisfactory outcomes and clearing the

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condition is difficult (11).

2. Patient and Method

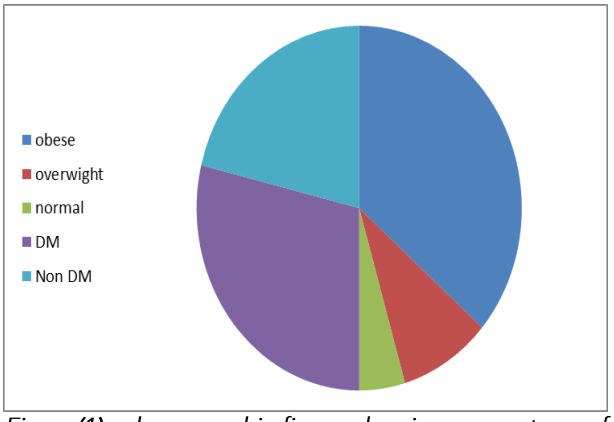
From the months of August 2020 through January 2022, we surveyed a sample of residents of Hilla city for a case series study. Thirty-three of these patients were ultimately classified as having AKN. every every one Male patients over the age of 25 who presented to dermatology with neck- and/or scalp-based AKN were included in the study. Participating patients were scouted at dermatology clinics that serve the general public. In a systematic and orderly fashion, we recruited new employees. This research motivated the creation of a new general health and skin exam questionnaire. Body mass index was determined after a general physical examination (height and weight) and samples were sent off to be tested for HBA1C and RBS.

3. Results

A case series study was done in a total of 33 patient , males with a mean age of 42 years (range19-70years) were included .and median BMI(body mass index) 34 (range21.9-45.9).overweight and obesity were found in 30 patients (90.9%) .BMI in range of 24.9-30 overweight were 6(18.1%) patients and in range 30-35 class I obesity were 9 patients(27.27%) and in range 35-40 class II obesity were founds in 12 patients (36.3%) and more than 40 class III were found 3 patients (9%) and normal BMI less than 24.9 were found in 3 patients (9%)patients . Regarding hyperglycemia were found in 20(60.6%) diabetic patients while 13(39.4%) was nondiabetic and 12(60%) patients from those diabetics were HBA1c is high more than 7 and 14 (42.42%) patients were high RBS. Percentage of obesity in AKN was 90.9% while percentage of DM was 60.6% meaning that obesity more associated than DM in AKN but still considered as risk factor. CHi square and P value was 0.0001% meaning that significant relation of both obesity and diabetes mellitus

Table 1. Study participants' demographics, acne keloidalis symptoms, and clinical findings, as collected from 33 male participants

Patient withDMControl HbA1c	8	24.24%	60% (DM)	P value
Patient with DM uncontrol HbA1c	12	36.3%		0.0001%
Patient non-DM	13	39.39%		
Normal weight18.5-24.9	3	9%		
Overweight25-29.9	6	18.1%	90.9% obese patient	
Obese class I30-35	9	27.27%		
Obese classII35-40	12	36.3%		
Obese classIII>40	3	9%		



Figure(1):- demographic figure showing percentage of patient with acne keloidalis nuchae and obesity and diabetus mellitus

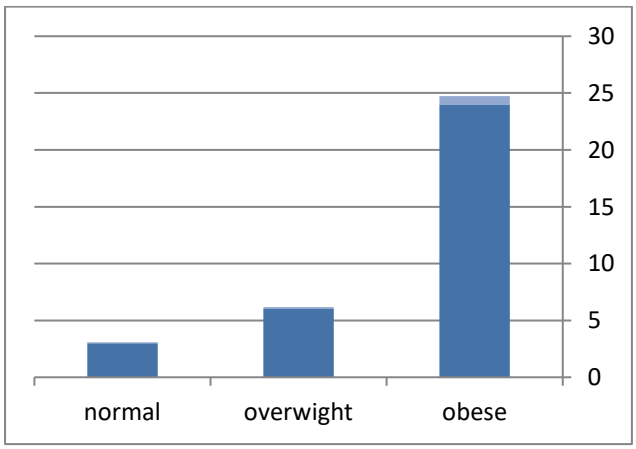


Figure (2): -demographic figure showing obesity as risk factor for acne keloidalis nuchae

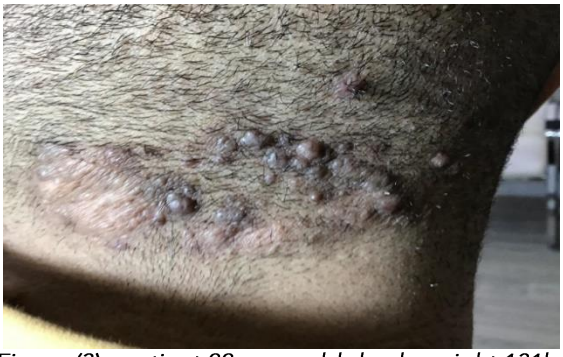


Figure (3): -patient 22 years olds body weight 131kg non DM BMI 38.5

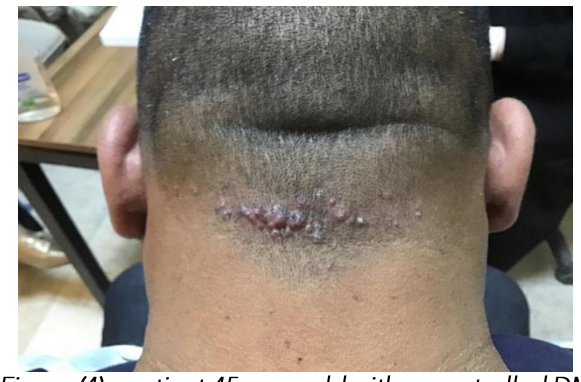


Figure (4):- patient 45 years old with uncontrolled DM body weight 110kg BMI 35.9kg/m2

4. Discussion

As AKN are common and can be challenging to treat, it is recommended that we learn more about what causes them so that we can perhaps eliminate them.

Multiple factors appear to contribute to AKN's complex etiopathogenesis. Beard pseudo folliculitis describes a possible mechanism in the form of curly ingrown hairs; however this has not been validated histologically (12). Shirt collars, caps, helmets, and close shaving are frequently noted as aggravating factors because of the friction and local stress they cause. Keratinization disorders of genetic origin (13), folliculitis decalvans (1), seborrhea, increased androgen levels or peripheral sensitivity to them (1, 21), and use of cyclosporine (14), tacrolimus (15), diphenylhydantoin, and carbamazepine (16) have also been correlated. The follicular barrier would disintegrate, exposing the hair shaft; inflammation would worsen; and hypertrophic scars would form as a result (12). Patients with this illness have a significantly lower quality of life than those without it. Our study looked at the risk factors of acne keliodalis nuchae in 33 patients, and we found that both obesity and diabetes mellitus were significant contributors. Patients tended to be on the heavier side. These conditions often go hand in hand; however this is not always the case. A high body mass index has been linked to AKN, with one study finding that 25.7% of the case group were overweight or obese. Numbers reached 62.3% when overweight was factored in alongside obesity. (17). Patients were reported to be overweight or obese at the rates of 18.1% and 72.57 %, respectively, in this investigation. substantiating a possible association between AKN and obesity and excess weight. In patients with overweight and obesity, we hypothesize, adipose tissue accumulates in the nape, the only movable portion of the scalp, causing redundant skin folds to form. More frequent local friction and inflammation would lead to the development of AKN in predisposed patients if these skin creases were deeper. Furthermore, it is well-documented that obesity has a wide range of physiological impacts on the skin, its barrier function, sebum production, sweat glands, lymphatic vessels, collagen structure and function, wound healing, micro- and macrocirculations, and subcutaneous tissue (18). Multiple skin disorders, including hidradenitis suppurativa and psoriasis, have been reported to be exacerbated by extra fat storage (19,20). AKN seems to be one more of them. Also we are evaluated DM as risk factor in present study we found that 60% were diabetes mellitus and 39.9% non DM, regardless its control . patients with normal HbA1c was 24.24%and with abnormal HbA1c 36.3% so meaning that control blood sugar not related to pathogenesis of disease but presence of DM still as risk factor .but in our study seen that obesity more risk factor than DM .Percentage rate in obesity was 90.9% while in DM was 60.6 % confirmed that obesity more risk factor than DM. P value was 0.0001% meaning its significant and both of them considered as risk factor .There were previous study show that : On the one hand, a robust correlation was shown between AKN and the MS, and on the other, between AKN and each of the MS's four constituents. It is important for doctors who specialize in AKN to be aware of this potential comorbidity. Careful screening for co-occurring metabolic condition is recommended for patients with AKN (7).

5. Conclusion

This article speculates that excess body fat and diabetes may play a role in the development of atopic keratosis (AKN), an often-overlooked scalp condition.

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