International Journal of Research in Dermatology
Das SK et al. Int J Res Dermatol. 2021 Sep;7(5):708-712
http://www.ijord.com

DOI: https://dx.doi.org/10.18203/issn.2455-4529.IntJResDermatol20213348

Original Research Article

Metabolic syndrome in skin tags: a hospital based observational study

Subrata Kumar Das[1]*, Saptadipa Das[2]

[1]Department of Dermatology, [2]Department of Medicine, Sikkim Manipal Institute of Medical Sciences, Gangtok, Sikkim, India

Received: 07 July 2021
Accepted: 28 July 2021

***Correspondence:**
Dr. Subrata Kumar Das,
E-mail: subha607@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The aim was to evaluate the parameters of metabolic syndrome in patients of skin tags and to investigate the possibility of an existing relationship between metabolic syndrome and skin tags.
Methods: This cross-sectional observational study included 47 patients with skin tags attended Outpatient department (OPD) of Department of Dermatology at a tertiary care center during a period of 1 year. Clinical and laboratory parameters were noted in each patient.
Results: This study included 47 patients with skin tags (28 males and 19 females). In the present study maximum number of patients belonged to the age group >40 years with 19 patients, followed by 30-40 years with 13 patient. In this study no. of students were 15, and no of employee were 11. Most patients had skin tags in more than one area, neck and axilla were involved in 9 patients each. In this study out of 47 patients. 11 patients had derangement of clinical and laboratory parameters of metabolic syndrome based on NCEP adult treatment panel III.
Conclusions: In the present study we observed significant derangement of clinical and laboratory parameters of metabolic syndrome in patients of skin tags.

Keywords: Skin tags, Metabolic syndrome, Low-density lipoprotein

INTRODUCTION

Skin tags (STs), soft fibromas, fibroepithelial polyps or acrochordons are all alternative terms to describe a common benign skin condition, which consists of a bit of skin projecting from the surrounding skin.[1] this soft pendunculated protrusions come in many variations. Most patients report skin tags as just unsightly, but for some patients, skin tags are annoying and physically irritating. Although usually small, they can become large, increasing risk that the patient will inadvertently snag the skin tag and rip it off. Skin tags are usually present on the head and neck, but particularly irritating skin tags can also grow in the groin and anal areas. Previously considered a cosmetic problem, new research indicates that skin tags may have medical significance. Histologically, skin tags are polypoid lesions with overlying mildly acanthotic epidermis, a loose, edematous fibrovascular core exhibiting mild chronic inflammation.[2] They often develop in areas of skin friction.[3] skin tags have been reported to be associated with many diseases including type 2 diabetes mellitus (DM) and obesity.[4-8]

The metabolic syndrome (MetS) is a cluster of risk factors including obesity, atherogenic dyslipidemia, hypertension, glucose intolerance, and a proinflammatory and prothrombotic state predisposing the patients to cardiovascular diseases (CVD), renal failure, and stroke.[9] Some studies have shown an association between STs and MetS.[10-12] Hence, the present study is a preliminary study designed to evaluate the presence of MetS in patients with STs and healthy controls, guided by the South Asian Modified National Cholesterol Education Programme

Adult Treatment Panel III (SAM-NCEP ATP III) criteria.[13]

Aim and objectives

The aim was to evaluate the parameters of metabolic syndrome in patients of skin tags and to investigate the possibility of an existing relationship between metabolic syndrome and skin tags.

METHODS

The study was conducted in Outpatient Dermatology Clinics at Sikkim Manipal Institute Of Medical Sciences, Gangtok, Sikkim, in the period between August 2019 and December 2020. It was approved by the Institutional Ethical committee.

Sample size

A total of 47 patients were included in our study.

Inclusion criteria

Male and female patients with clinical diagnosis of skin tags.

Exclusion criteria

Patients who are having cardiovascular disease or glucose metabolism disorder. Patients who were taking androgen or antiandrogen therapy, insulin treatment, and glucocorticoids treatment within the previous 6 months.

Clinical history

A detailed history of the patients as per the prepared questionnaire was taken with emphasis on history of onset, duration, site, family history, any associated symptoms (itching, pain or any other symptoms), and history of exacerbating factors if any.

Clinical examination

Elaborate general, physical, and systemic examinations were carried out and recorded. Complete examination of lesions of each side was done and noted in predesigned proforma. Disease characteristics, including the, as well as previous and current treatment modalities were noted.

Anthropometric and blood pressure measurement

Height

It was measured against a vertical board with attached metric rule and by bringing a horizontal headboard in contact with the uppermost point on the head. It was recorded in barefoot, full erect position with deep inspiration.

Weight

It was recorded without footwear and with light clothes on Indian Standards Institute certified weighing machine to the nearest of 100 g.

Body mass index

It was calculated as weight in kg / height in m2 (kilogram / square meter). In adults, overweight is defined as body mass index (BMI) between 25 and 29.9 and obese is defined as BMI ≥ 30.

Waist circumference

It was measured at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest, using a stretch-resistant tape that provides a constant 100 g tension.

Blood pressure measurement

Blood pressure (BP) was recorded with sphygmomanometer on the right arm in a sitting position after 20 min rest. The mean value for systolic and diastolic BP was calculated from average of three readings. Systolic BP ≥130 mm of Hg and diastolic BP ≥85 mm of Hg were taken as cut off points for hypertension.

Investigations

Blood samples were collected from all enrolled participants after 12 hr fast and the following investigations were performed.

Fasting blood sugar level (FBS), triglycerides (TGs), low-density lipoprotein (LDL), high-density lipoprotein (HDL), total cholesterol.

Diagnosis of metabolic syndrome

Diagnosis of metabolic syndrome was done based on the National Cholesterol Education Programme (NCEP) Adult Treatment Panel III by the presence of three or more of the following criteria 13.

Waist circumference (WC) ≥102 cm in male, ≥88 cm in female, TGs value ≥150 mg/dl, HDL >40 mg/dl. FBS ≥110 mg/dl, BP ≥130/85 mmHg.

RESULTS

This study included 47 patients with alopecia areata (28 males and 19 females). Baseline demographics and clinical characteristics of the participants are presented in (Table 1).

In the present study maximum number of patients belonged to the age group above 40 years with 19 patients,

followed by 30-40 years with 13 patients (Table 2). Among study subjects no of students were 15, no of employee were 11 (Table 3).

Table 1: Distribution of subjects according to gender.

	Male	Female	Total
No	28	19	47
%	59.5	40.5	100

Table 2: Distribution of subjects according to their age.

Age distribution (years)	Male	Female	Total
10-20	2	3	5
20-30	7	3	10
30-40	7	6	13
Above 40	12	7	19
Grand total	28	19	47

Table 3: Occupational status of study subjects.

Occupation	Male	Female	Total
School student	2	3	5
College student	5	5	10
Employee	7	4	11
Others	14	7	21
Grand total	28	19	47

Table 4: Distribution of subjects according to duration of disease.

Duration	Male	Female	Total
< 1 month	2	3	5
1-2 month	3	2	5
3-4 month	5	2	7
>4 month	18	12	30
Grand total	28	19	47

Table 5: Distribution of subjects according to types of lesions.

Site of skin tags	No.
Axilla	9
Neck	9
Groin	5
Body area	3
More than one area	21
Total	47

30 patients had duration of lesions for more than 4 month, 7 patients had Duration between 3-4 months (Table 4). Out of 47 patients 9 patients had skin tags over neck and axilla and 5 patient had lesions over groin and 21 patients had lesions over more than one area (Table 5). The clinical and laboratory parameters are depicted in Table 6 and 7.

Table 6: Anthropometric measurements and BP in study subjects.

Parameters	Findings (mean)
Waist circumference (cm)	97
BMI	24.7
Systolic BP (mm of hg)	130
Diastolic BP (mm of hg)	82

Table 7: Laboratory investigations in study subjects.

Investigations	Results (mean)
Fasting blood glucose level	98
Triglycerides	138.4
Total cholesterol	188
LDL cholesterol	94.1
HDL cholesterol	51.2

DISCUSSION

Skin tags (STs) also known as soft fibromas, fibroepithelial polyps, or acrochordons are soft, small, skin-colored to dark brown sessile, or pendunculated papillomas commonly occurring on the neck, frequently seen on the axilla and eyelids, and less often on the trunk and groin.[1,2] The definite etiology of STs is still unknown. Variations in estrogen levels and trophic hormones are believed to be involved in its genesis and development.[3] STs are benign, common, and generally ignored or merely considered as a cosmetic problem. Various methods such as scissors, electrocautery, and lasers are used to excise these lesions. However, they have been found to be associated with various conditions such as acromegaly, colonic polyps, Crohn's disease, diabetes mellitus (DM), and acanthosis nigricans.[4-6] The metabolic syndrome (MetS) is a cluster of risk factors including obesity, atherogenic dyslipidemia, hypertension, glucose intolerance, and a proinflammatory and prothrombotic state predisposing the patients to cardiovascular diseases (CVD), type 2 DM, renal failure, and stroke. It's unclear how or why skin tags develop but they are increasingly common with age (60% of individuals aged 69 years or older have multiple skin tags). Friction seems to precipitate skin tags, and viral infection may be a cofactor. Some researchers suggest skin tags develop pursuant to hyperinsulinemia, as insulin is a growth-stimulating hormone. Microscopically, skin tags have fibrovascular cores that induce mild chronic inflammation. Researchers have recently found associations between skin tags and a number of clinical conditions. Patients who have multiple skin tags are at elevated risk for acromegaly, colonic polyps, Crohn's disease, diabetes, hypertension, lipid disorders, and acanthosis nigricans. Other research has associated skin tags with elevated leptin, C-reactive protein, and fasting insulin levels. Many skin tags harbor human papilloma virus (HPV). Researchers found HPV 6 and HPV 11 DNA in 71% of the skin tags that they biopsied (N=35). However, HPV 6 and 11 are low-risk

viruses. HPV may be a contributing factor in the development of skin tags.

In our study, the most common age group of patients with skin tag was more than 40 years. Our study showed an increase in the number of patients up to age 50 years, similar to the observation by Thappa et al.[6] In our study, males outnumbered females similar to few other studies.[6,14] However, many authors also observed a female predominance.[15-17] In our study most of the patients had multiple sites of involvement like neck and axilla or neck, axilla and groin all together. Skin colored skin tag was the commonest type. Sessile skin tags were more commoner than pendunculated type. We did not find any unusual sites such as genitalia or any giant skin tags unlike Gorai et al.[18] In our study we had 11 patients of metabolic syndrome, diagnosis based on NCEP Adult Treatment Panel III.[13] In their study Shenoy et al and Safoury et al reported that the prevalence metabolic syndrome was 11.13 times higher in cases compared to controls, however, we did not find such higher prevalence in our study.[12,19] In the index study, increased waist circumference and high serum level of LDL were more common among the components of metabolic syndrome, in contrast Agmia et al and Safoury et al found significant association of skin tags with high TG levels and low HDL levels.[10,12]

Limitations

Small sample size was the major limitation of this study.

CONCLUSION

Significantly higher prevalence of Metabolic syndrome in patients with skin tags in our study, suggests that skin tags could be considered as a warning sign for Metabolic syndrome and their presence may help in the early detection of at - risk patients with the possibility of early diagnosis and treatment. Hence, patients with skin tags should be carefully evaluated for blood sugar, lipid profile, blood pressure, and other components of metabolic syndrome. They should be counselled regarding the predisposition for metabolic syndrome and necessary lifestyle modification to decrease the cardiovascular complications. However, further studies with a larger sample size are warranted in this area.

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

REFERENCES

1. Millington GW, Graham, Brown RA. Skin and skin disease throughout life. In: Rook's textbook of dermatology. Burns A, Breathnach S, Cox N, Griffiths CE, editors. 8th ed. Oxford: Blackwell Publishing. 2010;8.1-30.
2. Gupta S, Aggarwal R, Gupta S, Arora SK. Human papilloma virus and skin tags: Is there any association? Indian J Dermatol Venereol Leprol. 2008;74:222-5.
3. Allegue F, Fachal C, Pérez L. Friction induced skin tags. Dermatol online J. 2008;14:8.
4. Kahana M, Grossman E, Feinstein A, Cohen M, Ronnen M, Millet MS. Skin tags: A cutaneous marker for diabetes mellitus. Acta Derm Venereol. 1987;67:175-7.
5. Tompkins RR. Skin tags and diabetes. Arch Dermatol. 1977;133:1463.
6. Thappa DM. Skin tags as markers of diabetes mellitus: An epidemiological study in India. J Dermatol. 1995;22:729-31.
7. Bhargava P, Mathur SK, Mathur DK, Malpani S, Goel S, Agarwal US, et al. Acrochordon, diabetes and associations. Indian J Dermatol Venereol Leprol. 1996;62:226-8.
8. Garcia - Hidalgo L, Orozco - Topete R, Gonzalez - Barranco J, Villa AR, Dalman JJ, Ortiz- Pedroza G. Dermatoses in 156 obese adults. Obes Res. 1999;7:299-302 .
9. Gisondi P, Tessari G, Conti A, Piaserico S, Schianchi S, Peserico A, et al. Prevalence of metabolic syndrome in patients with psoriasis : A hospital - based case - control study. Br J Dermatol. 2007;157:68-73.
10. Agamia NF, Gomaa SH. Assessment of serum leptin, atherogenic lipids, glucose level, insulin resistance and metabolic syndrome in patients with skin tags. Egypt J Dermatol Venerol. 2014;34:58-64.
11. Shaheen MA, Fattah NS, Sayed YA, Saad AA. Assessment of serum leptin, insulin resistance and metabolic syndrome in patients with skin tags. J Eur Acad Dermatol Venereol. 2012;26:1552-7.
12. El Safoury OS, Abdel Hay RM, Fawzy MM, Kadry D, Amin IM, Zeid OM et al. Skin tags, leptin, metabolic syndrome and change of the life style. Indian J Dermatol Venereol Leprol. 2011;77:577-80.
13. Acibucu F, Kayatas M, Candan F. The association of insulin resistance and metabolic syndrome in early androgenetic alopecia. Singapore Med J. 2010;51:931-6.
14. Banik R, Lubach D. Skin tags: Localization and frequencies according to sex and age. Dermatologica. 1987;174:180-3.
15. Gorpelioglu C, Erdal E, Ardicoglu Y, Adam B, Sarifakioglu E. Serum leptin, atherogenic lipids and glucose levels in patients with skin tags. Indian J Dermatol. 2009;54:20-2 .
16. Sari R, Akman A, Alpsoy E, Balci MK. The metabolic profile in patients with skin tags. Clin Exp Med. 2010;10:193-7.
17. Akpinar F, Dervis E. Association between acrochordons and the components of metabolic syndrome. Eur J Dermatol. 2012;22:106-10.
18. Gorai S, Saha A, Misra P, Nag S. Broad based giant fibroepithelial polyp over an unusual location: A report. Indian Dermatol Online J. 2016;7:548-9.

19. Shenoy C, Shenoy MM, Krishna S, Pinto M. Skin tags are not merely cosmetic: A study on its association with metabolic syndrome. Int J Health Allied Sci. 2016;5:50-2.

Cite this article as: Das SK, Das S. Metabolic syndrome in skin tags: a hospital based observational study. Int J Res Dermatol 2021;7:708-12.