

Biochemical Profile in Xanthelasma Palpebrarum

Ghimire S*, Kayastha BMM**

*Dermatologist, Nepal Police Hospital, Kathmandu, **Professor, Department of Dermatology, NAMS, Bir Hospital.

ABSTRACT:

INTRODUCTION: Xanthomas occurring over eyelids are Xanthelasma Palpebrarum (XP) and are one of the important cutaneous manifestations of hyperlipidemia, atherosclerosis, and coronary heart disease. The hyperlipidemia and obesity are also found interrelated but there are very limited literatures regarding these problem and xanthelasma palpebrarum. This study was carried out to find out the clinical relationship between xanthelasma and biochemical profile.

METHOD: This was the hospital based cross sectional study which was approved by institutional review board (IRB). In total forty two patients were included in the study once the clinical diagnosis was made and biochemical profile was investigated after taking informed consent. Findings were tabulated and analyzed by using statistical tool SPSS.

RESULT: In total forty two patients were included in the study. Forty seven percent of the cases were in the age group of 31 – 55 years. XP was found in thirteen patients who were below 30 years of age. And it was more common (78.6 %) in female and non-vegetarian (81.3%). Fifty percent of the patient had high level of triglycerides and twenty six percent of patients had increased level of cholesterol. Twelve percent were obese and forty percent had BMI between 18.6 to 24.9.

CONCLUSION: Young married and non-vegetarian populations are at higher risk of having Xanthelasma palpebrarum. Lipid profile and BMI was not significantly increased in every cases of XP.

KEY WORDS: Body Mass Index (BMI), Lipid Profile, Xanthelasma Palpebrarum (XP)

INTRODUCTION

Xanthomas occurring over eyelids are Xanthelasma Palpebrarum (XP). Xanthomas are a common presentation of disorders of lipid metabolism usually associated with abnormalities of cholesterol metabolism. Xanthelasma Palpebrarum (XP) is considered as one of the most common xanthomas seen in clinical practice. It is known to show a peak incidence at 30-50 years.^{1,2}

The term xanthelasma is derived from the Greek word xanthos (yellow) and elasma (beaten metal plate). Xanthelasma, Xanthelasma palpebrarum (XP), Xanthelasma palpebrum, Xanthoma of eyelid, Benign eyelid xanthelasma are the synonyms. But xanthelasma palpebrarum is most commonly used terminology in

the literatures. These are yellow plaques that occur most commonly near the inner canthus of the eyelid, more often on the upper lid than the lower lid.

Normolipemic xanthomas can be associated with malignancies, particularly hematologic, including monoclonal gammopathies and cryoglobulinemias. It can also represent a marker of diffuse plane xanthoma, which is characterized by xanthelasma palpebrarum, diffuse *xanthoma planum* of the head, neck, trunk and extremities, normal plasma lipid levels, and has been associated with disorders of the reticuloendothelial system.

Xanthelasma can be seen in primary and secondary causes of hyperlipidaemia. Examples of primary genetic causes include familial dyslipoproteinemia, familial hypertriglyceridemia, and familial lipoprotein lipase deficiency. Uncontrolled diabetes is a common cause of secondary hyperlipidaemia. However, most xanthelasma occur in normolipemic persons who may have low or high density lipoprotein and cholesterol levels or other lipoprotein abnormalities.

Correspondence :

Dr Sanjita Ghimire
Department of Dermatology
Nepal Police Hospital, Maharajgunj, Kathmandu
Email: drsanjita@gmail.com

XP is the most common cutaneous xanthoma and it can be present with primary or secondary abnormalities of plasma lipid levels and more often occurs without abnormalities in plasma lipid levels.⁴ Papular xanthoma has been reported to be associated with other systemic disorders and may be a cutaneous sign of internal malignancy. Diffuse normolipemic xanthomatosis have normal lipid levels but are often associated with serious hepatic disease or hematological dyscrasias especially multiple myeloma.³

Studies on lipid profile are available^{4,5} but no published studies are available in XP in Nepal. This observational study was done to study the relation between lipid profile and Xanthelasma Palpebrarum in Bir Hospital Kathmandu.

METHOD

This was an observational analytical study. The study was conducted after taking the ethical clearance from Institutional Review Board. The written informed consent was taken from all patients who were included in the study. Triglycerides (triacylglycerols) was measured after 12 hours overnight fast in order to clear diet-derived chylomicrons. Alcohol was avoided the evening prior to measurement of triglycerides (as it can exacerbate hypertriglyceridaemia). Lipid

measurements were not performed for 2–3 weeks after minor illness and 2–3 months after major illness, surgery or trauma.

Patients taking lipid lowering drugs, Patient having major illness for example-surgery (Gastrectomy, colectomy, cardiac surgery) malignancy and renal failure and age less than 16 years were excluded from the study.

RESULT

There were total 42 cases of whom most were between ages 31- 45 years (47.6%). The age range was 20-68 years and mean age was 43.8 years with standard deviation ± 11.1. There was a predominance of female patients (78.6 %). The XP was 14.3% among young (<30 years) and 2.4% in old age group (>65 years).

Most of the patients (73.8%) had no any history of co-morbid conditions. Hypertension was found in 17.1% (n=8) of cases and all were taking the antihypertensive drugs regularly. In total 9.4 % (n=4) of the cases had the history of diabetes mellitus.

In total 27 (64.3%) of patient had the xanthelasma over bilateral upper eyelids were most common(64.3%). XP occurring on upper and lower eyelids of both right and left eye lids are least common(4.8%) as shown in Table no.1.

Table no.1: Anatomical site of XP

Site (Eye lid) of XP	Gender					
	Male		Female		Total	
	Number (N)	% N=42	Number (N)	% N=42	Number (N)	% N=42
Right upper	2	4.8	1	2.4	3	7.2
Left upper	3	7.1	6	14.3	9	21.4
Bilateral upper	3	7.1	22	52.4	25	59.5
Bilateral lower	1	2.4	2	4.8	3	7.2
Bilateral upper & lower	0	0.0	2	4.8	2	4.8
Total	9	21.4	33	78.6	42	100.0

More than 40% of the patients had normal level BMI and 47.6% had between 25-29.9 and 11.9% had in higher level BMI (Table no.2).

Table 2. BMI

BMI (kg/m2)	Frequency	Percentage
18.5-24.9	17	40.5
25-29.9	20	47.6
>30	5	11.9
Total	42	100

Among all cases of XP 16.7% (n=1) of patients having the family history of XP were obese whereas 11.1% (n=4) of patients who had no family history of XP were obese. 26.2% of the patients had the border line level of serum cholesterol. All together 40.4% of the patients had normal cholesterol level.

Among 42 patients the serum cholesterol was between 116- 489 mg/L. The mean level of serum cholesterol was 208.14 mg/L. In total 47.6 % of the patient with XP had normal serum cholesterol level and 26.2 % had borderline and 26.2% had high. Cholesterol level was high (21.4%) among female in comparison to male (4.8 %) patients.

In total 50.0% of the patient with XP had increased triglyceride level. Among them 71.4 % were females. There were 21 cases (50.0%) that had the normal level of triglyceride level. The maximum and minimum value were 424 mg /dl and 30 mg/dl respective.

In total 76.2 % of the patient with XP had normal LDL level. Twenty four percentage of patients had high serum level of LDL. The minimum value was 37mg/dl and the maximum value was 359mg /dl.

DISCUSSION

Xanthelasma palpebrarum, or simply xanthelasma, is a commonly encountered cutaneous xanthoma with an unknown aetiology⁴. They are diagnosed clinically with the presentation of oval or elongated yellowish plaques just beneath the skin of the periorbital region.⁶

Xanthomas can occur in people of any age⁷ but the incidences of age are similar in various studies. Study done by Jain A. has showed peak incidence at 30- 50 years.²⁸ In the study done by Dwibedi et. al. in 2011, the age of onset ranges from 15 to 73 years with a peak in the 4th and 5th decades of life⁸. The mean age was 49.5 (forty nine point five) years in the study done by oozdol S.¹⁵ Similarly in this study patients were presented between the age group of 20 – 68 years with the mean age of 43.8 years.

All lipid fractions increase during pregnancy in both normotensive and hypertensive patients. Hyperlipidemia is significant during the second trimester⁹. The practice of taking high fat containing diet during postpartum period is common in Nepal. This may be one of the causes for being a common among female. Another important reason may be the

cosmetic preference of women seeking for help in dermatologic out patients department.

Xanthelasmas are generally associated with type 2A hypercholesterolemia, while no dyslipidemia may be present in as many as 50% of patients.^{4,10}. Various associations was found in relation to xanthelasma palpebrarum and lipid profile. In XP elevation in the mean cholesterol or low-density lipoprotein cholesterol (LDL-C) levels has been reported but it can also be seen in patients with normal lipid levels.^{16,11}

In total 47.4% of the patient with XP had increased triglyceride level among them 86.8 % were female. There were 20 cases (52.6%) that had the normal level of triglyceride level. Study done by Limbu Y et al¹⁹ shows the desirable level of TC in 80 percent of cases. However, almost 10 percent had high TC (>240 mg/dl) in his study. Higher level of TC was observed among males than in females. But in this study In total 55.3% of the patient with XP had normal serum cholesterol level among them 23.7 % had borderline. That means it is similar with previously mentioned study. Twenty one percentage of patient had high cholesterol level which is higher than the study done by the Limbu. There were 20 cases (52.6%) that had the normal level of triglyceride level.

Limited literature available on the problem of obesity among the population of Nepal and I couldnot find single study on XP , lipid profile and BMI in Neplese population. In this study 40.5% had normal BMI ; 47.6 % had borderline BMI five patients (11.9%) were obese. None of the male population with xanthelasma were obese.

CONCLUSION

This study has identified that young married and non-vegetarian populations are at higher risk of having Xanthelasma palpebrarum. Lipid profile and BMI was not significantly increased in majority of cases of XP. Statistical variation was found in between XP, lipid profile and BMI.

LIMITATIONS

The present study has some limitations. This study was cross-sectional and was aimed to find out a causal relationship between XP, BMI, and lipid profile. The data were sampled from only one hospital in a

defined period of time and during the first visit of the patients. The sample size is limited so it may have some limitation in generalization of results. Further pilot study is recommended to define the relationship for general population

REFERENCES

1. Chhetri MK, Chowdhary ND, De B. Xanthelasma Palpebrarum. *J Asso Phy Ind* 1967; 15(9): 405-12.
2. Gangopadhyay BN, Dey SK, Mitra C, Pal D, Chaudhuri. Serum lipid profile in Xanthelasma Palpebrarum. *Ind J Dermatol* 1998; 43(2): 53-7.
3. Rudolph RL. Diffuse "essential" normolipemic xanthomatosis. *Int J Dermatol* 1975; 14: 651-6.
4. Nagila A , Bhatt M , Poudel B, Mahato P, Gurung D, Prajapati S ,Arun Kumar ,Tamrakar BK, Thyroid stimulating hormone and its correlation with lipid Profile in the Obese Nepalese population, *Journal of Clinical and Diagnostic Research*, 2008 Aug;2;932-937.
5. YR Limbu, SK Rai, K Ono, M Kurokawa, J I Yanagida, G Rai, N Gurung and CK Rai ; Lipid Profile of adult Nepalese population; *Nepal Med Coll J* ;2008;10 (1): 4-7.
6. Chan C.C., Lin S.J., Hwang J.J., Xanthelasma is not associated with increased risk of carotid atherosclerosis in normolipidaemia; *Int J Clin Pract* 2008; 62: 178–9.
7. A. Jain, P.Goyal, P.K. Nigam, H. Gurbaksh and R.C. Sharma, Xanthelasma Palpebrarum-Clinical and Biochemical Study, *Indian Journal of Clinical Biochemistry*, 2007 / 22 (2) 151-153.
8. Pandhi, D.,Gupta, P.,Singal, A., Tondon, A., Sharma, S.B., Madhu, S.V; Xanthelasma palpebrarum: a marker of premature atherosclerosis (risk of atherosclerosis in xanthelasma); *Postgrad Med J* (2012). doi:10.1136/postgradmedj-2011-130443.
9. Cüneyt E.; Cansun Demir S.; Comparison of lipid profiles in normal and hypertensive pregnant women; *Ann Saudi Med* ;2004,24 (25):382-85.
10. Raghuram Pusukuru, Arjun S. Sheno, Prakash Kumar Kyada, Babita Ghodke, Varshil Mehta, Kunal Bhuta, Aadhiyaya Bhatia; Evaluation of Lipid Profile in Second and Third Trimester of Pregnancy. *J Clin Diagn Res*. 2016 Mar; 10(3): QC12–QC16.
11. Fusade T Treatment of xanthelasma palpebrarum by 1064-nm Q-switched Nd:YAG laser: a study of 11 cases. *Br J Dermatol* 2008;158 (1) 84- 87.
12. Parker F. Normocholesterolemic xanthomatosis. *Arch Dermatol* 1986;122:1253-7.