Clinico-Metabolic profile of Xanthelasma palpebrum

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Abstract

Introduction: Xanthelasma palpebrum (XP) is a disorder of lipid metabolism that usually presents as bilateral and symmetrical, soft velvety papules and plaques around the eyelids. Though various factors contribute to its etiology, a strong association with lipid metabolism is proposed. Usually seen in middle age people, its main concern is cosmetic appearance.

Objective: 1. To evaluate the lipid profile, glycemic levels, Body Mass Index (BMI) in patients with Xanthelasma palpebrum. 2. To find the association between parameters like age, sex and comorbid illness with Xanthelasma palpebrum.

Materials and Methods: This prospective study included 42 clinically diagnosed patients with Xanthelasma Palpebrarum and 95 subjects in control group with non-inflammatory skin disorders. Levels of serum triglyceride, cholesterol, HDL, LDL, VLDL, blood sugar - fasting and post prandial were determined in all cases along with body mass index and blood pressure. These parameters were compared in both groups and association with XP was analysed.

Results and Discussion: In our study, XP was more common in females compared to males. In our study of patients with XP, average fasting blood sugar was 108 gm% and average post prandial blood sugar was 152gm%. Average serum triglyceride levels in patients with XP was 171.4 mg/dl, compared to 108.4 mg/dl in control group with significant p value i.e. 0.001, suggesting strong correlation between XP and serum triglyceride levels.

Conclusion: Patients with XP usually visit doctor with cosmetic concern. In most of the cases of XP, serum cholesterol, triglyceride and VLDL levels are deranged. Patients with XP should be evaluated for above parameters and systemic management done along with treatment of XP.

Keywords: Xanthelasma Palpebrum (XP), Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL), Very Low Density Lipoprotein (VLDL), Body Mass Index(BMI), Diabetes Mellitus (DM).

Introduction

The term "Xanthelasma" was coined by Erasmus Wilson, derived from two Greek terms "xanthos" (yellow) and "elasma" (beaten metal plate).[1] XP is the most common variety of cutaneous xanthoma. Aesthetic concern is the main cause of worry among patients. XP usually presents in 3rd to 5th decade of life and is more common among females. Association with various comorbid conditions like atherosclerosis, cardiovascular disease, diabetes, obesity and pancreatitis has been proposed. Though the exact cause is not known, disturbance in lipid metabolism may contribute to its pathogenesis.[2] XP appears as soft, velvety skin to yellow coloured macular, maculo-papular and plaque like lesions over eyelids and around eyes.[3] Microscopically, XP is composed of foamy cells in the superficial dermis, where lipid-laden histiocytes can be seen. Esterified cholesterol is the predominant lipid in normo- and hyperlipidemic XP in xanthoma cells.[4] It has been proposed that the risk of Coronary Artery Disease is higher in individuals presenting with XP.[5] Though many studies corelate XP with lipid profile, we have studied association of XP with other comorbidities and BMI as well.

Materials and Methods

This prospective case control study was done between March 2012 and August 2012.

Inclusion Criteria:

1. Patients attending Outpatient Department of Dermatology, Venereology and Leprology of Era's Lucknow Medical College and Hospital with Xanthelasma Palpebrum.
2. Patients of age group 25-80 years.
3. Patients willing to participate in study, undergo relevant investigations and willing for clinical examination.
4. Similarly, the age matched and disease-free subjects were taken as control group.

Exclusion Criteria: Refusal to participate in the study.

Prior to the study, an informed consent was obtained from the patients and the protocol was approved by the ethical committee of our Institution. Subjects were categorized into two groups.

In Group A, 42 cases of XP were included while in Group B, age and sex matched 95 Control subjects without XP were included. All subjects were clinically examined. Detailed family history, past history of diabetes mellitus, hypertension, hyperlipidemia and history of XP was taken. Clinical assessment included the type of skin lesions, appearance and duration of lesion. Blood pressure, weight and height were measured in all subjects. Body Mass Index (BMI) was calculated. All subjects in group A underwent a detailed cutaneous examination of eyelids. Size of lesion in mm,

colour of the lesions and morphology of lesions like papular, macular or nodular were noted. All cases (cases of XP and controls) underwent lipid profile study (Total cholesterol, LDL cholesterol, HDL cholesterol, VLDL), Blood sugar - fasting and post prandial. Complete data was analysed using Microsoft excel and mean and P values were calculated and results were analysed.

Result and Discussion

In our study, incidence of XP was more in females compared to males. Out of 42 cases of XP, 81% (34) were females and 19% (8) were males, i.e., female to male ratio of 4.26 was observed (Fig. 1). This is in concordance with previous studies by Sankar SP, Samuel P, Jain et al., Gangopadadhya et al., Epstein et al. and Pedace et al.[6-10] Cosmetic concern might be a reason for female preponderance in OPD.

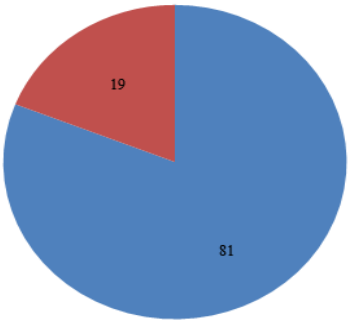

Fig. 1: 81% Females and 19% Males

Most of the cases of XP (64%) were in the age group of 30-40 years while 36% of the patients were aged between 40 and 60 years. There was not even single patient of XP aged above 60 years in our study. This is in concordance with study done by Sankar SP, Samuel P in which 40% of patients were in age group of 30–40 years.[6] Reddy et al. found peak incidence of XP cases in subjects between 31-40 years while Gangopadadhya et al. found majority of cases in age group of 31-50 years.[5, 8] In study by Jain et al., most of the cases were aged between 31-40 years.[7] Chhetri et al. reported a different peak age group of 40-50 years and found 41.84 % of the XP cases in this age group.[12]

Previous studies have reported correlation between diabetes and hypertension to XP. Sankar SP, Samuel P reported that 28% patients of XP were diabetic and 20% were hypertensive while Gangopadadhya et al. reported Diabetes Mellitus (DM) in 20% of patients and hypertension (HTN) in 32.5% of XP patients.[6,8] Jain et al. noticed that 42.4% of patients with XP had associated systemic diseases like HTN and DM.[7] Epstein et al. reported history of HTN in 28.6% cases.[9] Incidence of DM associated with XP was reported to be 6% by Ribera et al. and 34.2% by Vacca et al.[12,13] In our study of patients with XP, average fasting blood sugar was 108gm% and average post prandial blood sugar was 152gm% (Table 2). 15 patients i.e. 35.7% were diabetic while 17 (40.47%) of 42 patients were hypertensive. We calculated BMI in all the cases and found that in XP group, 15 (37.7%) patients had BMI above 25 and were overweight while none of the XP case had BMI above 30. In control group, 27 (28%) subjects had BMI more than 25 (overweight) and 2 (2.1%) had BMI above 30 (obese). Average BMI was more in XP group, but difference was not significant.

In our study, average serum triglyceride levels in patients with XP was 171.4 mg/dl, compared to 108.4 mg/dl in control group with significant p value of 0.001, suggesting strong correlation between XP and serum triglyceride levels (Table 3). This was in agreement with study by Aggarwal R, Rathore P.K which mentions increased triglyceride in 63.34% of cases of XP.[14] In our study, average serum cholesterol levels in XP group was 218.5 mg/dl whereas the average value in control group was 175.2 mg/dl. This difference was statistically significant (p value 0.001). Aggarwal R, Rathore P.K. found increased total cholesterol in 53.34% of XP cases, association being highly significant.[14] Sankar SP and Samuel P found increased serum cholesterol in 64% cases of XP.[6] Study by Gangopadadhya et al. concluded that 40% patients of XP have increased serum cholesterol while Pedace et al. found increased serum cholesterol in 59.8% patients.[8, 10] In our study, average HDL in XP group was 41.7mg/dl and in control group was 40.7mg/dl with p value 0.854, not significant. In our study, average LDL level in XP group was 135.2mg/dl while in control group it was 113.9mg/dl. This was statistically significant with p value of 0.005 but association of XP with total cholesterol and triglyceride levels was stronger compared to LDL levels. Aggarwal R, Rathore P.K, found increased VLDL cholesterol levels in 5 cases (16.67%) which is similar to our study.[14] In our study, average VLDL in XP group was 34.2 mg/dl and in control group was 20.5 mg/dl with clinically significant p value of 0.001. Jain et al. observed a significant increase in VLDL levels in patients with XP as compared to control group.[7]

Patients in XP group had average number of 3 lesions. Minimum number of XP lesion was 1 and maximum no of 8 lesions were seen in one patient (Table 4). Average size of lesions was 50 mm and the most common variety was plaque followed by papular. Bilateral lesions were seen in approximately 70% cases. Predominantly, the lesions were yellow coloured (64%) while 36% of lesions were skin coloured. Duration of disease varied from minimum of 3 months to maximum of 20 years, average being 28 months. Aggarwal R, Rathore P.K found that 19 (63.34%) cases had bilateral lesions and concluded that majority of lesions were found near the medial canthus of the eyelids.[14] Sankar SP, Samuel P showed that 31 (62%) cases had bilateral lesions and that majority of lesions were found near the medial canthus of the eyelids.[6] Jain et al. reported

bilateral involvement in 72.7% of cases.[7] Chhetri et al. reported flat topped bilateral yellowish coloured plaque lesions in 39% cases with bilateral eyelids involvement in 53.2% of cases.[11] Ribera et al, reported bilateral involvement in 42.6% of cases.[12] Tursen et al. observed that clinically xanthelasma usually present as plaque like yellow lesions.[15]

Table 1: Age and Gender wise distribution of XP cases

Variables	Cases (n= 42)	%
Age (yrs)		
30-40	27	64%
40-60	15	36%
>60	0	0%
Variables	**Cases (n= 42)**	%
Gender		
M	8	19%
F	34	81%

Table 2: Comparison of various parameters in both groups

Variables	Cases average (n=42)	Control average (n=95)
Blood Pressure		
Systolic	132	128
Diastolic	83	85
BMI	23.9	24.3
Blood sugar (Fasting)	108	115
Blood sugar (PP)	152	145

Table 3: Comparison of Lipid Profile in both groups

Variables	Study group (n=42)	Control group (n=95)	p value
Triglyceride (mg/dl)	171.3	108.4	0.001
Cholesterol (mg/dl)	218.5	175.2	0.001
HDL (mg/dl)	41.7	40.7	0.854
LDL (mg/dl)	135.2	113.9	0.005
VLDL (mg/dl)	34.2	20.5	0.001

Table 4: Clinical Profile of Lesions

Variables	Cases (n= 42)	%
Average number of Lesions	3	
Average size of lesions	50mm	
Color of lesions		
Yellow	27	64%
Skin	15	36%
Average duration in months	28	

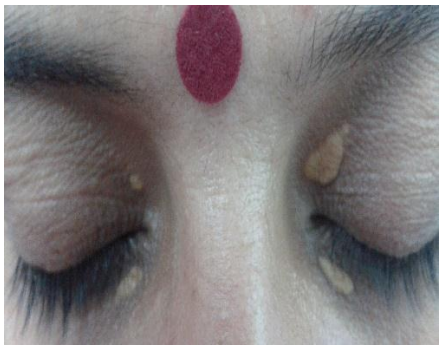

Image 1: Showing Bilateral XP

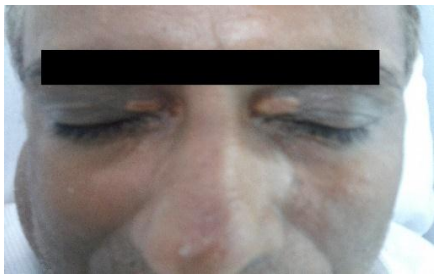

Image 2: Showing Bilateral XP

Conclusion

Patients with XP usually visit doctor with Cosmetic concern. In most of the cases they are not aware of the association of XP with altered serum cholesterol, triglyceride and VLDL levels. However, patients with XP should be evaluated for above parameters and systemic management done along with treatment of XP. Further, it is clear from the discussion that better control of serum lipid profile will lead to reduction in number of cases of XP.

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