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ORIGINAL RESEARCH

Assessment of Serum Lipid Profile in Patients with Oral Submucous Fibrosis - A Clinical Study

Akriti Mahajan

PG student, Department of Oral Medicine and Radiology, Pacific dental college and hospital, Udaipur

ABSTRACT:
Background: Oral submucous fibrosis (OSMF) is a chronic, premalignant condition of the oral mucosa. The present study was conducted to assess serum lipid level in patients with OSMF. **Materials & Methods:** The present study was conducted on 28 patients of OSMF (Group I) of both genders. Equal number of controls (Group II) was also selected. A thorough oral examination was performed in all patients. Patients were kept on 12‑hour fasting and venous blood samples were drawn for estimation of serum lipid profile level. **Results:** The mean total cholesterol in group I was 152.1 mg/dl and in group II was 168.4 mg/dl, triglyceride level in group I was 43.2 mg/dl and in group II was 57.3 mg/dl, HDL was 87.4 mg/dl in group I and 98.2 mg/dl in group II, LDL was 21.4 mg/dl in group I and 26.4 mg/dl in group II, VLDL was 117.5 mg/dl in group I and 132.5 mg/dl in group II. The difference was significant (P< 0.05). **Conclusion:** There was significantly low lipid profile level I patients with OSMF, hence decreased serum lipid profile may be considered as a useful indicator for initial changes occurring in OSMF.
Key words: Lipid, Oral submucous fibrosis, Premalignant

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Corresponding author: Dr. Akriti Mahajan, PG student, Department of Oral Medicine and Radiology, Pacific dental college and hospital, Udaipur.

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INTRODUCTION

Oral submucous fibrosis (OSMF) is a chronic, premalignant condition of the oral mucosa, which was first described by Schwartz in 1952.[1] Pindborg (1966) defined OSMF as, "an insidious, chronic disease affecting any part of the oral cavity and sometimes the pharynx. Although occasionally preceded by and/or associated with vesicle formation, it is always associated with juxta‑epithelial inflammatory reaction followed by a fibroelastic change of the lamina propria, with epithelial atrophy leading to stiffness of the oral mucosa and causing trismus and inability to eat."[2]

This disease manifests with blanching, stiffening of oral mucosa leading to limitation of opening of mouth, burning sensation, shrunken uvula, restricted tongue movement, depapillation of tongue, difficulty in chewing food, and vesicle formation.[3] The pathogenesis of the disease is not well established, but the cause of OSMF is believed tobe multifactorial. Factors include areca nut chewing, ingestion of chillies, genetic and immunologic processes, nutritional deficiencies, and other factors. Iron deficiency anemia, vitamin B complex deficiency, and malnutrition are promoting factors that derange the repair of the inflamed oral mucosa, leading to defective healing and resultant scarring. Betel quid chewing is seen.[4]

Low levels of lipids serves as a marker and prognostic indicator in early detection of oral precancerous and cancerous states. The serum lipid levels have been found to be lower in patients with OSMF than in controls.[5] The present study was conducted to assess lipid level in patients with OSMF.

MATERIALS & METHODS

The present study was conducted in the department of Oral Medicine & Radiology. It comprised of 28 patients of OSMF (Group I) of both genders. Equal number of controls (Group II) was also selected. The study was approved from institutional ethical committee. All patients were informed regarding the study and written consent was obtained.

Data such as name, age, gender etc. was recorded. A thorough oral examination was performed in all patients. Patients were kept on 12 hour fasting and venous blood samples were drawn for estimation of serum lipid profile

level. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I (Study group)	Group II (Control)
Number	28	28

Table I shows that group I was study group (OSMF) and group II was control (Healthy). Each group had 28 subjects.

Table II Estimation of serum lipid profile level in both groups

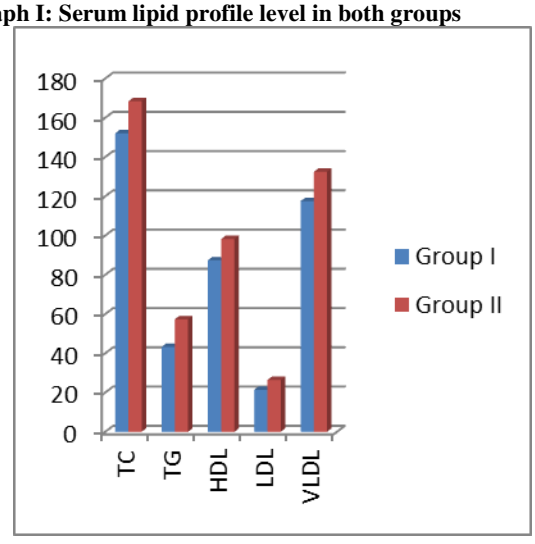
Lipid Profile (mg/dl	Group I	Group II	P value
TC	152.1	168.4	0.02
TG	43.2	57.3	0.01
HDL	87.4	98.2	0.05
LDL	21.4	26.4	0.03
VLDL	117.5	132.5	0.02

Table II, graph I shows that mean total cholesterol in group I was 152.1 mg/dl and in group II was 168.4 mg/dl, triglyceride level in group I was 43.2 mg/dl and in group II was 57.3 mg/dl, HDL was 87.4 mg/dl in group I and 98.2 mg/dl in group II, LDL was 21.4 mg/dl in group I and 26.4 mg/dl in group II, VLDL was 117.5 mg/dl in group I and 132.5 mg/dl in group II. The difference was significant (P< 0.05).

DISCUSSION

Oral submucous fibrosis can be seen at any age except for young children. The predominant age group affected is 20-40 years. Compared to traditional betel quid, gutkha chewing tends to begin at a younger age and has a shorter time to the development of disease, so cases of oral submucous fibrosis have been seen as young as 11 years of age.[6]

Graph I: Serum lipid profile level in both groups



Lipids are defined as a very heterogenous group of biomolecules that are generally insoluble in water but which readily dissolve in nonpolar solvents, such as ether and chloroform.[7] Lipids may also be defined as hydrophobic or amphiphilic small molecules; the amphiphilic nature of some lipids allows them to form structures such as vesicles, liposomes, or membranes in an aqueous environment. Lipids can be classified based on their composition and the functions they perform. On the basis of their composition, lipids are broadly classified into simple lipids (esters of fatty acids with alcohol; these include fats, waxes), complex lipids.[8] The present study was conducted to assess lipid level in patients with OSMF.

In this study, group I was study group (OSMF) and group II was control (Healthy). Each group had 28 subjects.Anusha et al[8] evaluated the alteration in serum lipid profile pattern in patients with oral submucous fibrosis, with various histological grades of Oral Sub Mucous Fibrosis along with controls. The study included 150 participants, out of those 120 were having oral submucous fibrosis, and 30 cases of controls matched for age and sex were selected from the routine patients. All the cholesterol showed a significant decrease in patients with OSMF than controls, and as the severity of disease increases the decrease in plasma lipid becomes more significant. Thus, this study proves the alteration in plasma lipid in patients with OSMF.

We found that mean total cholesterol in group I was 152.1 mg/dl and in group II was 168.4 mg/dl, triglyceride level in group I was 43.2 mg/dl and in group II was 57.3 mg/dl, HDL was 87.4 mg/dl in group I and 98.2 mg/dl in group II, LDL was 21.4 mg/dl in group I and 26.4 mg/dl in group II, VLDL was 117.5 mg/dl in group I and 132.5 mg/dl in group II.Kanthem et al[9] evaluated the alterations in lipid profile in oral submucous fibrosis (OSMF) patients and compared the levels with respect to the clinical staging and histological grading. Fifty patients of OSMF, diagnosed clinically and histopathologically, were included as the study subjects. A group of 50 age and sex matched normal subjects without any oral pernicious habits were taken as controls. The serum lipid profile consisting of total cholesterol (TC), triglycerides (TGs), high density lipoprotein (HDL), very low density lipoprotein (VLDL) and low density lipoprotein (LDL) were analyzed. As the clinical stage progresses, the TC and HDL levels were gradually reduced. All the lipid profile parameters such as TC, TG, HDL, VLDL and LDL progressively reduced as the histological grade advanced.

Excessive use of areca nut may cause fibrosis due to increased synthesis of collagen, and induce the production of free radicals and reactive oxygen species, which are responsible for high rate of oxidation/peroxidation of polyunsaturated fatty acids which affect essential constituents of cell membrane and may involve in tumorogenesis.[11] Because of the lipid peroxidation, there is a greater utilization of lipids for new membrane biogenesis. Cells fulfill these requirements either from circulation, by synthesis through

the metabolism or from degradation of major lipoprotein fractions like VLDL, LDL or HDL.[11]

CONCLUSION

Authors found that there was significantly low lipid profile level I patients with OSMF hence decreased serum lipid profile may be considered as a useful indicator for initial changes occurring in OSMF.

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