



Prevalence of OSMF, Peri-Implantitis and Dental Caries in a Known Population and its Management

Dr. santoshkumar s kotnoor¹, Dr. Chandni Kathpal², Dr. Meenakshi Chopra³, Dr. Anurag verma⁴, Dr. Dipen Sanjaykumar Bhatt⁵, Dr. Dharam Hinduja⁶

¹reader dept of oral pathology and microbiology hke'Society s nijlingappa dental college and research Kalaburagi Karnataka state

²Reader , Department of periodontics, Desh Bhagat dental college and Hospital, Gobindgarh.

³Associate Professor, Faculty of Dental Sciences, SGT University Gurugram

⁴Senior lecturer, Oral and maxillofacial surgery, Index dental collage Indore, Malwanchal university.

⁵M.D.S, Endodontist , INDIA.

⁶Prof, Department of Conservative Dentistry and Endodontics, DSCDS.

Corresponding author: Dr. santoshkumar s kotnoor , reader dept of oral pathology and microbiology hke'Society s nijlingappa dental college and research Kalaburagi Karnataka state

(Received: 16 November 2024

Revised: 11 December 2024

Accepted: 11 January 2025)

KEYWORDS

Prevalence, OSMF, Peri-implantitis, Dental Caries.

ABSTRACT:

Background: This study was conducted to assess the Prevalence of OSMF, Peri-implantitis and Dental caries in a known population and its management.

Material and methods: This study was conducted to assess the Prevalence of OSMF, Peri-implantitis and Dental caries in a known population and to overlook into its management. This study comprised of 100 subjects. All the subjects had been informed about the procedure and were asked to give consent. 40 out of 100 subjects denied to give consent and hence they had been excluded from the study. Hence, there were 60 subjects included in total. The subjects had undergone oral clinical examination and the prevalence of the oral conditions had been noted down. The treatment plan had been made for all the patients. Statistical analysis had been carried out using SPSS software.

Results: The prevalence of OSMF was 30%. Peri-implantitis was observed in 45% subjects and dental caries was observed in 25% individuals. Curcumin therapy and topical steroids had been chosen for the management of oral submucous fibrosis. Antiseptics and antibiotics had been administered for the management of peri-implantitis and for the treatment of dental caries, root canal treatment and restoration of the decayed tooth had been done.

Conclusion: The prevalence of oral submucous fibrosis (OSMF) was found to be 30%. Peri-implantitis was identified in 45% of the subjects, while dental caries was present in 25% of individuals. For the treatment of oral submucous fibrosis, curcumin therapy and topical steroids were utilized. In addressing peri-implantitis, antiseptics and antibiotics were administered, and for dental caries, root canal treatment and restoration of the affected tooth were performed.

Introduction

The most prevalent clinical feature of oral submucous fibrosis is the blanching and rigidity of the oral mucosa. Histological examination reveals that the connective

tissue in the oral cavity undergoes hyalinization, while the overlying epithelium exhibits significant atrophy.¹

Numerous studies have identified areca nut and betel quid as the primary etiological agents contributing to the



development of OSMF. A variety of epidemiological, observational, case-control, experimental, and interventional studies have consistently demonstrated a strong correlation between OSMF and the consumption of areca nut.²

The alkaloids and flavonoids present in areca nut, such as arecoline, arecaidine, tannins, and catechins, can stimulate collagen synthesis and promote fibroblast proliferation, thereby acting as both chemical and physical irritants to the oral mucosa.¹⁻³

Despite significant achievements in the armamentarium for fighting oral and dental diseases, such as dental caries, it still remains widespread in countless parts of the world, without regard for geopolitical boundaries.⁴ Regardless of its decline in all age groups on a global basis over the past few years, it is still prevalent in developing countries and is a serious public health problem affecting children. In India, dental caries has been constantly increasing both in prevalence and severity over the last five decades affecting about 80% of children.⁴

Dental caries has a multifactorial etiology with a complex interplay of multiple risk factors, such as age, gender, socioeconomic status (SES), water fluoride level, dietary factors such as the physical forms of carbohydrate, snacking habits, and frequency of sugar consumption.⁵⁻⁷ Untreated dental caries not only causes pain and discomfort but also, in addition, places a financial burden on the society. Although effective methods are known for prevention and management of the disease, the unmet need for treatment, especially in children, does not seem to be diminishing.^{8,9}

This study was conducted to assess the Prevalence of OSMF, Peri-implantitis and Dental caries in a known population and its management.

Material and methods

This study was conducted to assess the Prevalence of OSMF, Peri-implantitis and Dental caries in a known population and to overlook into its management. This study comprised of 100 subjects. All the subjects had been informed about the procedure and were asked to give consent. The subjects had undergone oral clinical examination and the prevalence of the oral conditions had been noted down. The treatment plan had been made

for all the patients. Statistical analysis had been carried out using SPSS software.

Results

Table 1: Prevalence of OSMF, Peri-implantitis and Dental caries

Oral condition	Number of cases	Percentage
OSMF	30	30
Peri-implantitis	45	45
Dental caries	25	25
Total	100	100

The prevalence of OSMF was 30%. Peri-implantitis was observed in 45% subjects and dental caries was observed in 25% individuals.

Table 2: Management of OSMF, Peri-implantitis and Dental caries

Oral condition	Management plan
OSMF	Curcumin and topical steroids
Peri-implantitis	Antiseptics and antibiotics
Dental caries	Root canal treatment and restoration

Curcumin therapy and topical steroids had been chosen for the management of oral submucous fibrosis. Antiseptics and antibiotics had been administered for the management of peri-implantitis and for the treatment of dental caries, root canal treatment and restoration of the decayed tooth had been done.

Discussion

Advances in implant dentistry have allowed implant treatment to become a common and important therapeutic resource in the replacement of missing teeth. Currently, dental implants have more than 95% success, and these results have been stable for many years. Although most longitudinal studies have reported survival rates of around 90–95% for periods of 5–10 years, failures occasionally occur during implant treatment.^{10,11}

After the osseointegration process of dental implants, biological problems of infectious inflammatory origin can appear and affect the peri-implant tissues, this



inflammatory process that occurs in implants is similar to that developed in natural teeth, infections have less resistance to destruction, mainly due to the lack of periodontal ligament.⁹

Implants can be affected by two types of lesions. The first is inflammation around the peri-implant tissue without bone loss defined as mucositis. The second is peri-implantitis, also an inflammatory lesion that differs from mucositis because a marginal bone loss occurs and progresses diagnostically by radiograph.¹⁰

This study was conducted to assess the Prevalence of OSMF, Peri-implantitis and Dental caries in a known population and its management.

Kumar D et al¹¹ determined the prevalence of dental caries in school-going children of 5–15-year age groups in urban population of Ghaziabad and to assess and intercorrelate its relationship with the form, frequency and total sugar exposure, socioeconomic status (SES) of family, and fluoride in drinking water. The study was conducted in 3,000 school-going children aged 5–15 years (divided into three age groups of 5–6, 7–12, and 13–15 years) studying in the government and private schools in the urban area of Ghaziabad city. A specifically designed pro forma was used for recording the personal data; sociodemographic profile; World Health Organization oral health assessment form for dental caries; 24-hour dietary recall to record the form, frequency, and total number of sugar exposure; and SES of the family (Kuppuswamy scale) of children. The concentration of fluoride in collected samples of drinking water was measured by the visual spectrophotometric method test. The results were tabulated and statistically analyzed. The overall caries prevalence in 5–15-year age group was found to be 54.6%. There was a statistical significant difference found when the age-group comparison ($p = 0.001$), gender-wise comparison ($p = 0.001$), SES comparison ($p = 0.002$), the physical form of sugar intake ($p = 0.038$), frequency of sugar consumption at/between meals ($p = 0.001$), and total number of sugar exposure during last 24 hours ($p = 0.001$) were evaluated with caries prevalence. The mean water fluoride level in the surveyed area was found to be 0.48 ppm and was found to be nonsignificantly ($p = 0.248$) associated with caries prevalence. The risk factors, such as age, gender, physical form of sugar, frequency of sugar consumption at and between meal and

total number of sugar exposure during the last 24 hours, and SES of parents, were found to be associated with the prevalence of dental caries in school-going children of 5–15-year age group.

A retrospective longitudinal study by Astolfi V et al¹² including 555 implants placed in 132 patients was evaluated based on the presence of peri-implantitis. In total, 21 patients (15.9%) suffered peri-implantitis (PPG) and 111 patients (84.1%) did not suffer peri-implantitis (NPG). The results reveal that smokers have a high incidence of peri-implantitis (72.7%) compared to non-smokers (27.3%) ($p < 0.0005$). Another variable with significant results ($p < 0.01$) was periodontitis: 50% PPG and 23.9% NPG suffered advanced periodontitis. Systemic diseases such as arterial hypertension, diabetes mellitus, osteoporosis, and cardiovascular diseases do not show a statistically significant influence on the incidence of peri-implantitis. Patients who did not attend their maintenance therapy appointment had an incidence of peri-implantitis of 61.4%, compared to 27.3% in those who attend ($p < 0.0001$). They concluded that relevant factors affect peri-implantitis, such as tobacco habits, moderate and severe periodontitis, and attendance in maintenance therapy.

Conclusion

The prevalence of oral submucous fibrosis (OSMF) was found to be 30%. Peri-implantitis was identified in 45% of the subjects, while dental caries was present in 25% of individuals. For the treatment of oral submucous fibrosis, curcumin therapy and topical steroids were utilized. In addressing peri-implantitis, antiseptics and antibiotics were administered, and for dental caries, root canal treatment and restoration of the affected tooth were performed.

References

1. National oral health care programme Implementation strategies. A project of DGHS and Ministry of Health and Family Welfare. Department of Dental surgery, All India Institute of Medical Sciences; 1998. p. 3.
2. Touger-Decker R, Loveren CV. Sugars and dental caries. *Am J Clin Nutr.* 2003;78(Suppl.):881–892.
3. Thyath MN, Nishad SG, Sharma M, et al. Impact of socioeconomic status and parental factors on child oral health. A Review of literature. *J Adv Med Dent Sci Res.* 2015;2(3):153–157.



4. Jones S, Burt BA, Petersen PE, et al. The effective use of fluorides in public health. *Bull World Health Organ.* 2005;8(3):670–676.
5. Burt BA, Baelum V, Fejerskov O. The epidemiology of Dental Caries. In: Fejerskov O, Kidd E, editors. *Dental caries- The disease and its clinical management.* Oxford: Blackwell Munksgaard; 2008. pp. 123–141.
6. McDonald RE, Avery DR, Stookey GK. Dental caries in the child and adolescent. In: McDonald RE, Avery DR, Dean JA, editors. *Textbook of Dentistry for the child and adolescent*, 8th ed., New Delhi: Elsevier; 2007. pp. 209–246.
7. Esposito M., Grusovin M.G., Willings M., Coulthard P., Worthington H.V. The effectiveness of immediate, early, and conventional loading of dental implants: A Cochrane systematic review of randomized controlled clinical trials. *Int. J. Oral Maxillofac. Implants.* 2007;22:893–904.
8. Berglundh T., Persson L., Klinge B. A systematic review of the incidence of biological and technical complications in implant dentistry reported in prospective longitudinal studies of at least 5 years. *J. Clin. Periodontol.* 2002;29((Suppl. S3)):197–212.
9. Hansson H.A., Albrektsson T., Brånemark P.I. Structural aspects of the interface between tissue and titanium implants. *J. Prosthet. Dent.* 1983;50:108–113.
10. Schwarz F., Derks J., Monje A., Wang H.L. Peri-implantitis. *J. Periodontol.* 2018;89((Suppl. S1)):S267–S290.
11. Kumar D, Gandhi K, Maywad S, et al. Prevalence and Correlation of Dental Caries with its Specific Risk Factors in 5–15-year-old School-going Children in Urban Population of Ghaziabad. *Int J Clin Pediatr Dent* 2020;13(1):72–78.
12. Astolfi V, Ríos-Carrasco B, Gil-Mur FJ, Ríos-Santos JV, Bullón B, Herrero-Climent M, Bullón P. Incidence of Peri-Implantitis and Relationship with Different Conditions: A Retrospective Study. *Int J Environ Res Public Health.* 2022 Mar 31;19(7):4147.