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(CASE REPORT)

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Management of oral health in Sjogren syndrome patients to improve oral health-related quality of life (OHRQoL): Case report

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Abstract

Introduction: Sjogren's syndrome is a chronic autoimmune disorder that affects the exocrine glands, especially the lacrimal and salivary glands. This condition can cause many oral disorders. It is important to evaluate the patient's oral condition in order to improve the Oral Health-Related Quality of Life (OHRQoL) which is a fundamental part of general health. This case report aims to discuss oral health management to improve OHRQoL.

Case report: A 28-year-old female Sjogren's syndrome patient was referred from Department of Internal Medicine, complaining of dry mouth and difficulty in swallowing food and speaking since two years ago. She also complained of soreness when eating as well as drinking and dental caries. Intraoral there was a scrapped off white plaque without leaving erythematous area on 2/3 posterior dorsum of the tongue, no saliva pooling in the floor of mouth, mouth mirror sticked to buccal mucosa and tongue, and there were dental caries in almost all regions. The sialometry examination showed decreased salivary secretion. The diagnosis was Sjögren's syndrome with oral manifestations of xerostomia moderate Challacombe scale and pulpitis reversible in almost all teeth.

Case management: The treatment provided was instructions to maintain oral hygiene by brushing the teeth and tongue, to drink a small amount of water but often, consume fruits that contain a lot of water, and rinsing with zinc-chlorine dioxide mouth rinse. Fillings were carried out on the carious teeth.

Conclusion: Comprehensive oral health management will improve the patient's oral status, resulting in better oral health and improved the OHRQoL.

Keywords: Oral health management; Oral Health-Related Quality of Life (OHRQoL); Sjogren syndrome

1. Introduction

Sjogren's syndrome (SS) is a chronic autoimmune disorder characterized by complaints of dry eyes and dry mouth, and it predominantly affects women.[1] This condition occurs due to lymphocytic infiltration of the lacrimal and salivary glands, characterized by hyperactive B cells, excessive secretion of serum autoantibodies (anti-Ro/SSA and anti-La/SSB), rheumatoid factor, as well as activation of type I and type II interferons.[1,2] The incidence of SS is approximately 6 per 100,000 individuals, with women having a tenfold higher risk compared to men. The incidence of SS also increases with age and most commonly occurs between 55 and 64 years of age.[3,4]

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One of the oral manifestations of SS is xerostomia resulting from a reduction in salivary flow volume. Decreased salivary secretion compromises its antibacterial function, which may predispose patients to oral mucosal infections, periodontal disease, and increased susceptibility to dental caries. In addition, reduced salivary volume can lead to other problems such as difficulty in speaking, eating, and swallowing.[3,4] These oral conditions have been shown to play a significant role in reducing Oral Health–Related Quality of Life (OHRQoL), which consequently has a negative impact on overall health-related quality of life.[5]

This case report discusses the oral health care management of a patient with Sjögren's syndrome aimed at improving Oral Health–Related Quality of Life (OHRQoL)

2. Case Report

A 28-year-old woman was referred from the Department of Internal Medicine to the Department of Oral Medicine with a chief complaint of dry mouth for the past one year. The complaint was accompanied by difficulty in chewing and swallowing food, requiring the use of water to aid swallowing. In addition, the patient reported tooth sensitivity when eating and drinking, particularly when consuming sweet and cold foods. She had also experienced dry and gritty eyes for the past two years and had been using eye drops to manage these symptoms. The patient had been diagnosed with Sjögren's syndrome by an internist.

The patient's general condition was good. Extraoral examination revealed a symmetrical face, non-anemic conjunctiva, non-icteric sclera, dry lips without exfoliation, and palpable but non-tender lymph nodes. Intraoral examination showed that the upper and lower labial mucosa, right and left buccal mucosa, palate, and ventral surface of the tongue were within normal limits. A white plaque was observed on the posterior two-thirds of the dorsal tongue, which could be scraped off without leaving an erythematous area. No pooling of saliva was observed on the floor of the mouth. During intraoral examination, the mouth mirror adhered to the buccal mucosa and the dorsal surface of the tongue. Dental caries were found in almost all regions of the dentition.

Several additional examinations had previously been carried out, including a Schirmer test, which revealed decreased tear formation, and an antinuclear antibody (ANA) test, which produced a reactive result. Reduced salivary secretion was found using sialometry. The patient was diagnosed with Sjögren's syndrome with oral manifestations, including reversible pulpitis affecting nearly the entire dentition and mild xerostomia according to the Challacombe scale, based on the patient's medical history, clinical examination, and additional investigations.

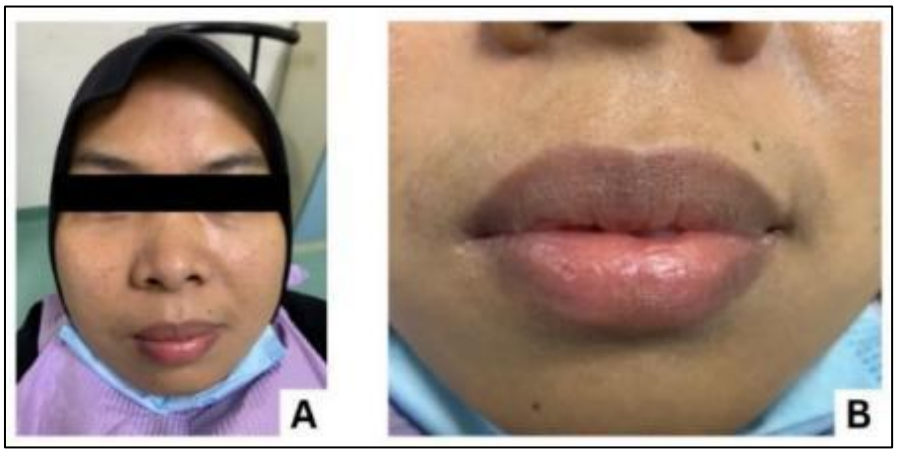

Figure 1. Extraoral condition, Symmetrical facial appearance (A) and dry lips without evidence of exfoliation (B)

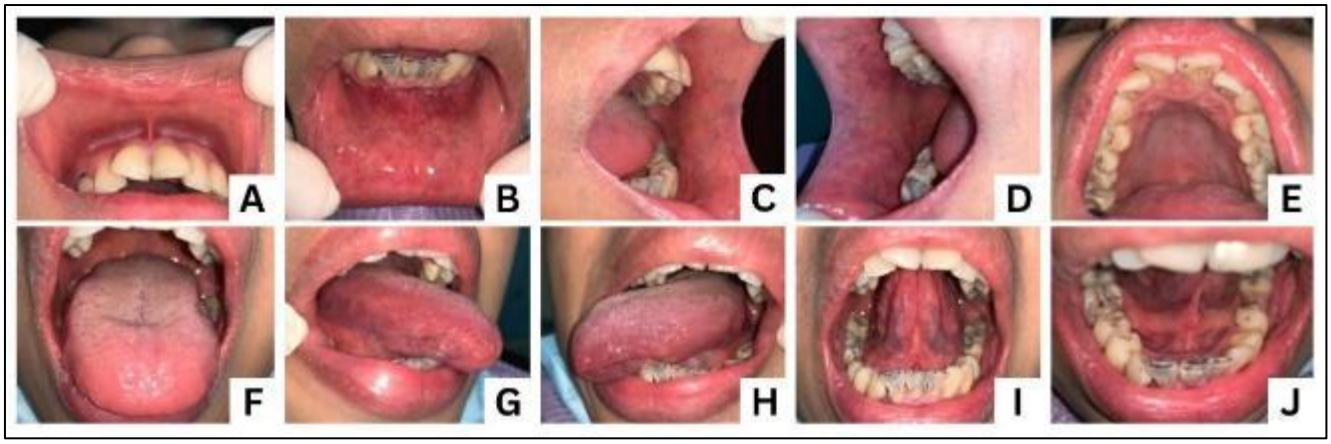

Figure 2 Intraoral conditions showing normal upper and lower labial mucosa, right and left buccal mucosa, and palate (A–E); the presence of whitish-yellow plaque on the posterior two-thirds of the dorsal tongue (F–H); and absence of salivary pooling on the floor of the mouth (I–J)

Figure 3 Dental caries were present in almost all regions of the dentition

2.1. Case Management

The treatment provided to the patient was based on the chief complaints and clinical findings of the oral manifestations. At the first visit, the patient was instructed to maintain optimal oral hygiene by brushing the teeth and tongue at least twice daily and rinsing with a zinc–chlorine dioxide lemon-mint mouthwash at a dose of 10 mL three times daily. The patient was also referred to the Department of Conservative Dentistry for restorative treatment of carious teeth

One week after the first visit, the patient reported an improvement in symptoms compared to the initial presentation; however, complaints of dry mouth persisted, and she still required water to assist with chewing and swallowing. Overall, the patient's general condition remained good. At this visit, the patient was instructed to continue maintaining optimal oral hygiene and was advised to brush her teeth twice daily using a soft-bristled toothbrush, to continue rinsing with the zinc–chlorine dioxide lemon-mint mouthwash, and to follow additional instructions, including consuming fruits with high water content, chewing sugar-free gum containing xylitol, avoiding spicy, oily, and monosodium glutamate (MSG)–containing foods, and drinking small amounts of water frequently throughout the day.

One month after the second visit, the patient reported significant improvement and greater comfort, with no further tooth sensitivity during eating or drinking. This improvement was attributed to the completion of restorative treatment for carious teeth and professional dental Scaling

Figure 4 Restorative treatment was performed on the teeth affected by dental caries

An evaluation was conducted to assess improvements in the patient's oral health status by measuring Oral Health–Related Quality of Life (OHRQoL) before and after treatment using the Oral Health Impact Profile-14 (OHIP-14) questionnaire. The assessment demonstrated a marked improvement in the patient's OHRQoL following treatment compared to the baseline evaluation at the first visit

Table 1 Evaluation of OHRQoL before and after treatment

No.	Dimension OHIP-14	Assessment items	Pre-treatment visit score	Post-treatment visit score
1.	Functional limitation	Difficulty pronouncing words	3	1
		Difficulty tasting foods	1	1
2.	Physical pain	Pain in the mouth	2	1
		Discomfort when eating	4	2
3.	Psychological discomfort	**Feeling self-conscious**	2	1
		Feeling tense	1	1
4.	Physical disability	**Unsatisfactory diet**	2	1
		Interrupted meals	3	1
5.	Psychological disability	**Difficulty relaxing**	1	1
		Feeling embarrassed	3	1
6.	Social disability	**Being irritable with other people**	0	0
		Difficulty doing usual jobs	1	1
7.	Handicap	**Life in general was less satisfying**	1	1
		Unable to function	1	1
Total score			25	14

3. Discusion

Sjogren's syndrome (SS) is a chronic inflammatory autoimmune disease characterized by lymphocytic infiltration and destruction of exocrine glands, particularly the salivary and lacrimal glands. This condition may result in oral dryness (xerostomia) and ocular dryness (xerophthalmia).[6,7] SS predominantly affects women, most commonly during the fifth decade of life. Xerostomia may lead to various oral mucosal disorders, including exfoliative cheilitis, oral ulceration, periodontal disease, coated tongue, atrophic glossitis, burning mouth sensation, halitosis, and taste disturbances. Findings from a cross-sectional study have also shown that patients with SS frequently report difficulties in swallowing and speaking, as well as recurrent swelling of the salivary glands.[8] Furthermore, patients with SS have a twofold increased risk of developing dental caries compared to the general population.[9,10,11]

The etiology of Sj0gren's syndrome (SS) remains controversial; however, it is believed to be multifactorial in nature, generally resulting from environmental triggers acting on a background of genetic predisposition and immune dysregulation. Genetic factors associated with SS include human leukocyte antigen–DR (HLA-DR) and several polymorphic subtypes. The X chromosome is thought to play a role in the development of SS in the patient described in this case report. Mougeot et al. proposed that approximately 58 X-linked genes are involved in the regulation of SS, including CHIC1, FTX, and RLIM, which may explain why SS is more prevalent in women.[11,13]

Overall, the pathogenesis of SS can be broadly divided into three main events: (1) initiation by environmental factors in conjunction with specific epigenetic influences, genetic predisposition, and hormonal regulation; (2) dysregulation of salivary gland epithelial cell (SGEC) function; and (3) chronic inflammation characterized by lymphocytic infiltration of the salivary glands, B-cell hyperactivity, and autoantibody production.[12–14]

This patient experienced characteristic complaints commonly observed in individuals with Sjögren's syndrome (SS), namely oral dryness resulting from a reduction in salivary production. Saliva is produced by the major salivary glands (parotid, submandibular, and sublingual glands) as well as the minor salivary glands. The parotid glands primarily produce saliva in response to gustatory and olfactory stimulation, whereas saliva from the sublingual, submandibular, and minor salivary glands is secreted continuously.

Salivary gland epithelial cells (SGECs) play a crucial role in the development of xerostomia in patients with SS. SGECs actively participate in inflammatory and autoimmune responses by producing various cytokines that are essential for both innate and adaptive immune responses. Cytokines produced by SGECs include those associated with T helper 1 (Th1), T helper 17 (Th17), follicular helper T-cell responses, as well as B-cell stimulation.[15,16,17]

Saliva plays a fundamental role in maintaining oral homeostasis by fulfilling multiple essential functions. Therefore, a marked reduction in salivary flow in patients with Sjogren's syndrome (SS) results in a decline in oral health status as well as overall quality of life. A decrease in salivary flow rate has been shown to correlate significantly with disease progression and to exert a negative impact on the extent of oral damage over the course of the disease. Saliva contributes critically to oral health through its protective roles in preventing infection, facilitating mastication, and aiding swallowing.

This is supported by the study conducted by Vujovic et al., which emphasized that saliva maintains oral homeostasis by acting as a lubricant, providing pH buffering capacity, exerting antimicrobial effects, enabling taste perception, and promoting wound healing. Long-term reductions in both the quantity and quality of saliva can lead to oral changes and discomfort and may result in broader oral health complications.[8,18] These conditions can significantly affect patients' daily lives and overall well-being, as oral health is a fundamental component of general health, referred to as Oral Health–Related Quality of Life (OHRQoL), which has a substantial impact on individuals' physical, psychological, and social functioning.[8]

Management of oral manifestations in patients with Sjögren's syndrome (SS), particularly xerostomia, is essential to alleviate symptoms and improve oral health status. The selection of treatment strategies in this case was based on both objective and subjective clinical findings. Accordingly, the management provided included maintaining oral hygiene by brushing the teeth and tongue twice daily, avoiding alcoholic beverages, and limiting the intake of foods high in sugar as well as foods that are spicy, oily, acidic, or strongly seasoned. Patients were also advised to stimulate salivary production by chewing sugar-free (xylitol-containing) chewing gum.

More extensive complications may be prevented through the use of fluoride-containing toothpaste and mouthwash, as well as by evaluating the salivary gland ducts for possible obstruction.[14,19] The patient was also instructed to rinse with a zinc–chlorine dioxide lemon-mint mouthwash (10 mL, three times daily). This non-alcohol-based mouthwash contains stabilized chlorine dioxide, zinc acetate, xylitol, and lemon-mint flavoring. The use of non-alcohol mouthwash has been shown to stimulate salivary flow and is effective in managing xerostomia or hyposalivation.

Stabilized chlorine dioxide helps maintain normal oral pH, while zinc acetate acts as a deodorizing agent by neutralizing odor-causing molecules and maintaining oral moisture. Xylitol functions as an antimicrobial agent that reduces the risk of periodontal disease, dental caries, and other oral diseases associated with xerostomia. The lemon-mint flavor further stimulates salivary flow and provides a clean and refreshing oral sensation. The lemon-mint aroma may chemically stimulate the salivary glands, while the rinsing process itself can enhance salivary flow rate or temporarily compensate for reduced salivary secretion.[20,21]

Patients should also be educated about factors that may exacerbate oral dryness, such as low-humidity environments, mouth breathing, and certain daily habits. Equally important is the prompt management of existing oral conditions and symptoms, including restorative treatment of carious teeth and regular professional dental cleaning.[13,19]

To date, most healthcare professionals have focused on describing SS, treating the primary disease, and exploring its associations with other systemic conditions. However, in addition to these aspects, clinicians should also pay close attention to disease manifestations that may lead to more extensive complications if left untreated. Over time, these manifestations may worsen and significantly impair patients' quality of life, particularly Oral Health–Related Quality of Life (OHRQoL).[22]

Specific instruments are used to evaluate the negative impact of oral disorders on various aspects of OHRQoL.[8] The Oral Health Impact Profile-14 (OHIP-14) is a questionnaire consisting of 14 items designed to assess the negative effects of oral health problems on quality of life. This instrument is considered effective not only in identifying functional limitations and physical pain but also in detecting psychosocial impacts. The OHIP-14 comprises seven dimensions: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap. Responses are scored on a five-point Likert scale ranging from 0 to 4 (0 = never; 1 = hardly ever; 2 = occasionally; 3 = fairly often; and 4 = very often). The scores are summed to obtain an overall score ranging from 0 to 56, with higher OHIP-14 scores indicating more severe problems and poorer OHRQoL.[7,8,22]

The OHIP-14 questionnaire, developed by Slade and Spencer in 1997, aims to assess the impact of oral health changes on patients' well-being. This case report demonstrated a significantly lower OHIP-14 score after treatment compared to before treatment, indicating an improvement in OHRQoL. These oral healthcare interventions have important clinical implications, as improvements in oral health status may lead to substantial enhancements in OHRQoL and, consequently, greater overall life satisfaction.[8]

4. Conclusion

Oral manifestations in patients with Sjögren's syndrome have significant implications for overall health and patient well-being. The role of dentists within a multidisciplinary team is essential in managing existing oral conditions and preventing the progression to more severe complications. Routine dental visits should be incorporated as a core component of the management plan for Sjögren's syndrome, as they are crucial for accurate diagnosis and appropriate treatment of oral symptoms and findings. Such an approach can improve patients' oral health status and subsequently enhance their Oral Health–Related Quality of Life (OHRQoL)

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare that there are no conflicts of interest related to this case report

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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