

# A Case Report of a Patient with Sjögren's Syndrome Presenting with Widespread Cervical Caries Affecting all Teeth

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## Abstract

In this case presentation, a 23-year-old systemically healthy female patient presented to the Department of Restorative Dentistry at the Faculty of Dentistry, Tokat Gaziosmanpaşa University, with aesthetic concerns caused by generalized carious lesions affecting all teeth. Clinical and radiographic evaluations revealed the presence of cervical caries lesions in all permanent teeth. After discussing various treatment options with the patient and obtaining informed consent, it was decided to proceed with direct composite resin restorations. Prior to treatment, the affected tooth surfaces were cleaned, appropriate shade selection was made, and the operative field was isolated using a rubber dam. Carious tissues were then removed using diamond and tungsten carbide round burs. Following caries removal, 37% phosphoric acid gel was applied for etching, and a universal adhesive system (Clearfil S3 Bond Universal) was applied to the prepared surfaces. A nanohybrid aesthetic composite resin (Estelite Sigma, Tokuyama Dental, Japan) was incrementally placed using the layering technique and each layer was light-cured. After polymerization, the rubber dam was removed, occlusion was checked, and necessary adjustments were made. Finishing procedures were performed using yellow-banded diamond flame-shaped and bullet-shaped burs. Polishing was completed using polishing discs and silicone rubber polishers. Postoperative clinical evaluation revealed that the restorations were successful in terms of both aesthetics and function. The patient was given oral hygiene instructions and was advised to attend regular follow-up appointments. In conclusion, in patients presenting with generalized cervical caries, direct composite resin restorations can provide satisfactory functional and aesthetic outcomes in a single session.

**Keywords:** caries, aesthetic restorations, extensive caries, cervical caries

## 1. INTRODUCTION

Oral diseases are among the most common health problems worldwide and pose a serious health and economic burden on individuals and societies. These diseases significantly reduce the quality of life of affected individuals. The most common oral diseases that are important in terms of public health on a global scale include dental caries, periodontal diseases, tooth loss, and lip and oral cavity cancers<sup>1</sup>.

Tooth decay is a complex disease that affects the hard tissues of the tooth, arising from the interaction of multiple factors. The progression or halting of the disease depends on the balance between protective mechanisms and pathological factors. Acidogenic microorganisms (e.g., *Streptococcus mutans* and *Lactobacillus* species), abnormalities in saliva secretion, a diet rich in fermentable carbohydrates, and poor oral hygiene are among the physical, biological,

environmental, and behavioural factors that contribute to the development of caries. In contrast, calcium, phosphate, fluoride, and various proteins present in saliva, along with adequate saliva flow and antimicrobial components, serve as important protective factors in preventing or halting the progression of dental caries<sup>2</sup>.

Cervical lesions are a general term used to describe hard tissue loss in the cervical region of teeth. They are divided into two main groups according to their aetiology: caries-related (containing caries) or non-caries-related (not containing caries). Cariogenic cervical lesions are tissue destructions that typically occur in the cervical regions of the buccal, palatal, or lingual surfaces of teeth and affect the cervical region. These lesions can be observed in colours ranging from opaque white to yellow, brown, or black and may involve enamel and/or dentin tissue. Radiologically, these lesions appear as crescent-

shaped or elliptical radiolucent areas in the cervical region of the tooth<sup>3</sup>. In aesthetic cases, direct composite resins offer both the dentist and the patient a high degree of control in creating a natural and aesthetic smile<sup>4</sup>. Materials and techniques developed in recent years have continuously driven dentists towards innovation in meeting aesthetic expectations and expanding treatment options<sup>5</sup>. New generation aesthetic composite resin materials exhibit physical and mechanical properties similar to natural teeth and have a natural appearance that mimics enamel and dentine tissues<sup>6</sup>.

This case presentation aims to evaluate the clinical characteristics of widespread cervical caries in a patient diagnosed with Sjögren's syndrome, to reveal the relationship between the oral findings of the disease and the development of caries, and to draw attention to the effects of Sjögren's syndrome on oral health by presenting the treatment approaches applied in detail.

## **2. CASE PRESENTATION**

Informed written consent was obtained from the patient for the publication of this case report and the sharing of images. The patient's data were treated with complete confidentiality, and the study was conducted according to the Helsinki Declaration Ethical Guidelines.

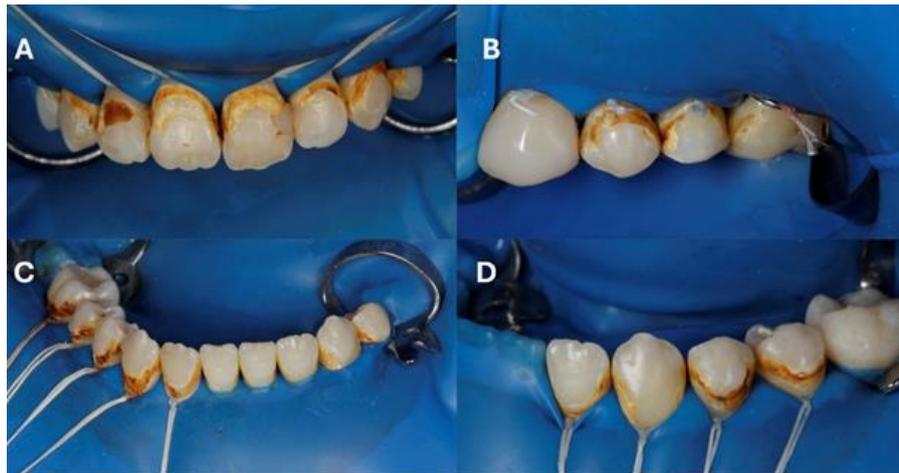
A 23-year-old female patient visited the Department of Restorative Dentistry Clinic at Tokat Gaziosmanpaşa University Faculty of Dentistry due to aesthetic concerns caused by widespread tooth decay. The patient's medical history revealed that she had Sjögren's syndrome. Following clinical and radiographic evaluations, it was determined that all permanent teeth had caries lesions in their cervical regions (Figures 1A-1D). In addition, the patient's saliva flow rate was observed to be quite low. After presenting the patient with treatment options, it was decided to perform restoration using direct composite resins.



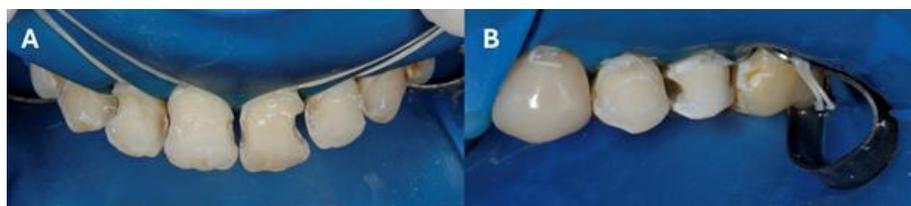
**Figure 1A-1D.** *Intraoral view before treatment*

For treatment, the entire mouth was divided into four different quadrants and planned to be completed in four different sessions. Before treatment, the relevant tooth surfaces were cleaned, the colour was selected, and the treatment area was isolated with a rubber dam (Figures 2A-2D). Then, the decayed tissue was removed using diamond and tungsten carbide round burs (Figures 3A, 3B). The enamel margins were etched with 37% phosphoric acid gel for 30 seconds, and then the tooth surface was rinsed with water for 30 seconds. Subsequently, a universal adhesive system (Clearfil S3 Bond Universal) was applied to the enamel and dentin surfaces and polymerised with LED light for 15 seconds. The restorations were placed using a

layering technique with a nano-hybrid aesthetic composite resin (Estelite Sigma, Tokuyama Dental, Japan), and each layer was polymerised with light. After the restorations were completed, the rubber dam was removed, and the necessary adjustments were made. In the final stage, finishing procedures were performed with diamond-coated flame tips and lab-cut burs. Polishing procedures were completed using polishing discs and silicone rubber. The clinical outcome was evaluated visually and photographically (Figure 4). A satisfactory match between the restoration and tooth colour was achieved. The patient was provided with oral hygiene education, and regular follow-up visits were recommended.



**Figure 2A-2D.** View under rubber dam isolation



**Figure 3A-3B.** Appearance after tooth decay has been removed



**Figure 4A-4D.** Intraoral view after treatment completion

### **3. DISCUSSION**

Sjögren's syndrome is a chronic autoimmune disease that primarily affects the salivary and lacrimal glands and is characterised by lymphocytic infiltration in the exocrine glands. The most common clinical symptoms include dry mouth (xerostomia) and dry eyes (keratoconjunctivitis sicca), and as the disease progresses, both local and systemic complications may develop <sup>7</sup>.

Oral complications in Sjögren's syndrome are one of the most striking and difficult aspects of the disease to manage. Structural and functional impairments in the salivary glands cause xerostomia, increasing the risk of tooth decay, oral infections, and difficulties in speaking and swallowing. Recent studies have shown that despite regular and careful oral hygiene, individuals with

Sjögren's syndrome experience severe tooth decay and tooth loss due to persistent saliva deficiency. In addition, it has been emphasised that root surface decay, which is less common in the general population, occurs significantly more frequently in this patient group due to reduced saliva flow <sup>8</sup>.

The oral findings observed in the presented case, such as dry mouth, salivary gland obstruction, and significant loss of salivary function, increase the risk of dental caries, oral infections, and difficulty swallowing, causing significant clinical difficulties in both diagnosis and treatment <sup>9</sup>.

In this clinical case, Tokuyama Estelite Sigma Quick, a nanohybrid composite resin that stands out for its aesthetic and mechanical properties, was chosen. Nanohybrid composites have a high filler content thanks to the filler particles of

different sizes they contain, and this structure offers mechanical strength comparable to that of traditional hybrid composites. The nano-scale particles integrated into the material enhance wear resistance and polishability in restorations, contributing to aesthetically pleasing and long-lasting results<sup>10,11</sup>.

Effective moisture control and proper isolation are key factors in the clinical success of direct composite resin restorations<sup>12</sup>. In this context, rubber dam isolation offers higher efficacy in preventing moisture contamination compared to other isolation methods. At the same time, rubber dam application improves marginal adaptation of the material by providing sufficient gingival retraction in the restoration area, thereby increasing the success of aesthetic results<sup>13</sup>.

#### **4. CONCLUSIONS**

In this case presentation, it was observed that direct composite resin restorations performed on a patient with widespread cervical caries associated with Sjögren's syndrome provided satisfactory results in terms of aesthetics, function, and psychology. Despite dry mouth, successful clinical results were achieved through appropriate material selection, effective isolation, and correct application of restorative techniques. These findings highlight the applicability of direct composite resin restorations in the management of oral complications associated with systemic diseases and their contribution to patient satisfaction. However, the need to monitor the long-term success of these restorations and support them with similar cases remains.

#### **5. DECLARATIONS**

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**CONFLICTS OF INTEREST:** All authors have completed the ICMJE uniform disclosure form. All authors have no conflicts of interest to declare

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