ABSTRACT

Scleroderma, which usually begins as a dermatologic disorder, is also known as a systemic collagen disease. There are limited reports of dental treatment and periodontal surgical procedures for patients with scleroderma. This case report presents oral and periodontal changes, surgical and non-surgical periodontal therapy and 18-months follow-up of a 33 year-old female patient with scleroderma. The healing was uneventful after surgical therapy and stable during 1,5-year follow-up. Mucogingival surgery procedures may result successfully in patients with scleroderma, despite limited mouth opening, vascular changes and stiffness of the oral tissues.

KEYWORDS

Skleroderma, mucogingival surgery

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ANAHTAR KELİMELER

Skleroderma, mukogingival cerrahi
INTRODUCTION

Scleroderma, a chronic disease of unknown etiology, is characterized by diffuse sclerosis of the connective tissues of skin and visceral organs, vasculopathy, and autoantibodies. The disease is uncommon, onset usually begins in middle age and occasionally familial, although there is no definite pattern of inheritance. Three to four times as many females are affected as males. The disease presents in a wide spectrum both systemic and localized forms.^{1}

Approximately 80% of the patients have manifestations in the head and neck region, with dysphagia and reflux esophagitis being in common.^{2} Scleroderma also affects oral and perioral tissues. Oral manifestations reported in these patients include fibrosis and rigidity of tongue and oral tissues, limited mouth opening, telangiectasia, xerostomia, increased frequency of caries and periodontal disease and increased periodontal ligament width.^{1} Structural changes of the jawbone as well as widening of the periodontal ligament space have been revealed on radiographs.^{3}

CASE REPORT

A 33-year-old female was referred to our clinic for evaluation of gingival recession in November 2005. She reported diagnosis of scleroderma in 2001. Furthermore, the patient was prescribed drugs for osteoporosis. She also prescribed deflazacort, azathioprine, acetylsalicylic acid, nifedipine, famotidine and pentoxifylin. She never smoked and was brushing her teeth once two days.

She was found to have a poor dentition with caries and periodontal disease affecting all remaining teeth. A marked xerostomia was also noted. We detected telangiectasia of face and mouth rigidity by physical examination (Fig. 1). Clinical evaluation revealed severe gingival recession depth of 10 mm. and 9 mm. with a 3-mm probing depth on the mid-buccal of the mandibular right first premolar teeth and left first premolar teeth respectively. Radiographic changes included uniform widening of the periodontal ligament space with an associated loss of radicular lamina dura (Fig. 2 and 3). The patient
complained about xerostomia. As xerostomia rampant caries were widely observed especially in the anterior teeth (Fig. 4.), we prescribed Bioretene® oral care set. After motivating for oral hygiene, the patient was referred to Department of Conservative Dentistry for fillings.

After consultation with the patient’s doctor, the patient was prescribed Amoxicilene 1 gr. tablet before surgical treatments for bacteremia risk. Initial therapy consisted of oral hygiene instructions, scaling and root planing by quadrants, and re-evaluation. The periodontal pockets responded well to scaling and root planing and improved oral hygiene required no further treatment. The areas of gingival recession exhibited root surface sensitivity, and narrow zones of attached gingiva. A decision to treat the areas of recession with mucogingival surgery was made after careful consideration (Figs. 5 and 6).

Local anesthesia was obtained with 2% lidocaine 1:100,000 epinephrine. Teeth #34 and #45 were treated with free gingival grafts obtained from palate using the modified technique described by Langer and Langer (Figs. 7 and 8.). The grafts were sutured with 5.0 silk sutures. Surgical dressing were placed at the recipient sites. The sutures were removed 10 days after surgery. The patient was prescribed 0.12% chlorhexidine mouthwash two times a day for 2 weeks. The patient was prescribed systemic analgesic (naproxen sodium) 1 tablet every 6 hours if needed for pain and an antibiotic (amoxicilin) for 7 days. The postoperative course was uneventful. Follow-up controls were made at 6 months, 1 year and 18 months postoperatively. Six months postoperative healing is demonstrated in Figures 9 and 10. After the periodontal treatment was completed, the patient was referred to Department of Prosthodontics for removable partial dentures.

Clinical measurements, including plaque index, gingival index, recession depth, probing depth, clinical attachment level and bleeding on probing were recorded before surgery and at 6 months, 1 year, 18 months postoperatively. Measurements of recession depth, probing depth, and clinical attachment level were made at the mid-labial aspect of the teeth.
(Table 1 and 2). The probing depth was reduced 3 mm. to 1 mm. for both teeth from baseline to 6 months. Also gingival index and plaque index values reduced at 12 months and 18 months according to baseline. Furthermore, the patient could provide brushing in these regions more effectively.

**DISCUSSION**

The most common problem with dental treatment of scleroderma patients is the physical one caused by the narrowing of the oral opening and the rigidity of the tongue. Patients with scleroderma often show up with caries and moderate-to-advanced periodontal disease due to poor oral hygiene and patient susceptibility. Oral hygiene measures and dental treatment become more difficult as the severity of the soft tissue involvement increases.

Radiographic changes have been classically described as a uniform widening of the periodontal ligament space with an associated loss of radicular lamina dura. White et al. found 37% of the patients have abnormally thickened periodontal ligament spaces. In a controlled study, Wood et al. reported 29% of the patients with systemic sclerosis had resorptive lesions (erosions) of the mandible involving the mandibular angle, the digastic region, the condylar head, and the coronoid process. In our patient, no resorptive lesions of the condyl and coronoid
process were detected in transpharangeal radiography (Fig 11).

Good mouth care is essential for patients with scleroderma, helping to keep the mouth free of dental caries and gingivitis and lessening the discomfort associated with xerostomia or mouth stiffness. Xerostomia was found more frequently in the patients with systemic sclerosis. In the present case we found that plaque index and gingival index values reduced at 18 months compared to baseline. Eighteen months after the patient had begun to use oral care mouth set, we couldn’t detect any new caries. Wood and Lee found the occurrence of xerostomia and strong association with the occurrence of dental caries. Performing professional dental profilaxies for every 6 months and oral hygiene motivation together with the use of agents lessening xerostomia may be useful in such patients.

On the other hand, limited access to the oral cavity makes definitive treatment difficult. Atrophy of the oral mucous membranes may be followed by “hardening” and fixation to underlying soft and hard tissue structures. The orofacial presentation of severe cases include featureless perioral skin, microstomia, and pseudotrismus. Performing dental treatment including periodontal surgery for such patients is hindered by the reduced oral aperture.

There are limited reports in the literature regarding dental treatment for these patients.

**TABLE I**

<table>
<thead>
<tr>
<th>Clinical Measurements of #34 (mid labial surface)</th>
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<td>Preoperative</td>
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<td>GI</td>
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<td>BOP</td>
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<td>CAL (mm)</td>
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<td>Keratinized Gingiva</td>
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<td>PI</td>
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GI=gingival index; BOP=bleeding on probing; CAL=clinical attachment level; KT=width of keratinized tissue, the distance between mucogingival junction and free gingival edge; PI=plaque index

**TABLE II**

<table>
<thead>
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<th>Clinical Measurements of #45 (mid labial surface)</th>
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<td>Preoperative</td>
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GI=gingival index; BOP=bleeding on probing; CAL=clinical attachment level; KT=width of keratinized tissue, the distance between mucogingival junction and free gingival edge; PI=plaque index

**FIGURE 11**

Transpharangeal radiograph
and only one report of periodontal surgical procedures. That paper presents a case report of periodontal surgical treatment in a 38-year-old female patient with systemic scleroderma. Stanford et al. treated the teeth with localized gingival recession with subepithelial connective tissue grafts and free gingival grafts from palatal donor site using a modification of the technique first described by Björn. They reported that healing was uneventful demonstrating two years follow-up in accordance with the present case. The only limitation of the report is the lack of pre-op and post-op periodontal measurements.

Creeping attachment, which was described by Goldman and Cohen, is known as the postoperative migration of the gingival margin tissue in a coronal direction over portions of a previously denuded root. This phenomenon can be detected 1 to 12 months after graft surgery with an average coverage of ~1 mm. In the present case, the creeping attachment occurred after 6 months and probing depth reduced 3 to 1 mm after 12 months. The creeping attachment became stable 12 months after the surgery.

The oral circumference may be reduced by up to 30%, making even the insertion of dentures difficult. Correction of microstomia has been attempted using exercises and appliances but with significant relapse. Another solution to the problem of denture wearing is the use of osseointegrated dental implants. In the present case bilateral sinus lifting procedure was required for dental implant treatment, which was so difficult to perform due to microstomia. The prevention of tooth loss in such patients with regular periodontal treatment, including mucogingival surgery is of great importance because of the difficulties in wearing dentures.

The periodontal surgical procedure including free gingival grafts, achieved in this patient with scleroderma and the treatment outcomes were stable for 1,5-year follow-up despite some limitations. These limitations are xerostomia, microstomia, and atrophy of the oral mucous membranes, which make definitive periodontal surgical treatment difficult.

REFERENCES