

Case Report

Therapy of a patient with Acute Streptococcal Gingivitis: Case Report and Review of the Literature

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Abstract

Acute streptococcal gingivitis is an acute infection of the oral mucosa. Specific bacterial infections such as to *Neisseria gonorrhoea*, *Treponema pallidum*, *Streptococcal* species, and others are very important, but little attention is given to these diseases because they are rarely seen. The purpose of this study was to report the case of an acute streptococcal gingivitis in a patient and to describe the successful treatment of this case. The patient was a 20-year old female who presented herself to the Atatürk University, Faculty of Dentistry, Department of Periodontology, with the complaints of pain, refractory gingival reddish, severe bleeding gums on the upper and lower anterior region, and halitosis. The diagnosis of acute streptococcal gingivitis suggested clinical and radiographically was confirmed by the culture technique of the gingival samples. The treatment plan included oral hygiene instruction, non-surgical periodontal therapy (scaling and root planning and dental polishing) and antimicrobial therapy. Healing was uneventful after 14 days at the recall visit. There was no sign of gingival bleeding and reddish. Acute streptococcal infection was responsive to non-surgical periodontal treatment plus systemic antibiotic. The treatment of acute streptococcal gingivitis is of importance because of the possibility of serious complications, which can endanger the systemic health of the patient.

INTRODUCTION

Periodontal diseases are infections in which specific bacteria play an important role. Specific bacterial infections of the gingiva, which is a subgroup of non-plaque-induced gingival lesions, may be due to *Neisseria gonorrhoea*, *Treponema pallidum*, *Streptococcal* species, and other organisms [1].

Acute streptococcal gingivitis has specific microbiological (*Streptococcal* species) origin and clinical features, and is characterized by swollen bright-red gingiva associated with pain, fever, malaise, and submandibular lymphadenitis [2-8]. It has been given little attention in the dental literature in general, as this disease is rarely seen. Likewise, there are a great many importance of treatment of it's, because of the possibility of systemic secondary infections such as septicemia, meningitis, pericarditis, rheumatic fever, and pneumonia [9-12]. Thus, the purpose of this study was to report the case of an acute streptococcal gingivitis in a patient and to describe the successful treatment of this case.

CASE REPORT

In February 2003, a 20-year-old Turkish girl with severe pain, excessive gingival bleeding, refractory gingival reddish,

burning sensation on the upper and lower anterior region, and halitosis, which was interfering with normal eating, brushing and speaking, was admitted to the Department of Periodontology, Faculty of Dentistry at Atatürk University.

She claimed to be in relatively good health and had not a history of drug and food allergies. She did not use mouthwashes and chewing gum, did not smoke and did not take alcoholic beverages. She had used several brands of toothpaste during the past years and brushed one time a day. The patient reported that she had a sore throat and inflammation, and a high temperature during the past a few days. The anterior gingiva was very painful and bled on any slight movement such as brushing. In addition, the patient history revealed that she had decided on her own to use systemic analgesic medication (paracetamol 500mg, every 12 hours) as an adjunct to cease of pain.

The extraoral examination revealed a dismorphic face with obvious protrusion of the mandibula. The temperature measured 38.7°C, pulse was 78 beats per minute, and blood pressure was 116/76 mm Hg. In addition, a few enlarged and tender lymph nodes were present bilaterally in the submandibular areas.

The intraoral examination was significant for localized, severe gingival bleeding and edema accompanied by elevated

gingival reddish involving both buccal and lingual regions on the upper and lower jaw. The bilateral reddish and swellings of the tonsils and pharynx were present. The patient's dentition suffered from serious malocclusion, involving class III jaw relationship, asymmetrical molar occlusion of half a unit disto occlusion on the right and left, cross bite without lingual gingival trauma, displacement, rotation, and diastemas. Other findings included bleeding on probing, moderate levels of plaque and calculus, presence of carious lesions and halitosis (Figure1). An orthopantomograph radiograph showed no alveolar bone loss (Figure 2).

Although streptococcal bacterial infection of the gingiva was doubted because of the clinical features, for being sure microbiological samples were taken from affected sites by swabs. The swabs were inoculated onto a Colombia blood agar plate and Sabouraud dextrose agar plate (E&O. Laboratories, Bonnybridge, UK), which were then incubated overnight at 37°C in 5% CO₂. A Colombia blood agar plate with Crystal Violet was also inoculated and incubated in anaerobic conditions. Viridans streptococci cultured from the gingival swabs were identified to species level and antibiograms were determined.

After examination, a blood sample was drawn and whole blood test were performed. Hematologic data were as follows: sedim, 18mm; WBC, 7.2×10³/μL; RBC, 4.98×10⁶/μL; HGB, 14.4 g/dL; PLT, 194×10³/μL.

After having undergone physical and clinical examinations and laboratory testing, she was diagnosed as having "Acute streptococcal gingivitis". Written informed consent was obtained from the patient after all treatment procedures had been fully explained.

PERIODONTAL THERAPY

At the conclusion of her periodontal examination, the supra- gingival scaling and irrigation with chlorhexidine were done carefully to remove any local irritating factors that may have been responsible for the gingival inflammation. The patient was prescribed antibiotics (amoxicillin and clavulanate potassium 1000mg, every 12 hours, 10 days), analgesics (Naproxen 550mg, every 12 hours, 5 days) and instructed to rinse twice daily with 0.12% chlorhexidine oral rinse for 2 weeks. She was encouraged to practice good oral hygiene with a soft-bristle toothbrush. Two weeks later, the affected regions of gingiva appeared less inflamed and painless. Thereafter, a thorough supra- and



Figure 1 Clinical view of the patient before periodontal therapy.

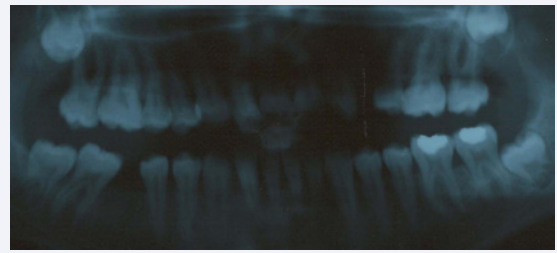


Figure 2 Panoramic radiography.



Figure 3 Clinical view of the patient after conservative and periodontal therapy.

sub-gingival scaling, root planning and crown polishing were performed carefully. In addition, the conservative treatment of carious lesions was done.

Four weeks following non-surgical periodontal therapy, the affected area had completely healed, there were no gingival reddish, bleeding and swelling, and no lymphadenopathy was noted (Figure 3). The patient's plaque control was good, although moderate tooth staining was apparent. She has been visiting a periodontist regularly for two years since that time.

DISCUSSION

We describe a girl with acute tonsillitis and secondary streptococcal gingivitis. The present clinical report indicates that acute streptococcal infection was responsive to non-surgical periodontal treatment plus systemic antibiotic.

Acute streptococcal gingivitis is an acute inflammation of the oral mucosa and not commonly reported in the dental literature [2-5]. It is characterized by acutely inflamed, diffuse, red, painful and swollen gingiva with severe bleeding and occasionally abscess formation [2-5], as was observed in this case.

In the case presented here, the diagnosis of acute streptococcal gingivitis was based on clinical and microbiological examinations. The diagnosis of streptococcal infections depends on clinical findings supported by microbiological sampling [6,7,9,13]. Microbiological evaluation provides a definitive diagnosis to confirm the presence of this disease [10-13].

Streptococci are a large group of Gram-positive spherical cocci that are classified into several groups such as beta-

hemolytic streptococcus A and B, streptococcus viridans, and streptococcus pyogenes [11,13]. Serologic group A streptococci are the predominant group in the production of the human infections [12,13]. The principal human infections caused by streptococcus species are both suppurative diseases and non-suppurative sequelae-type diseases [6,13]. The streptococci have a number of products and constituents that contribute to the pathogenesis of the infections associated with them. A hyaluronic acid capsule interferes with ingestion of streptococci by phagocytes because the bacterial cell surface cannot be coated with specific opsonizing antibodies [11-13]. Some streptococci strains produce erythrogenic toxins that cause headache, fever, and rash. The peptidoglycan of the bacterial cell wall has been shown to be cytotoxic to human cells [11-12]. Streptococci, which are not exceptionally virulent, make up the majority of the resident oral microbiota. They are associated with acute purulent infections of the pharynx, tonsilla as well as suppurative cellulitis in the tissues of the oral mucosa [6,13], as was observed in the current case. The differential diagnosis of acute streptococcal gingivitis includes herpetic gingivostomatitis and oral erythema multiforme [4,6,8,14,15]. There is a remarkable resemblance between gingivostomatitis caused by group A beta-hemolytic streptococci and that caused by viral infection, HSV-1 in particular [6,14]. In addition, mucosal vesicles or any other lesion was not present on the buccal mucosa or tongue. Since the patient had no significant findings in the medical history, did not use a new toothpaste or dentifrice, and did not take any medications, the likelihood of erythema multiforme was very low. The rich presence of the streptococci in cultured areas supported the diagnosis of streptococcal infection.

In the case presented here, successful treatment of the acute streptococcal gingivitis was done non-surgical periodontal treatment plus systemic antibiotic. Non-surgical periodontal treatment, which is traditionally carried out with ultrasonic and hand instruments, is the main method for controlling sub-gingival biofilm for the management of periodontal diseases. It has been demonstrated that the treatment of streptococcal gingivitis is composed of initial periodontal therapy combined with systemic antimicrobial therapy, especially with penicillin [2-8]. As the antibiogram was performed, penicillin was chosen as antimicrobial agent in this case. In addition, systemic antibiotic therapy is recommended to prevent possibility of systemic secondary infections such as septicemia, meningitis, pericarditis, rheumatic fever, and pneumonia [9-12].

In the current report, our patient was scheduled for regular follow-up visits and recurrence of this disease was not observed during the two years. The follow-up period is very important, especially in patients with acute periodontal disease, because of the potential recurrence of the disease [2,6,7].

CONCLUSION

The acute streptococcal gingivitis was treated successfully

by non-surgical periodontal treatment plus systemic antibiotic. The treatment of acute streptococcal gingivitis is of importance because of the possibility of serious complications, which can endanger the systemic health of the patient. The dental clinicians should be aware of bacterial complications in patient with streptococcal gingivitis.

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