



Dental Management of Systemic Lupus Erythematosus (A Case Report)

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Abstract

Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease where the immune system mistakenly attacks the body's own tissues and organs. It leads to a range of symptoms, such as joint pain, organ involvement, and the production of autoantibodies that target specific cell components. Managing dental care for patients with SLE is particularly challenging due to the disease's systemic effects and the immunosuppressive treatments. **Aim:** The aim of this work is to present the dental care management of a 12-year-old patient diagnosed with systemic lupus erythematosus. This study focuses on assessing the risks associated with systemic lupus erythematosus in a dental setting and providing guidelines for safe and effective dental care. **Case:** A 12-year-old female patient with a diagnosis of systemic lupus erythematosus is currently under treatment at CCTD in Casablanca. She presents with classic symptoms, including the butterfly-shaped facial rash, and is undergoing ongoing management for her condition. The dental care approach emphasizes a comprehensive assessment of her medical history, the impact of ongoing treatments, and the specific risks involved, such as potential for infection, delayed healing, and drug interactions. **Conclusion:** Dental care for pediatric patients with systemic lupus erythematosus requires careful consideration of their unique medical needs and the potential complications of treatment. A tailored approach to dental management.

Subject Areas

Dentistry, Oral Surgery

Keywords

Systemic Lupus Erythematosus, Dental Management, Children

1. Introduction

The term "lupus" is derived from the Latin word for wolf, reflecting an ancient

belief that the facial rash associated with the disease resembled the markings on a wolf's face. The "butterfly rash" specifically refers to the shape of the rash, which spans across the cheeks and nose, mimicking the shape of a butterfly.

Systemic lupus erythematosus (SLE) is a chronic autoimmune disease in which the body's immune system mistakenly attacks its own tissues and organs. The condition is marked by the production of autoantibodies, which are antibodies that target the body's own cells, specifically directed against nuclear and cytoplasmic antigens. These autoantibodies can cause damage to various organs and tissues, resulting in a range of clinical manifestations [1].

Oral manifestations are common in patients with SLE and can present significant challenges in dental care. These manifestations may include xerostomia (dry mouth), oral ulcers, and increased susceptibility to periodontal disease due to immune system dysfunction and medication side effects such as corticosteroids or immunosuppressants. Patients with SLE may also experience delayed wound healing, making dental procedures more complex. Additionally, the presence of the butterfly rash can serve as an external indicator of disease activity and should be taken into account during the clinical examination [2] [3].

The primary goal of this work is to describe the dental care management of a 12-year-old patient diagnosed with systemic lupus erythematosus (SLE), who is undergoing treatment and receiving care at the Center for Dental Treatment and Consultation (CCTD) in Casablanca. This entails evaluating and addressing the specific risks associated with her medical condition, including potential oral complications such as infection, delayed healing, and drug-related side effects, and outlining the necessary precautions to be taken during her dental care.

2. Clinical Case

A 12-year-old girl was referred by her treating physician for a dental evaluation and oral care. She had been diagnosed with Systemic Lupus Erythematosus (SLE) at the age of 7 and was under ongoing medical management for the condition.

General Health Condition:

The patient presented with multiple symptoms consistent with SLE, including fatigue, joint pain, and muscle discomfort. She also had skin rashes, specifically a classic butterfly-shaped rash (malar rash) across her cheeks and nose. These rashes were indicative of active disease. Additionally, the patient reported oral dryness (xerostomia) and recurrent aphthous ulcers, which are common oral manifestations of SLE.

Current Medication Regimen:

Her current treatment regimen included:

- Plaquenil (Hydroxychloroquine): An immunosuppressive medication used to manage autoimmune activity and reduce flare-ups.
- MMF (Mycophenolate mofetil): An immunosuppressant for controlling the activity of lupus, particularly affecting the kidneys.
- Cortoncyl (Prednisolone): A corticosteroid to reduce inflammation during

active disease flares.

- Prilvas (Ramipril): An antihypertensive to manage blood pressure, particularly in the presence of lupus nephritis.
- Eficel: A calcium supplement to counteract potential bone loss due to prolonged corticosteroid use.
- K+ (Potassium syrup): To address potassium deficiencies, potentially caused by corticosteroid therapy.
- Aspegic (Aspirin): Prescribed for its anticoagulant effects due to coagulopathy associated with lupus.
- CellCept (Mycophenolate mofetil): Used in combination with other immunosuppressants to control lupus nephritis and other systemic manifestations.

Initial Clinical Observations:

Upon examination, the patient exhibited signs consistent with active lupus. Her oral examination revealed significant xerostomia (dry mouth), which contributed to difficulty in swallowing. Additionally, multiple recurrent aphthous ulcers were observed on the buccal mucosa, which caused considerable discomfort, especially when eating or brushing teeth. Gingival inflammation and mild gingival hyperplasia were noted, likely related to her ongoing medication regimen, particularly corticosteroids.

The patient also presented with signs of lupus nephritis, including periorbital edema (swelling around the eyes) and leg swelling, which were indicative of kidney involvement. Her joints were tender, and she complained of muscle aches, which were consistent with systemic inflammation.

Recommendations from the Treating Physician:

The physician recommended broad-spectrum antibiotic therapy at a dosage of 50 mg/kg to prevent infections, given the patient's immunosuppressive therapy. Additionally, due to the patient's ongoing use of Aspegic (aspirin) for anticoagulation, it was advised that aspirin be discontinued 7 days before any surgical procedure, with the option to resume 3 days post-surgery. This recommendation was made to reduce the risk of bleeding during dental interventions, especially those involving extractions or periodontal treatments.

2.1. Clinical Exam



Figure 1. Clinical view of the maxilla.



Figure 2. Clinical view of the mandible.

The maxilla presented **caries** in several teeth, including the following: 53, 54, 55, 63, 64, and 65 (See **Figures 1-2**).

The mandible presents with a cavity on tooth 75.

2.2. Radiological Exam



Figure 3. Retro alveolar view of the right maxillary sector.



Figure 4. Retro alveolar view of the left maxillary sector.

Periapical radiographs showing pulp involvement of teeth 54, 55, 64 and 65 with advanced resorption (See **Figures 3-6**).

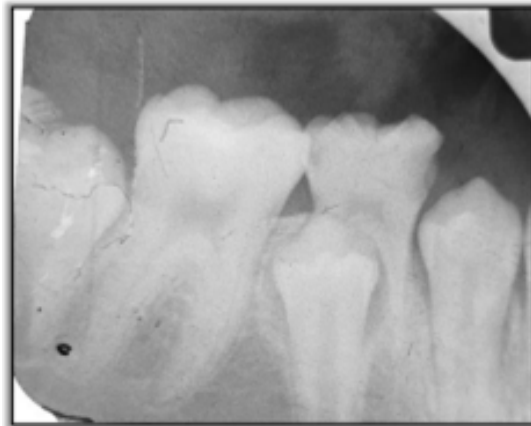


Figure 5. Retro alveolar view of the right mandibular sector.



Figure 6. Retro alveolar view of the left mandibular sector.

2.3. Diagnosis

The maxilla presents amelar lesions in (16/26), and pulpal involvement with advanced resorption in (55/54/53/64/65/63).

The mandible presents a infiltration of the fissures in (46/45/36), and pulpal involvement with advanced resorption in (75).

2.4. Final Treatment (See Figures 7-8)



Figure 7. Clinical view of the maxilla after treatment.

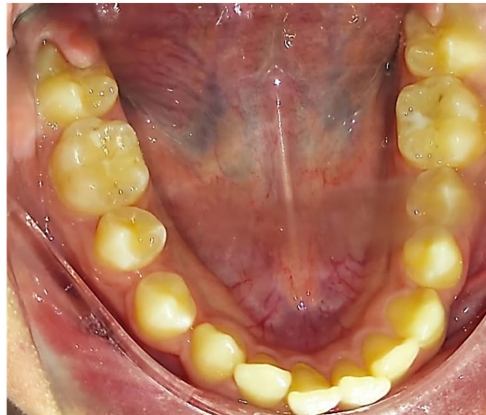


Figure 8. Clinical view of the mandible after treatment.

2.5. Treatment Protocol

Contact with the Treating Physician:

Maintaining close communication with the treating physician is essential to ensure comprehensive care. This collaboration allows for a coordinated approach to managing the patient's systemic condition while addressing their dental needs. A psychological approach is also recommended to better understand the patient's emotional and psychological state, helping to provide support and alleviate any anxieties about dental treatments. Additionally, motivating the patient to maintain good oral hygiene practices and adopt healthy dietary habits is critical for the success of the treatment plan and overall oral health.

Treatment Plan:

- ✓ **Extractions:** Extractions are necessary for the following teeth: 55, 54, 53, 63, 64, 65, and 75. These teeth are compromised due to extensive decay or structural damage that cannot be effectively restored. The extraction procedure will involve local anesthesia to ensure patient comfort and minimize pain. The teeth will be carefully removed, and post-operative instructions will be provided to manage healing and reduce the risk of complications.
- ✓ **Restorative Materials:** For the restoration of teeth that can be salvaged, composite resin or glass ionomer materials will be used, depending on the location and size of the cavities. Composite resins are preferred for their aesthetic properties and strong bond to the tooth structure, making them suitable for visible areas. Glass ionomer is used for areas requiring fluoride release to prevent future decay, particularly for patients with dry mouth (xerostomia), which is a common concern in SLE patients.
- ✓ **Preventive Restoration System (PRS):** The Preventive Restoration System (PRS) will be applied to the following teeth 16, this is a preventive approach used to maintain dental health by addressing early stages of tooth decay before they progress into more severe issues. This system integrates several treatments, including fluoride applications and sealants, to promote long-term oral health.
- ✓ **Sealants for Pits and Fissures (SPF):** To prevent future cavities, sealants for pits and fissures (SPF) will be applied to the following teeth: 14, 15, 24, 25,

44, 45, 46, 36, 34, and 35. Sealants are a preventive measure that involves applying a thin, protective coating to the chewing surfaces of teeth.

- ✓ Fluoride Varnish Application: The application of fluoride varnish helps remineralize enamel, making it more resistant to decay. It is especially beneficial for this patient, given the dry mouth associated with SLE, as it helps protect the teeth from demineralization. Fluoride varnish will be applied every 3 to 6 months, or as recommended by the dentist, to ensure optimal protection.
- ✓ Regular Follow-ups: Regular follow-up appointments will be scheduled to monitor the patient's ongoing oral health, assess the effectiveness of treatments, and make adjustments as necessary. These visits will focus on the maintenance of good oral hygiene, the condition of existing restorations, and early detection of any emerging issues.

3. Discussion

Systemic Lupus Erythematosus (SLE) is a complex and chronic autoimmune disease that poses significant challenges in managing patient care, particularly when it involves dental treatment. As noted in existing literature, SLE affects multiple organ systems, including the skin, joints, kidneys, heart, and lungs, leading to a broad spectrum of symptoms that can significantly impact a patient's overall health and quality of life. Oral manifestations, such as xerostomia, oral ulcers, gingivitis, periodontal diseases, and gingival hyperplasia, are commonly observed in patients with SLE [4]. These oral issues are critical considerations for dental practitioners as they influence treatment decisions and outcomes.

The patient in this case, a 12-year-old girl with SLE, presented with common symptoms such as dry mouth (xerostomia) and recurrent aphthous ulcers, along with systemic complications like renal issues, skin rashes, and joint and muscle pain. These findings are consistent with the literature, which highlights that oral manifestations in SLE can complicate dental management [4]. Xerostomia, for instance, not only increases the risk of tooth decay but also causes discomfort, making oral hygiene more difficult to maintain. Oral ulcers, which are common in SLE patients, can exacerbate discomfort during dental procedures and affect the patient's ability to eat or maintain adequate nutrition [1].

In terms of treatment, SLE management typically involves immunosuppressive drugs, corticosteroids, and organ-specific medications to control inflammation and prevent disease flare-ups. However, these treatments present unique challenges for dental care providers. Immunosuppressive therapies, such as hydroxychloroquine (Plaquenil), reduce disease activity but also increase the patient's susceptibility to infections, particularly oral infections [5]. Steroids, commonly prescribed for SLE, can lead to increased bleeding tendencies and delayed wound healing, complicating dental interventions [6] [7]. This patient's ongoing use of aspirin for coagulation issues added an additional layer of complexity to her care, as aspirin further increases the risk of bleeding during invasive dental procedures.

The importance of a multidisciplinary approach is paramount in managing SLE

patients. In this case, close collaboration between the dentist and the treating physician was crucial to managing the patient's dental care effectively. For instance, following the physician's recommendations, the patient underwent cessation of aspirin therapy before dental procedures to mitigate the risk of excessive bleeding, and broad-spectrum antibiotics were prescribed to prevent infections associated with immunosuppressive therapy [5] [6] [8]. These steps highlight the necessity of a team-based approach in managing the risks associated with SLE.

Dental treatment planning for patients with SLE involves specific considerations to minimize complications and optimize patient outcomes. Based on the patient's condition, minimizing physical and emotional stress was prioritized, as stress is known to trigger lupus flare-ups [1]. Scheduling dental appointments earlier in the day was also recommended to accommodate the patient's fatigue, a common symptom of SLE. Additionally, infection control was a top priority; strict sterilization protocols were followed, and prophylactic antibiotics were administered before invasive procedures to reduce the risk of infections due to immunosuppressive treatment [7].

Furthermore, managing bleeding risks is essential. Given the patient's use of aspirin and her underlying coagulation issues, monitoring for potential bleeding during dental procedures, such as extractions or periodontal treatments, was critical [1]. In some cases, alternative treatments, such as the use of antifungal or anti-inflammatory medications, could be explored to address oral manifestations like ulcers and gingivitis. Topical corticosteroids or localized treatments may also help manage oral symptoms while reducing systemic side effects [1].

In conclusion, managing dental care for a patient with SLE requires careful consideration of the complex interactions between the disease, its treatments, and the patient's oral health. A tailored approach, including collaboration between dental and medical teams, close monitoring of symptoms, and proactive management of potential complications, is essential for ensuring the safety and well-being of SLE patients. As the literature suggests, optimizing dental care for these patients involves addressing the specific oral manifestations of the disease, minimizing risks, and considering alternative treatments where appropriate.

4. Conclusions

Systemic lupus erythematosus (SLE) is a chronic autoimmune disorder that can affect multiple organs and systems in the body, including the heart, lungs, and kidneys. The disease is characterized by periods of relapse and remission, with symptoms fluctuating in severity over time. During flare-ups, patients may experience widespread inflammation, which can lead to significant organ damage if not properly managed [3].

The primary treatment for SLE involves the use of Plaquenil (hydroxychloroquine), an immunosuppressive drug that helps stabilize the immune system and minimize the risk of further organ involvement. Plaquenil is used to reduce inflammation, prevent flare-ups, and protect organs from long-term damage. In ad-

dition, other medications, such as steroids and immunosuppressants, may be prescribed to manage acute symptoms and control inflammation during active phases of the disease.

Due to the immune system being compromised by both the disease and the medications, individuals with SLE are particularly vulnerable to infections. This includes a heightened risk of bacterial, viral, and fungal infections, which can exacerbate the patient's condition or cause additional health complications. As a result, a multidisciplinary approach is crucial for managing the disease, which involves coordination between rheumatologists, dermatologists, dentists, and other specialists. Early detection and eradication of infectious sources are essential to reduce the risk of complications [1] [5].

Regular follow-up appointments are necessary to monitor the patient's overall health and assess the functioning of affected organs. Blood tests, imaging studies, and clinical evaluations help track disease activity and adjust treatment plans accordingly [7].

Conflicts of Interest

The authors declare no conflicts of interest.

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