



## Dental Implant Therapy in Patients Affected by Oral Mucosal Diseases

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Dental implants are increasingly used for the treatment of complete and /or partial edentulism. Related literature search revealed that dental implants are associated with high survival rates of close 92-98% after 10 years [1,2]. The success of implant therapy is very close associated with the appropriate patient selection [3,4]. Oral mucosal disorders and/or systemic diseases with oral mucosal involvements such as systemic lupus erythematosus, pemphigus vulgaris, Sjögren's syndrome, oral lichen planus, oral lichenoid reactions, epidermolysis bullosa and scleroderma could complicate dental implant surgery.

Systemic lupus erythematosus (SLE) is a multisystem autoimmune disease associated with connective tissue and blood vessel disorder [5]. More than 40% patients with SLE experience oral lesions with clinical presentations of red macula, plaque or even ulcerations localized on pigmented mucosa involving the hard palate, lips and buccal mucosa [6]. In addition to oral lesions, temporomandibular joint disorders together with caries, oral candidiasis, gingivitis or even periodontitis due to poor oral hygiene as a result of painful oral lesions or genetic susceptibility are possible oral manifestations. We previously reported that the only issue which complicates the surgical and prosthetic procedures of the implant therapy in the patients with SLE is the limited mouth opening [7]. Antibiotic prophylaxis could be required in this type of patients if the vital organ involvement is present [7]. Zirconium oxide ceramic crowns should be the first choice for these patients due to their high biocompatibility [7]. No remarkable difference in the healing period postoperatively and in the marginal bone loss around the implants at the 24th month follow-up were reported [7].

Pemphigus vulgaris (PV) is a term derived from the Greek *pemphix* (bubble or blister) for a group of potentially life-threatening autoimmune mucocutaneous diseases characterized by epithelial blistering affecting cutaneous and/or mucosal surfaces [8]. Pemphigus is classified as pemphigus vulgaris (PV), with suprabasallacantholysis causing separation of basal cells from keratinocytes of the stratum spinosum and pemphigus foliaceus (PF), with acantholysis in the granular layers of the epidermis [9]. PV is the most common type of pemphigus, accounting for approximately 70% of pemphigus cases. PV typically runs a chronic course, almost invariably causing blisters, erosions, and ulcers on the oral mucosa and skin [10]. Dental implant treatment for a patient with PV can be complicated by the side effects of long-term use of systemic corticosteroids. Patients on systemic corticosteroid therapy may have suppressed immunity and decreased bone mineralization [11]. The use of systemic corticoids might

have exacerbated the patient's type 4 maxillary bone, compromised the healing capability, and consequently made implant surgery a challenge [12]. Ill-fitting dentures can cause vesiculobullous and ulcerative lesions. Prosthetic rehabilitation with implant-retained prostheses improves stabilization of the prosthesis in patients with PV and prevents formation of such lesions. We previously reported that this treatment choice could be considered as a good alternative for removable complete dentures in PV patients [13].

Sjogren's syndrome (SS) is an autoimmune disease affecting the function of exocrine glands, including salivary glands which leads to excessive xerostomia. The patients with SS face difficulties in swallowing and taste alterations together with ulcerations on oral mucosa due to trauma because of lack of protective effect of saliva [14]. Therefore, implant supported prosthetic dentures should be considered as a treatment of choice instead of removable prosthesis. Literature search revealed that there is no definitive contraindication to implant surgery in patients with SS and a success rate up to 100% at 13 years has been reported [15] Attention should be paid to the severity of the disease, especially to the secondary forms of SS which may complicate the surgery as well as the prosthetic treatment [16].

Oral lichen planus (OLP) is a chronic, inflammatory, mucocutaneous disease with a wide range of clinical manifestations, involving T lymphocytes with cytotoxic activity against the epithelial cells affecting skin and mucosa [17]. OLP is characterized by relapses and remissions and six clinical variants as reticular, plaque-like, erosive, papular, atrophic and bullous have been described [18]. The prevalence of OLP is 1.27% in the general population (0.96% in men and 1.57% in women) [19]. The disease has often been reported in adults over 40 years of age and affects women more than men (Roopashree MR 2010). Treatment of OLP depends on symptoms, the extent of oral and extra-oral clinical involvement, medical history and other factors [20]. The frequency of malignant transformation of OLP varies between 0% to 12.5% but it still remains controversial [21].

Lichenoid reaction is a term used for lesions that resemble OLP clinically and histologically but have an identifiable aetiology and include *oral lichenoid lesions (OLL)*, *chronic graft-versus-host disease (cGVHD)*, *oral lichenoid contact reactions (OLCR)* or *drug reactions* [20]. OLCR are caused by dental restorative materials, most commonly amalgam, found in direct topographic relationship with oral mucosa. Contact of the oral mucosa to dental restorative materials may induce a sensitivity response resulting in immune-mediated damage of the basal epithelial keratinocytes [22,23]. They

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are commonly unilateral and erosive and histological examination show more diffuse lymphocytic infiltrate with eosinophils and plasma cells and with more colloid bodies than in classic OLP [20,24,25]. Skin patch testing against dental restorative materials help to distinguish those patients and after removal of the secausative materials the majority of lesions resolve with in several months [23].

The capacity of the epithelium to adhere to the titanium surface of the implant has been reported to be altered [26]. The pathognomic changes both in epithelium and the subepithelial layer of connective tissue could possibly affect the mucosal-titanium interface and impair the barrier function of the implant/epithelial junction allowing for easier bacterial access to the peri-implant tissues [27]. The placement of dental implants for the fitting of overdentures may reduce the incidence of erosive lesions as well as increase the oral function and patient comfort [26]. No clear guidelines regarding the placement of implants in these patients has been reported to date and that status leads to dilemma which retains many clinicians prefer to avoid placing implants in patients with OLP and oral lichenoid reactions. Literature search revealed that implant survival among OLP patients is essentially the same as the survival rate of the implants in healthy people [27-29].

Epidermolysis Bullosa (EB) is a group of rare, genetic skin disorders characterized by fragility and blistering to minimal trauma. Common oral findings of the disease include microstomia, intraoral ulcerations and bullae formation, ankyloglossia, tongue atrophy, elimination of buccal and vestibular sulci, lingual depapillation and atrophy of the palatal folds [30]. The use of dental implants in the prosthetic rehabilitation of edentulous patients with EB might provide a considerably better outcome than traditional prosthetic methods due to the decreased risk of trauma to the mucosa [31]. On the other hand, implant surgery may pose an additional problem; along with soft tissue incision and flap detachment, which can produce bullae, sterile saline solution irrigation is required [32]. Lubricating the patient's lip and any other tissues susceptible to contact can help reduce the risk of shear forces and resulting tissue damage [32].

Scleroderma is a chronic, debilitating connective tissue disease characterized by hardening and contracture of the skin with unknown aetiology [33]. The patients with scleroderma present with yellow, smooth, shiny and firm skin. The clinical and radiographical evaluation often reveal caries and periodontal disease. The limitation in the mouth opening may complicate the dental treatment [34]. The use of dental implants has been reported to solve the caries problem and periodontal problems.

In summary, rehabilitation with implants in the patients with these diseases mentioned above has been proven to be a valid treatment option with a survival rate which is no statistically different when compared with the survival rate in healthy subjects. But this does not mean that these diseases do not play a role in the survival and/or success rate of dental implants. We, as dentists, should always balance the advantages and the disadvantages of the surgical procedures and treatment modalities. Additionally, risk factors for implant failure should be identified.

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