Sjogren syndrome (commonly referred to as “extreme dry mouth”) is a diagnosis based on anatomical and clinical characteristics that include keratoconjunctivitis sicca and xerostomia caused by immunologically mediated destruction of the lacrimal and salivary glands.

This can exist as an isolated phenomenon (primary form) or in association with other autoimmune diseases, such as rheumatoid arthritis, scleroderma, systemic lupus erythematosus, or thyroiditis.

The main oral symptom of Sjogren syndrome is the lack of saliva. Therefore, these patients often suffer from destructive dental caries, which can lead to the early loss of teeth. Edentulous patients with Sjogren syndrome have difficulties wearing dentures, because they lack saliva and they often report a burning feeling of the mucosa and recurrent infections sustained by candidiasis.

Rehabilitation with implant-supported fixed prostheses can be extremely useful for many reasons as they give the possibility to improve the prosthetic comfort and function for this type of patient.

However, in the international literature, only 2 case reports and 1 clinical series about the subject have been published. In total, just 12 patients were described in these articles, and the success rates of the implants were not always encouraging. Binon was successful with an edentulous patient treated with an implant-retained fixed prosthesis and 6 mandibular implants after 13 years, whereas in the study by Payne, the lack of osteointegration in 2 of 12 implants positioned and the loss of a third implant in 1 of the 3 examined patients were described. Issidor et al. confirmed the latter with more cases. He found a lack of osteointegration of 16% in 54 implants positioned, and 2 implants lost during the following 2 years of loading.

With this clinical report, we want to prove that rehabilitation with an implant-retained fixed prosthesis can definitely improve the prosthetic comfort, the function, and esthetics of a patient in an advanced stage of mandibular atrophy with Sjogren syndrome without any peri-implant bone loss.

**Case Reports**

A 62-year-old Caucasian patient came to us for prosthetic rehabilitation of both dental arches in September 2007. The patient reported fracture of only the 2 dental elements that stabilized the maxillary partial denture and was extremely dissatisfied with the mandibular complete denture (Fig. 1).

In the medical anamnesis, the patient reported that a clinical diagnosis of Sjogren syndrome had been made after the appearance of xerostomia and xerophthalmia in October 2000. This was confirmed with instrumental examinations in February 2001: especially, the scintigraphy of the parotid gland with 99 Tcm showed hypocapitation of both parotid glands compared with the submandibular glands (Fig. 2) and the lemon juice test was positive for all 4 salivary glands examined.

From that moment on, the patient was treated with symptomatic therapy with artificial tears and pilocarpine to control the xerophthalmia and xerostomia, respectively. Corticosteroids were not considered necessary because the patient has always been in good general health.

After the extraction of the 2 remaining molars in position no. 2 and no. 15 in September 2007, we decided to rehabilitate the maxilla with a complete denture occlusally congruous with the inferior implant-supported complete denture occlusally congruous with the inferior implant-supported...
fixed prosthesis. However, according to the wishes of the patient, we excluded implant-supported rehabilitation also for the upper arch, as the upper removable prosthesis had never created problems and had always been considered comfortable in both functional and psychological terms by the patient. For the lower arch, we decided on an implant-retained fixed prosthesis in the intraforaminal area. As a matter of fact the severe atrophy of the mandibular bone together with the scarcity of saliva made the lower denture very instable and also caused compressive pain in the area of the mental foramina (Fig. 3).

Because the authors could not find any scientifically documented study about immediate loading in patients with Sjogren syndrome they agreed with the patient on an implant treatment with delayed loading to treat the mandibular edentulousness and a maxillary complete denture. Therefore, a dental computed tomography scan was requested for the precise positioning of the 6 implants in the intraforaminal area.

First, a crestal incision was made and a vertical incision at the level of the median line. Then a full-thickness flap was reflected to try and isolate the 2 superficial mental foramina. The implant sites were prepared by surgical drills with increased irrigation and six 3.7-mm diameter tapered screw-type implants (Tapered Screw-Vent HA, Zimmer Dental, Carlsbad, CA) were positioned (Fig. 4). It was sutured with Vicryl 4-0 (Ethicon, Johnson & Johnson, NJ), which was removed after 10 days. During this healing period, the patient rinsed 3 to 4 times a day with chlorhexidine 0.2%.

When the sutures were removed, the patient started to use the lower complete denture again, which was relined with a soft acrylic resin.

Two-and-a-half months after implant placement, another orthopantomograph was taken (Fig. 5), and second-stage surgery was performed to expose the implants. A crestal incision was made to preserve at least a minimum amount of keratinized tissue. The tapered abutments with the...
correct height for soft tissue were torqued to 30 N/cm (manufacturer’s recommendation) onto implants. As the last step, it was possible to place the 6 healing caps within the abutments (Fig. 6).

After 1 month (Fig. 7), 6 tapered abutment direct transfers were placed and screwed onto the top of the abutments and an open-tray impression was made using polyether. An alloy (Au 50%, Pd, Ir, Ag, Cu, Zn) framework was made, and the precision and passivity were verified. Then, it was possible to assemble the acrylic resin teeth and the flange of pink resin. The occluding contacts between the implant-retained fixed prosthesis and the new maxillary denture were checked, and the fixed prosthesis was torqued to 30 N/cm onto the inferior implants. Then, the patient was dismissed in December 2007.

Six months after loading the implants, an oral radiographic check up was done. It revealed that there was no peri-implant bone loss (Fig. 8). After a year, this was confirmed with a panoramic radiograph (Fig. 9). In addition, there was a significant improvement in well being of the patient who was extremely satisfied with the choice that was made, because it had increased the prosthetic comfort and function (Figs. 10, 11, 12). She particularly mentioned that the compressive pain loaded on the mental foramina had disappeared.

**DISCUSSION**

The results of this clinical report show that a patient with Sjogren syndrome can be treated successfully with an implant-retained fixed prosthesis. Actually, the mandibular bone atrophy together with xerostomia made the old lower denture very unstable, which also caused compressive pain in the mental foramina area. This is the reason that the patient had been given a new lower denture and a prescription for artificial saliva. In the end, this did not improve the oral discomfort in any way.

Because the authors could not find any published articles in the scientific literature about immediate loading in patients with Sjogren syndrome, they decided, in agreement with the patient, on treatment with a 2-stage implant with a prosthetic loading 3 months after positioning the 6 fixtures.

Actually, the literature gives us mostly discouraging results: only 2 case reports on the subject have been published and just 1 clinical series. In total, a mere 12 patients were described in these articles, and the success rates of the implants were not very high. In fact, the data collected from former articles show that of the 72 implants placed in patients affected by the Sjogren syndrome, 12 failed. This result corresponds to a failure rate of ~17%.

Additionally, the only study that contains more cases on the subject showed a medium bone loss in permanent implants of 0.6 mm described during the 4 years of follow-up.
In our case report, on the other hand, none of the implants has failed; neither during the recovery phase nor in the first year of loading. In addition, no peri-implant bone loss has been revealed radiographically.

Because a single case lacks scientific importance, there are only 2 hypotheses to explain this.

The first hypothesis is based on the fact that the health of the patient has always been good and that xerostomia has been well compensated by the use of prilocaine only. In fact, since 2001, when the diagnosis was made, until today, the patient has never used corticosteroids, which could have led to a certain immunosuppression and slowed down the healing of the tissue.

In other studies, some of the patients had other systemic diseases apart from Sjögren, such as rheumatoïd arthritis or scleroderma that could have worsened the prognosis for the therapy with implants.

The second hypothesis, that integrates and completes the first, regards 2 local factors, which may have contributed to the success of this case: rough surface implants were used, in particular as far as this case: rough surface implants have contributed to the success of this case. In addition, the correct distribution of occlusal loads on the prosthesis structure avoided peri-implant bone loss in the course of the first year of loading. All positioned implants have had a successful osseointegration without any bone loss after 1 year. It will be interesting to check the marginal bone loss after longer time periods.

CONCLUSION

This case suggests that edentulous patients suffering from Sjögren syndrome can be treated successfully with implant-retained fixed prostheses, which can dramatically improve the comfort and function of the patient.

Disclosure

The authors claim to have no financial interest in any company or any of the products mentioned in this article.

REFERENCES

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RAHATLIK VE İSİNDEKI İÇİNDEKİ İÇERİK


ANAHTAR KELİMELER: kamik kaybi, bekleyip yükleme, osteointegrasyon, tükürük
JAPANESE / 日本語
シェーグレン症候群患者における下顎骨インプラント支台固定式コンプリート義歯：ケースレポート

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研究概要:
当文献は遲延負荷オトガイ孔間下顎骨インプラント6本を支台とし、固定式補綴義歯で処置したシェーグレン症候群患者1名の治療法と1年間のフォローアップを説明する。上顎骨アーチは既にコンプリートデンチャーで処置しており、今回の人間で患者の適応度と機能性に伴い外れることがなかった。レントゲン検査では骨荷1年経過後インプラント周辺骨喪失は検出しなかった。

キーワード：骨喪失、遅延荷重、オッセオインテグレーション、唾液

CHINESE / 中国語
修状連氏症候群患者下顎植骨支持固定式全口義歯贈：病例報告。

作者：Sergio Spinato, DDS, Carlo Maria Soardi, MD, DDS, Anna Maria Zane, MD, DDS

摘要：
本文報告以附有延発載入与植機固定式固定假牙的6個椎間孔内下頜植體，為修状連氏症候群（Sjogren’s syndrome）患者進行的治療和一年追蹤。上顎牙弓已經以全口義齒治療，這使患者的舒適度和功能產生巨大差異。載人一年後，放射攝影檢查並未發現任何植體周圍骨質流失。

關鍵字：骨質流失、延遲載入、骨整合、唾液。

KOREAN / 한국어
소그렌 증후군 환자에서의 하악 임플란트- 지지 고정 완전 보철물: 중례 보고

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요약:
본 논문에서는 6개의 지연적립 하악 추간공내 임플란트 및 임플란트 지지 고정 보철물로 치료받은 소그렌 증후군 환자의 치료 및 1년간의 추적 관찰연구를 기술하였다. 상악공은 완전 의치로 치료하였는데, 이는 환자에게 편안함 및 기능성 측면에서 매우 큰 차이를 만들어냈다. 식립 1년 후 방사선 검사 결과, 임플란트 주위에 어떠한 골 소실도 나타나지 않았다。

키워드: 골소실, 지연적립, 골유합, 타액
AUTHOR PLEASE ANSWER ALL QUERIES

AQ1—Kindly check whether the short title is OK.