

Utilization of Stafne's bone cavity for improving complete denture retention

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Summary

This clinical report describes the fabrication of a mandibular complete denture for an edentulous patient with bilateral Stafne's bone cavities. Extension of lingual flanges of the mandibular denture into these cavities has improved the retention of the mandibular denture.

Key words: Stafne's bone cavity, complete denture, retention.

Introduction

In 1942, Stafne described a series of asymptomatic radiolucent lesions located near the angle of the mandible.[1] It is a well-defined depression in the lingual surface of the posterior body of the mandible. [2] This depression is called "Stafne's bone cavity". Stafne's bone cavities are also called *Stafne defect*, *Stafne bone cyst*, *static bone cavity*, *latent bone cyst*, *lingual/mandibular salivary gland depression or lingual/mandibular defect*. [2,3] The etiology is unknown. [2] Although the defect is believed to be developmental in nature, it does not appear to be present from birth. [1] It has been documented to develop in patients as old as 30 years and as young as 11 years.[2] Stafne defects are relatively rare, with an incidence of about 0.3%. [4] More cases have been reported in men than in women with a striking incidence of 80% to 90% of all cases. [1] They are generally discovered only during radiographic examination of the area as round or ovoid well-circumscribed radiolucencies. [2,4] Sometimes the defect may interrupt the continuity of the inferior border of the mandible, with a pal-

pable notch observed clinically in this area. Most Stafne defects are unilateral, although bilateral cases may be seen. [1]

Stafne's bone cavities range from 1 to 3 cm in diameter. It is a developmental salivary gland defect most commonly located within the submandibular gland fossa and often close to the inferior border of the mandible. [2] It can be located more anteriorly in the mandible in some cases when it is related to the sublingual gland. [5,6]

This article describes the treatment of a patient in which bilateral Stafne's cavities were utilized to improve the stability and retention of a mandibular complete denture.

Clinical report

A 76-year-old woman presented with the complaint of an ill-fitting mandibular denture. The patient had been edentulous for sixteen years. She had been using the last dentures for 3 years, but she reported that she never had been comfortable with the mandibular denture. Intraoral examination revealed that the patient's mucosa was firm in the maxillary arch but in the mandibula it was very thin and vulnerable. The maxillary

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and mandibular residual ridges were resorbed moderately. Upper and lower dental arches were V-shaped. Palpation of the lingual surfaces revealed bilateral concavities in the mandible in the region of the molars. In the panoramic radiography no pathological lesion was detected at these regions. It was concluded that the patient had Stafne's bone cavity defects. It was thought that this depression could be utilized for the retention and stability of the mandibular denture.

Preliminary impressions were made with alginate (Kromopan, Lascod, Italy) (*Figure 1*). An individual impression tray was prepared providing the flanges extending in length to the concavities. However auto-polymerizing acrylic resin material (Meliodent, Bayer, UK) did not engage into these depressions. During border molding at the site of these concavities, the impression compound (Kerr Corp, Romulus, U.S.A) was slightly pushed taking care not to fill the Stafne's bone cavities. The final impression was made with a light-body of silicone impression material (Oranwash; Zhermack, Italy) (*Figure 2*). After the master cast was obtained (*Figure 3*), it was noticed that the diameters of the concavities were approximately 15 mm at the left side, and 9 mm at the right side. Then the jaw relationships were determined in the usual manner. The

master casts were mounted on a semiadjustable articulator (Artex, Gierbach, Germany), and artificial teeth (Vita, Zahnfabrik, Germany) were conventionally arranged. After the try-in session, the denture was processed. Initially acrylic resin (Meliodent; Bayer, UK) was packed on the cast covered with modeling wax which was a spacer for soft-liner (Molloplast-B, Buffalo Dental Manufacturing Co., U.S.A.), and a cellophane was used as a separator to unpolymerized acrylic resin. The flasked heat-curing acrylic was placed in the processing unit for 10 minutes at 70°C in order to reach a consistency hard enough to prevent the dislodgement during the second packing. The flask was opened and modeling wax removed. Then the second packing was performed with a soft liner material, as recommended by the manufacturer. The denture was polymerized and polished in the usual manner (*Figure 4*) and upper and lower dentures were delivered to the patient. At the post-insertion recall, there were a few sore spots and minor adjustments were made with special burs (Mollplast-Cutters, Mollplast Regneri GmbH&Co. KG, Germany) in order to prevent tear of the soft liner. The patient reported she felt comfortable and had no difficulty in inserting and removing the mandibular denture.



Figure 1. Mandibular preliminary impression with bilateral Stafne's cavities in molar region



Figure 2. Mandibular final impression with bilateral Stafne's cavities in molar region



Figure 3. Stone cast of the mandibular arch



Figure 4. Mandibular complete denture

Discussion

Stafne's bone cavities may not be diagnosed visually during intraoral examination because salivary glands or tissues fill these cavities. It is obvious that a routine manual examination of all denture border areas must be performed at the initial examination appointment.

If the patient with Stafne defect refers for fabrication of dentures, when palpation is neglected, clinicians could easily miss these cavities at the intraoral examination. However they can be noticed after taking the impression.

In the dental literature there is only one report [7] that describes the utilization of Stafne defects for improving the retention of mandibular denture. Heat-curing acrylic

engaging into these cavities with soft-liner material must be more preferable as performed in the present study. In addition it is advisable that soft liner should be thicker in the region of these cavities. Therefore the possibility of occurrence of some sore spots during insertion and removal of the denture decreases, and even if some sore spots are encountered, thickness of the soft liner makes it possible to grind without exposing the hard acrylic resin.

Conclusion

This clinical report described the engagement of a mandibular denture in bilateral Stafne's bone cavities. Fabrication of the denture by utilizing these cavities improved the retention and stability of the mandibular denture.

References

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