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Short Communication

Impression Making in Severe Trismus a Novel Technique

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ABSTRACT

Impression making in a restricted mouth opening poses a technical challenge for Prosthodontist to provide any sort of prosthesis in such patients. Limited oral opening can be caused by head and neck radiation, surgically treated head and neck tumors, facial burns, reconstructive lip surgeries and also in various genetic disorders. In this article a novel technique to obtain a dental impression with the help of wooden tongue blades of post operated and radiated head and neck cancer patients; with trismus where in some mouth opening was less than 1 cm. In this technique we used wooden tongue blades as an impression tray. If impression for both quadrant of same arch is required then we used two tongue blades in a criss-cross manner and joined them with elastics and for single quadrant we used single blade only. This impression technique causes less trauma to already tightened mucosa due to use of wooden blades rather than metallic trays and more over none of our conventional trays will be usable in mouth openings less than 1 cm.

Keywords: Trismus, Caulk tray adhesive, Dentsply sirona, Virtual, Ivoclair

INTRODUCTION

Restricted mouth opening can be due to microstomia or trismus. Microstomia is a condition in which patients manifest congenital or acquired reductions in the size of the oral aperture that is severe enough to compromise cosmesis, nutrition, and quality of life. Most microstomia cases are acquired, but congenital microstomia is not uncommon. Other common causes of acquired microstomia include perioral burns and connective tissue disorders, such as scleroderma. Acquired microstomia is a leading post-surgical complication of the oral cavity [1].

Trismus is commonly seen in Head and Neck cancer treatments and sometimes it's so severe that impression making becomes a challenge. Trismus is present at the time of diagnosis in about 2% of patients with a head and neck cancer due to tumour growth. In about 5% of patients suffering from a tumour of the nasopharynx, trismus may be the first sign. In children with a nasopharynx tumour, 36% experience trismus at the time of diagnosis. In malignant parapharyngeal tumours, up to 55% of the patients experience trismus at the time of diagnosis. Additionally, trismus may be induced by the surgical treatment or radiotherapy in about 8% of patients with malignant tumours of the head and neck [2].

Jen, et al. and Nguyen, et al. suggested that trismus to have mouth opening less than 20 mm and 40 mm respectively [3,4]. Thomas, et al. classified trismus into light trismus (>30mm), moderate trismus (15mm-30 mm) and severe trismus (<15mm) [5]. According to Sakai, et al. mouth opening can be of three types; normal opening, moderately restricted (20 mm to 30 mm), and severely restricted (<10 mm) [6].

The main challenge for a prosthodontist is making an impression in restricted or severely restricted mouth opening. Most articles published does state that impressions were attempted either by sectioning the impression tray 7-13 or by choosing a flexible impression tray for the procedure [7-14].

In many cases after surgery of head and neck cancers mouth opening is less than 10 mm or buccal mucosa becomes too rigid that even these modified trays seem too large to be inserted for impression making. In this case report a novel impression technique has been discussed [15,16].

TECHNIQUE

STEP1

Wooden placed inside the restricted mouth opening and extend was checked and marked with marker. Single wooden blade for

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single quadrant impression and for two quadrants two blades are tied in a criss-cross manner with the help of elastics (Figure 1).

Figure 1: Cirss-cross arrangement of two wooden tongue blades.

STEP 2

Tray adhesive was applied (caulk tray adhesive, dentsply sirona) over the blade. Relieving holes may be made for additional physical retention (more useful when alginate is the choice of material).

STEP 3

Impression material mixed and impression was made. Impression material of choice here was putty (president, coltene) with light body (virtual, ivoclair) and technique used was double mix single step (Figure 2). (Alginate impression material can also be used). After pressing the blade loaded with material over the teeth, intra orally adaptation were done on the buccal side with fingers.

Figure 2: Impression making.

STEP 4

Impression was retrieved and checked for any voids, proper extensions and cast was poured for fabrication of occlusal splint (Easy-VAC, Gasket, 3A Medes) in a vacuum machine (Figure 3). In this step if more refined impression is required then a secondary impression is made on the cast of primary impression (Figure 4).

Figure 3: Impression making of a) One Quadrant and b) Two Quadrants.

Figure 4: Custom tray is fabricated for better anatomical impression.

STEP 5

Splint was then inserted, checked for proper fits (Figure 5). Patient is given post insertion instructions.

Figure 5: Splints are inserted.

CONCLUSION

A novel impression technique is presented to make impression in patients with highly restricted mouth opening (less than 1 cm). This technique is useful for making occlusal splints or even veneers and laminates. The technique involves the use of a wooden tongue blades as an impression tray which is either loaded with elastomeric impression material or even alginates. For single quadrant single blade is used whereas two blades are used for 2 quadrants.

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