

# One-day refabrication technique for a lip plumper in a patient with cleft lip and palate: A clinical report

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## Abstract

**Objective:** This report describes a clinical procedure for one-day refabrication of a lip plumper for a patient with cleft lip and palate.

**Case presentation:** The patient's chief complaint was discoloration of her existing lip plumper and she desired esthetic improvement. First, the existing lip plumper was carefully examined. Then, the tissue surface and polishing surface of the lip plumper were embedded with irreversible hydrocolloid impression material in the tray box and the lip plumper was copied by using self-cured acrylic resin. The new lip plumper was polished and placed in the oral cavity.

**Results:** All procedures including adjustment were finished within one hour. The patient was satisfied with the color and structure of the new lip plumper prosthesis.

**Conclusion:** Our clinical result indicates that a rapid refabrication technique can reduce appointment frequency and unnecessary patient suffering while being economical and easy to perform.

## Keywords

refabrication technique; cleft lip and palate; lip plumper; esthetic improvement; patient satisfaction.

## Introduction

Patients with a maxillofacial defect usually rely heavily on their prosthesis since it effectively restores oral function [1,2], improves esthetics [3], and provides a positive impact on the patient's psychology [4]. However, not all materials for maxillofacial prosthetics are completely durable, so the prosthesis eventually needs to be replaced [5]. Thus, prosthodontists often face considerable demands from patients who need quick fabrication of a new prosthesis. These patients often desire shorter chair time to obtain a prosthesis similar to the old prosthesis, restoring the function and esthetics, even though dental prosthesis fabrication is labor-intensive, involving many hours of hands-on work by dentists and technicians.

A rapid chair side refabrication technique that only requires the patient's existing prosthesis to make a mold is sometimes used in prosthetic treatment [6]. The technique reduces laboratory time, patient's visits and suffering. The technique also facilitates replication of the excellent features of the

existing prosthesis, which is usually well-controlled and adjusted due to long-term use [7]. The patient adapts to the new prosthesis easier because of the reproduction of familiar features [8].

This report describes the use of the rapid chair side refabrication technique in a patient with a cleft lip and palate. A workflow is presented for the management of this patient when she requested a new lip plumper with esthetic improvements but had limited time.

## Clinical Report

In February 2017, a 52-year-old woman visited the clinic for maxillofacial prosthetics Faculty of Dentistry in Tokyo Medical and Dental University. The patient complained of discoloration of her existing lip plumper and desired esthetic improvement. She was born in 1965 with left cleft lip and palate. Since then, multidisciplinary combination therapy including surgical, orthodontic, and prosthetic treatment has advanced. Intraoral examination revealed that the left maxillary fixed bridge was set from the second incisor to the first premolar. A bone cleft between the left maxillary first incisor and the canine (Figure 1) was covered by an acrylic resin lip plumper on the buccal side (Figure 2). Hygiene was satisfactory and there were no new caries or remarkable soft tissue problems. However, the lip plumper was discolored and the gap caused by the bone cleft was exposed and was not covered by the lip plumper whenever the patient smiled. A treatment plan involving fabrication of a new lip plumper by taking an impression of the defect was suggested, but the patient desired a one-day treatment because she was in Japan for only a short visit and needed to refabricate it as soon as possible. Another treatment plan to copy the existing lip plumper for rapid fabrication was introduced to the patient and consent was obtained.

A tray box which consists of top and bottom parts was prepared to copy the lip plumper. Irreversible hydrocolloid impression material was placed on bottom of the tray box. Then the tissue surface of the existing lip plumper was embedded in the impression material (Figure 3). Once the impression placed on bottom was cured, additional irreversible hydrocolloid was placed on top of the tray box and the box was assembled. After the impression had cured, the tray box was opened and the existing lip plumper was removed. Self-cured acrylic resin (Unifast III pink; GC, Tokyo, Japan) was mixed according to the manufacturer's instructions and placed in the tray box (Figure 4). The box was closed and placed into a dental pressure pot (Dental Laboratory Polymerizer; Shofu Inc., Kyoto, Japan) at 50°C and 10kgf/cm<sup>2</sup> pressure for 30 min. The new lip plumper was removed and polished in the conventional way (Figure 5). The lip plumper was then placed in the oral cavity (Figure 6) and the contour of the lip plumper was adjusted so as not to interfere with the movement of lips and cheek.



**Figure 1:** Intraoral appearance with no lip plumper in place



**Figure 2:** Intraoral appearance with the existing discolored lip plumper in place



**Figure 3:** Embedded lip plumper in the tray box



**Figure 4:** Perfusion process for impression with self-cured acrylic resin



**Figure 5:** Refabricated acrylic resin lip plumper



**Figure 6:** Intraoral appearance with new lip plumper in place

## Discussion and Conclusion

A one-day treatment in which the existing prosthesis is refabricated represents an effective and inexpensive therapeutic approach for patients who have limited time. In the present case, the new lip plumper restored the buccal gap between the fixed bridge and alveolar bone with great efficiency and improved esthetics. Our clinical result indicates that a rapid refabrication technique can greatly reduce appointment frequency and unnecessary patient suffering while being economical and easy to perform.