Predictable implant impressions

Using 3M Impregum Soft Quick Step Polyether impression material. Open Tray/Pick-up Technique

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A 39-year-old female patient presented for clinical recall evaluation after not being seen for five years. Her initial treatment involved restoration of a missing upper right lateral incisor with an osseointegrated external hex implant of narrow diameter. The restoration was designed to be removable and had functioned well. The patient had noticed over the past six months that the crown no longer seemed in place and appeared to be unstable. On presentation, the implant crown was firm and non-mobile. Radiographic assessment (Fig. 1) showed an apparently well-integrated implant with bone levels that had changed very little since initial treatment. After removal of the crown and abutment, IQ values and clinical assessment suggested that the implant was stable and healthy. Examination suggested that there was movement of the other teeth in relation to the implant and the decision was made to fabricate a new restoration for this implant.

A pickup impression coping was secured to the implant and seating was verified (Fig. 2). This impression coping is designed to stay in the implant material when the impression is removed from the mouth. The central screw of the pickup impression coping must exit the impression tray while the impression is setting so one can disengage the screw and then remove the impression. It was decided that a 3M Directed Flow Impression Tray would be used to make the impression. An appropriate sized tray was chosen and tried in for fit.

This tray was chosen for several reasons:
- It fits well into the patient’s arch
- It needs no adhesive
- It is secure and rigid
- It is easily adjustable
- The tray has the unique feature of incorporating a palatal reservoir so that when used, the excess impression material that escapes out the distal portion of the tray can be scooped up with a mirror and housed within this area thereby keeping the mouth clear and creating a more gag-free impression.

A marking medium was placed on the top surface of the implant impression screw and this marking was transferred to the inside of the tray by seating the tray intraorally (Fig. 3). An acrylic bur was used to create a hole in the base of the tray (Fig. 4) and the impression tray was then tried in the mouth to ensure that there was clear access to the impression screw (Fig. 5).

The impression material chosen for this situation was a polyether-based material. This material was chosen for several reasons:
- Polyether is inherently hydrophilic. While the mouth always being wet, this is a good choice in impression materials for all intraoral applications.
- Polyether is rigid enough to support an implant impression coping without distortion or movement.
- It is easily injected through an impression syringe in either a monophasic or dual phase technique.
- It is easily poured in the lab using many different formulations.
- It is accurate and can be poured multiple times if needed.
- It has multiple setting times to choose from.

A monophase technique was chosen since a medium body material shows ideal characteristics in terms of rigidity and detail capture. A 3M Intra-oral Syringe is loaded directly from the cartridge and set aside (Figs. 6 & 7). The syringe has not yet been activated. Blue rope wax is placed into the end of the impression screw to make sure that no impression material gets lodged in this area (Fig. 8). This facilitates future screw retrieval using an appropriate driver.

The area of interest is dried using compressed air and isolated. The impression syringe is activated, and an initial amount of impression material is “bled” from the impression syringe tip (Fig. 9). Impression material is then syringed around the impression coping and the neighbouring teeth. While this is being done, the impression tray is loaded with the same medium body (monophasic) polyether material that is dispensed from a 3M Pentamix Automatic Mixing Unit (Fig. 10). Once loaded, the tray is seated to place so that the impression coping screw can be visualized protruding through the impression tray (Fig. 11). The area is wiped away over the impression screw and the tray is held in place for the setting time prescribed by the manufacturer. Once the impression is set, the impression screw is unscrewed (Fig. 12) and the impression is removed from the mouth (Fig. 13). The impression coping is picked up in the impression material and can be seen inside the impression. An implant lab-analogue (replica) is then connected to the impression coping by positioning it onto the impression coping and securing the impression screw from the opposing end of the tray (Fig. 14). The impression is now ready to be poured.

The new prosthesis is now in place and had addressed the malposition issues that were initially evident when the patient presented for treatment (Fig. 15).

About the Author
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