



INTRODUCTION

The rehabilitation of the atrophic completely edentulous arches with complete arch implant supported prostheses has become a highly demanded treatment option. In the case of the fixed full arch restorations, many factors can be considered to minimize failure risks and lead to a more favorable outcome. Factors related to impression technique is of utmost important as it would lead to ill-fitting prosthesis, thus mechanical and biological complications. Thus, the aim of this poster is to provide some guidelines regarding the impression step during rehabilitation of the complete edentulous arches with the use of fixed monolithic zirconia prosthesis. A clinical case will be presented along with a summary of pertinent literature.

METHOD & RESULTS

An electronic search of English language literature was performed by using PubMed/MEDLINE with the following specific terms "implant level impression", "full arch implant restorations", "implant supported complete denture", and "conventional impression for implant supported". Twenty-five articles have been yielded, and 17 have been excluded due to irrelevant content or lack of supportive information. When restoring complete edentulous arches with implant supported fixed prostheses, two techniques have been mostly in use: direct, pick-up, or open tray and indirect, transfer or closed tray. Which one offers more accuracy in the case of four or more implants? Papaspyridakos, et al (2014) published a systematic review of 76 publications, they concluded that using direct technique, pick-up or open tray is the most accurate technique when restoring three or implants at the implant level. The splinting action of the impression copings has also been studied in the past. Vigolo et al (2004) reported that splinting 1 day before impression, sectioning, then rejoining just before impression offers more accuracy for multiple internal connection implant prostheses. [Heeje Lee](#) et al (2008) also reported that splinted pick-up technique is the most accurate technique for more than four implants and Polyether and VPS were the recommended materials for the implant impressions.

CASE REPORT

Case report: Male 73 Y/O patient referred to the Prosthodontics department of the University of Michigan School of Dentistry with six well-osseointegrated internal connection maxillary dental implants and the history of the fracture of complete arch implant supported zirconia bars twice. With the access to clinical and radiographic records as well as the master casts, we identified the factors that likely contributed to the previous failures. Treatment included fabrication of complete arch implant supported fixed prosthesis at implant level. Impressions were made with techniques that ensures the accuracy of the impression and master cast fabrication.

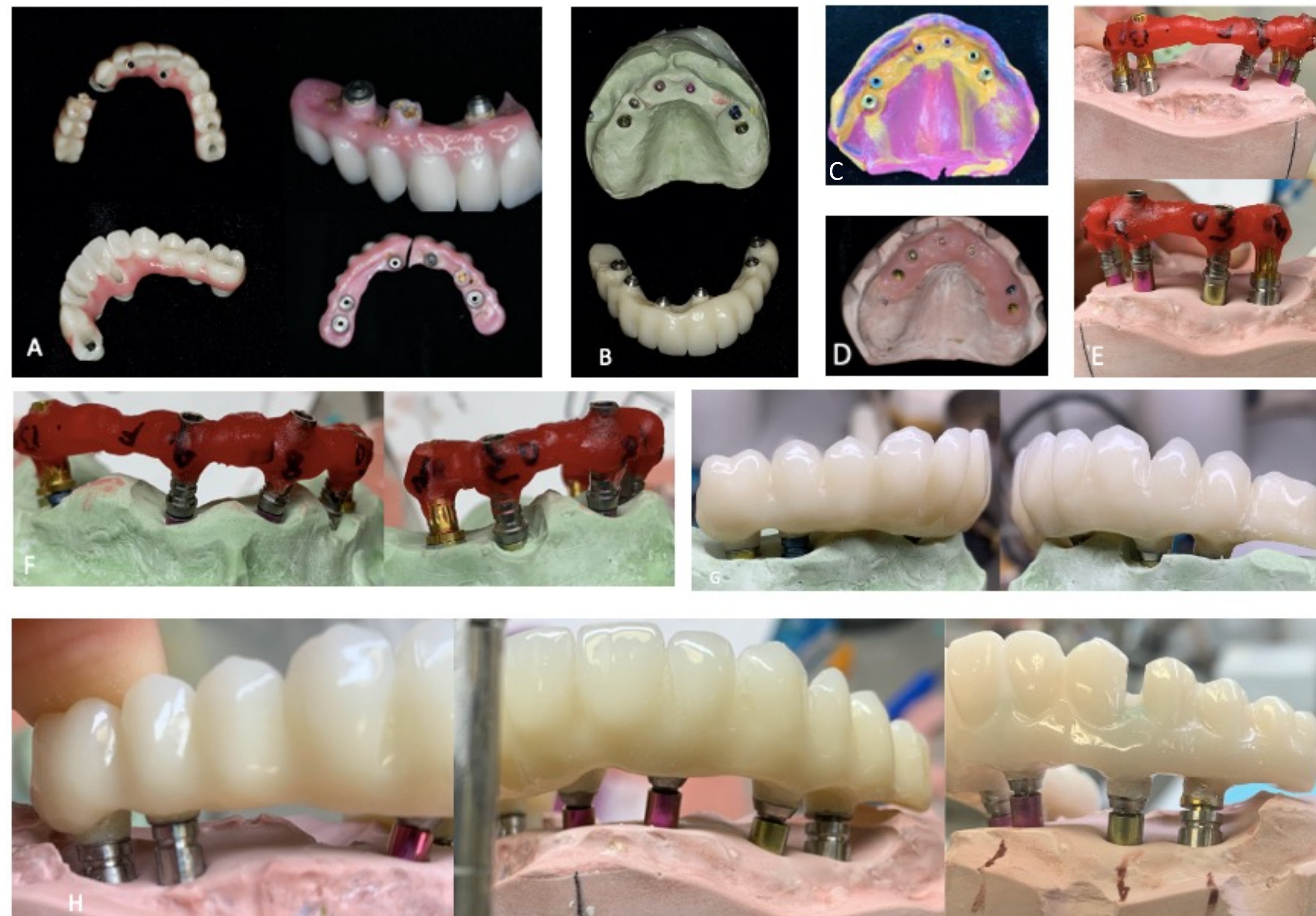


Figure A. Previous failed restorations, Figure B. Previous master cast and prototype Figure C. Custom tray, splinted direct technique for impression making with poly vinyl siloxane, D. New master cast, E. Verification jig placed at new master cast, F. Verification jig placed at previous master cast, G. Previous prototype placed at previous master cast, H. Previous prototype placed at new master cast

SUMMARY

Impression technique: Splinted direct technique with custom tray and polyvinyl siloxane.

- Splinting jig fabricated with low shrinkage poly methyl methacrylate and sectioned 24 hour prior to the appointment to allow for shrinkage.
- Custom tray fabricated 24 hours prior to appointment with access holes to locate impression copings long screws.
- Non-engaging impression copings placed; seating confirmed with periapical x-rays
- Sectioned splinting jig re-jointed intraorally with low shrinkage poly methyl methacrylate allowing setting of the material for 30 mins.
- Direct pick-up impression made with polyvinyl siloxane, medium and light body

Master cast fabrication:

- Implant replicas connected to impression copings
- Soft tissue created with addition silicone 2 mm above the transition phase implant replica-impression coping.
- Impression poured in ISO type 4 die stone gypsum low expansion 0.8% at one time.
- Master cast allowed to dry for 48 hours to achieve maximum compressive strength (90 PSI).

Verification of the master cast.

- Non-engaging temporary cylinders placed on master cast; verification jig fabricated with low shrinkage self-curing poly methyl methacrylate.
- Verification jig sectioned 24 hour after fabrication and placed intraorally at every implant, seating confirmed with periapical x-rays.
- Verification jig rejointed intraorally and allowed 18 mins for setting.
- Verification jig removed from the implants and the fit was verified on the master cast.

CONCLUSION

In case of complete arch implant fixed prosthesis with six internal connection implants to be restored at implant level, it is recommended:

- 1) Open tray for pick up or direct technique.
- 2) Splinted impression technique, more accurate at implant level impressions.
- 3) ISO type 4 die stone due to low expansion.