

A Simple Technique to Fabricate Custom Made Occlusal Plane Template

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Abstract The plane of occlusion represents the average curvature of the occlusal surfaces of anterior and posterior teeth rather than a flat surface. An anteroposterior curve, the curve of Spee and the mediolateral curve, the curve of Wilson determine the position of posterior teeth. Management of patients with uneven occlusal plane is an essential step for the long term success of the treatment. Devices, like occlusal plane analyzers, are routinely used to evaluate the occlusal problems and help improve the situation. Yurkstas metal occlusal template is a device frequently used to determine proper occlusal plane. A simple procedure to fabricate a transparent occlusal plane template is described in this article. This occlusal template overcomes the major disadvantage i.e. non-transparency of the Yurkstas metal occlusal template.

Keywords Occlusion · Occlusal plane · Occlusal plane template

Introduction

The plane of occlusion represents the average curvature of the occlusal surfaces of anterior and posterior teeth rather than a flat surface. An anteroposterior curve, the curve of

Spee and the mediolateral curve, the curve of Wilson determine the position of posterior teeth [1, 2]. An uneven alignment of the natural teeth is often seen in patients. The causes of this uneven dentition may be any one or combination of the improper eruption, shape, position or abrasion of the teeth. It is imperative to equilibrate the occlusal plane of the natural dentition prior to execute any treatment procedure on such uneven dentition. Broderick occlusal plane analyzer (BOPA) has also been used to assess and correct the occlusal plane [3]. Though BOPA is one of the predictable methods to correct the occlusal plane irregularities; special equipment setup is required to make BOPA compatible with different articulators [4]. Yurkstas metal occlusal template is used commonly to establish the occlusal plane in such conditions [5, 6]. But the visibility of occlusal surfaces through the metal template is hampered and hence a transparent template is required. Also, the metal template is difficult to adjust and modify according to short or asymmetric arches. This clinical report describes a simple and easy technique to fabricate a custom made transparent occlusal plane template (OPT) for the analysis and correction of the plane of occlusion.

Fabrication of the Custom Made OPT

1. A polymer ball of 8 in diameter was selected which simulates Monson [7] sphere.
2. A single thickness baseplate wax sheet (Modelling Wax; Deepti Dental Products, Ratnagiri, India) was rolled into the shape of a normal dentulous-cast-base and secured on the surface of the ball to make a mold.

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Fig. 1 Polymer ball of 8 inches diameter with poured Type III gypsum material

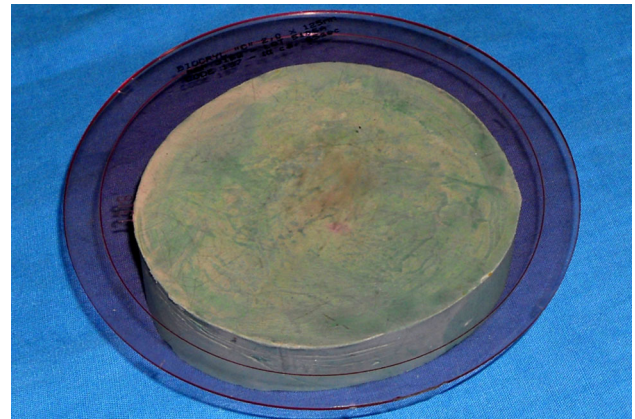


Fig. 4 Adapted PMMA plate on concave stone-form

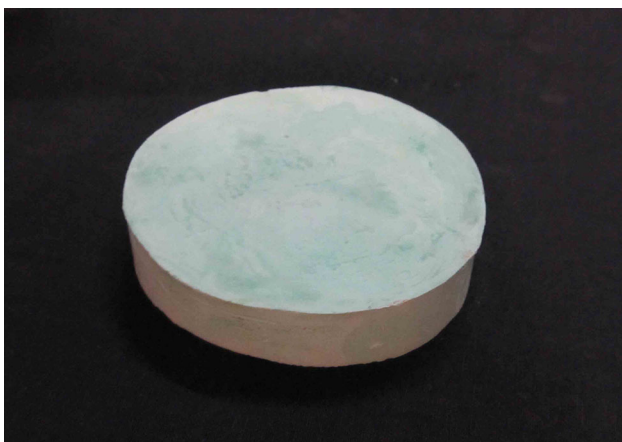


Fig. 2 Concave stone-form



Fig. 3 Concave stone-form placed in heat and pressure molding machine



Fig. 5 a Finished occlusal plane template (OPT) on concave stone-form. **b** OPT in use

3. Type III gypsum material (Kalstone; Kalabhai Karson, Mumbai, India) was poured into this wax-box to make a concave stone-form (Fig. 1).

4. This concave stone-form (Fig. 2) can be used to fabricate OPT of different shapes according to individual arch symmetry.
5. A 2 mm thick, rigid, transparent pressure-thermoforming polymethyl methacrylate (PMMA) (Biocryl “C” 2.0 × 125 mm, Scheu Dental GmbH, Iserlohn, Germany) plate was selected to fabricate the OPT.

6. PMMA plate is dimensionally rigid, stable and precisely reproducible, has uniform thickness, and easy handling properties [8].
7. The PMMA plate was adapted on the concave stone-form by using heat and pressure molding machine (Biostar, Scheu Dental GmbH, Iserlohn, Germany) (Fig. 3) by using the program setting code of the PMMA plate (Program code no. 197).
8. The adapted PMMA plate (Fig. 4) from the stone-form was separated with care without any damage to the stone-form.
9. The PMMA plate was trimmed by using vacuum-form material trimming bur (Brasseler #H219S.11; Brasseler USA, Savannah, Ga) to outline the template in the shape of a mandibular arch (U shape) to fabricate the OPT (Fig. 5a).
10. Finally the trimmed OPT can be used to evaluate the irregular and uneven occlusal plane (Fig. 5b).

References

1. Dawson PE (1989) Evaluation, diagnosis and treatment of occlusal problems, 2nd ed. Elsevier, St Louis, pp 85, 373–381
2. The glossary of prosthodontic terms 8th ed. *J Prosthet Dent* 94:10–92 (2005)
3. Small BW (2005) Occlusal plane analysis using the Broderick flag. *Gen Dent* 53:250–252
4. Bedia SV, Dange SP, Khalikar AN (2007) Determination of the occlusal plane using a custom-made occlusal plane analyzer: a clinical report. *J Prosthet Dent* 98:348–352
5. Yurkstas AA (1968) Single dentures. In: Sharry JJ (ed) Complete denture prosthodontics, 2nd ed. McGraw-Hill, New York, p 300
6. Sharry JJ (1974) Complete denture prosthodontics, 3rd edn. McGraw-Hill, New York, pp 313–314
7. Monson GS (1920) Occlusion as applied to crown and bridgework. *J Nat Dent Assoc* 7:399–413
8. Jagger RG, Okdeh A (1995) Thermoforming polymethyl methacrylate. *J Prosthet Dent* 74:542–554