

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP Indian Journal of Orthodontics and Dentofacial Research

Journal homepage: <https://www.ijodr.com/>

## Short Communication

# An easy technique to fabricate pontic in clear aligners

Pravin Shetty<sup>1</sup>, Rahul Sateja<sup>2</sup>, Pavankumar Singh<sup>3\*</sup>, Chrisil Johnson Kozhikadan<sup>4</sup>

<sup>1</sup>Dept. of Orthodontics and Dentofacial Orthopaedics, Vasantdada Patil Dental College, Sangli, Maharashtra, India

<sup>2</sup>DAV Dental College, Yamuna Nagar, Haryana, India

<sup>3</sup>Maharashtra Institute of Dental Science and Research, Latur, Maharashtra, India

<sup>4</sup>Dr. D. Y. Patil Dental College & Hospital, Pune, Maharashtra, India



### ARTICLE INFO

#### Article history:

Received 15-06-2023

Accepted 06-11-2023

Available online 19-01-2024

#### Keywords:

Clear Aligner

Pontic

Esthetics

3D printed models

### ABSTRACT

Clear aligners are an esthetic and comfortable option for orthodontic treatment and have gained immense popularity over the last decade. This clinical tip describes an easy technique of making pontic on 3D printed models in missing anterior teeth or extraction cases.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

## 1. Introduction

It is common for a patient receiving clear aligner orthodontic treatment to have one or more missing teeth. One of the benefits of using clear aligners is that we can create a pontic, to fill in the missing space.<sup>1-5</sup>

A pontic is a tooth-shaped substitute created in the gap left by missing or extracted teeth. Since the clear aligner does not cover a tooth in this location in the patient's mouth, there is a resulting gap in the clear aligner. However, this gap may be painted or filled to make it appear like a tooth. Conventionally, the pontic is made in the 3D printed models using light cure radiopaque composite [Figure 1]. However, it requires good dexterity to build teeth with composite matching the anatomy of the natural teeth, without flowing over adjacent teeth. This process is not cost-effective and is also a time-consuming procedure.

In this clinical tip, we describe an innovative technique for creating a pontic on the 3d printed models which

replicate in the clear aligner to maintain esthetics in patients in whom extraction of anterior teeth is planned or already have missing anterior teeth.

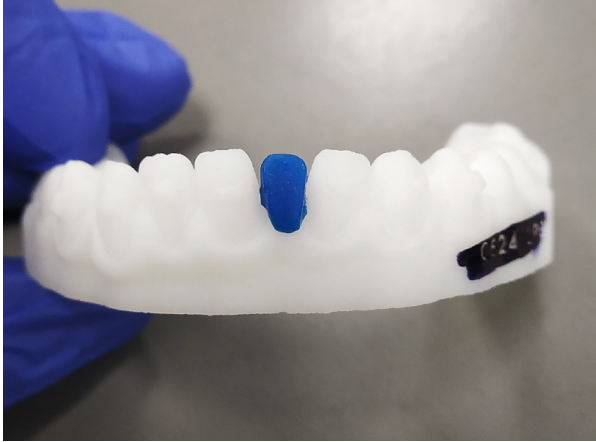
## 2. Method of fabrication

1. Select the acrylic tooth which is missing in the patient/model from the acrylic teeth set [Figure 2] which is generally used for denture preparation.
2. If required, trim the acrylic tooth according to the space available for the pontic. This can be done using a micromotor and handpiece with a stone bur [Figure 3]
3. Add a layer of light cure radiopaque composite at the base of the extraction space/missing tooth.[Figure 4]
4. Fix the acrylic tooth on the composite base manually.[Figure 5] and check that the height of the acrylic pontic should be equal to the adjacent teeth, and not interfere with the occlusion [Figure 6].
5. Cure the composite using LED curing light [Figure 7]
6. Thermoforming of the aligner is done [Figure 8]

\* Corresponding author.

E-mail address: [pavansingh6sept@gmail.com](mailto:pavansingh6sept@gmail.com) (P. Singh).

7. After retrieval, remove the acrylic tooth from the models for reuse in the future [Figure 9].
8. The filling of pontic space in the aligner can be done using the method described by Vaid NR et al<sup>1</sup> using flowable composite [Figures 10 and 11].



**Figure 1:** Pontic made in the 3D printed model using light cure radiopaque composite (blu bite)



**Figure 2:** Acrylic teeth set

### 3. Advantages

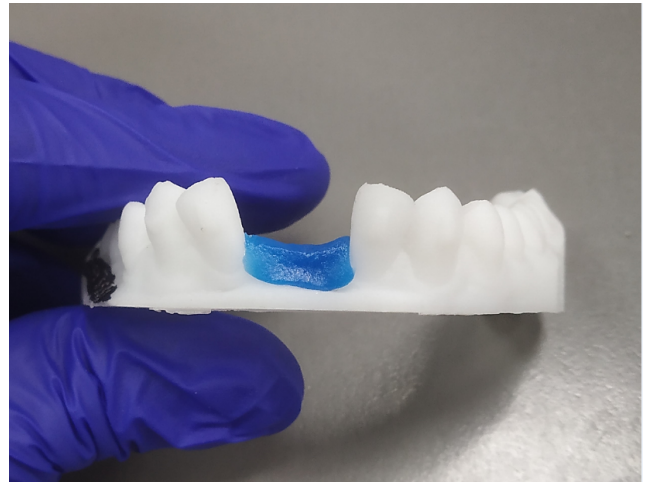
1. The acrylic teeth used in the models for pontic can be reused in other similar cases by removing them after the aligner retrieval process to cut the production cost.
2. The acrylic teeth simulate the undercut and anatomy of natural teeth resulting in the better fitting of aligner and esthetics [Figure 12].

### 4. Conclusion

This technique of making pontic could be cost-effective and time-saving in the large-scale production of clear aligners.



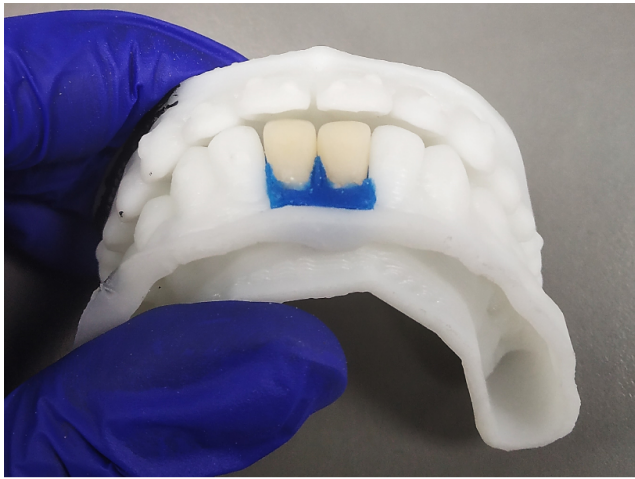
**Figure 3:** Trimming of the acrylic tooth using micromotor and polishing stone bur



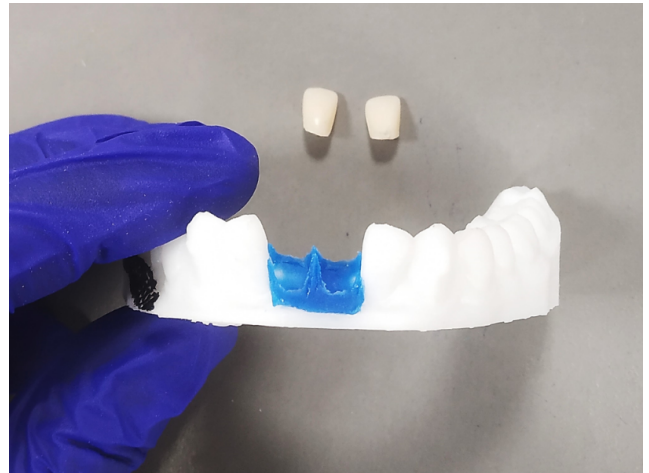
**Figure 4:** Adding a layer composite base manually in the missing teeth space



**Figure 5:** Fixing acrylic teeth in the composite base of missing teeth space



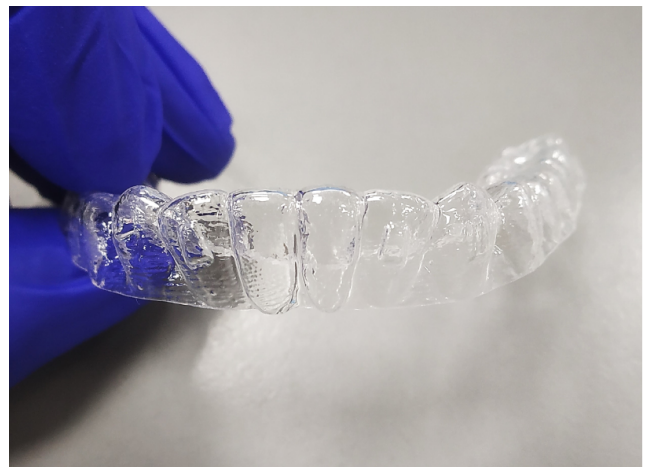
**Figure 6:** Checking the height of acrylic pontic tooth in relation to its adjacent teeth and teeth of opposite arch.



**Figure 9:** Acrylic teeth removed from model for reuse



**Figure 7:** Curing of the composite base



**Figure 10:** Pontic replica recorded in the clear aligner



**Figure 8:** Thermoforming of clear aligner done



**Figure 11:** Pontic space filled with a layer of flowable composite on the labial surface



**Figure 12:** Clear aligner with pontic in patient clinically

### 5. Source of Funding

None.

### 6. Conflict of Interest

None.

### References


1. Vaid NR, Revankar AV, Vandekar M, For CIP, Aligners. *J Ind Orthod Soc.* 2013;47(3):169–170.
2. Weir T. Clear aligners in orthodontic treatment. *Aus Dent J.* 2017;62:58–62.
3. Putrino A, Barbato E, Galluccio G. Clear Aligners: Between Evolution and Efficiency-A Scoping Review. *Int J Environ Res Public Health.* 2021;18(6):2870–2870.
4. Zhang B, Huang X, Huo S, Zhang C, Zhao S, Cen X, et al. Effect of clear aligners on oral health-related quality of life: A systematic review. *Orthod Craniofac Res.* 2020;23(4):363–70.
5. Hennessy J, Ea AA. Clear aligners generations and orthodontic tooth movement. *J Orthod.* 2016;43(1):68–76.

### Author biography

**Pravin Shetty**, HOD

**Rahul Sateejja**, Orthodontist

**Pavankumar Singh**, Orthodontist  <https://orcid.org/0000-0002-2868-8762>

**Chrisil Johnson Kozhikadan**, Dentist  <https://orcid.org/0000-0001-7681-6557>

**Cite this article:** Shetty P, Sateejja R, Singh P, Kozhikadan CJ. An easy technique to fabricate pontic in clear aligners. *IP Indian J Orthod Dentofacial Res* 2023;9(4):300-303.