



Quantifying the difference in soft tissue emergence profile using three different impression techniques for an anterior single-implant restoration

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Introduction

To idealize esthetic outcomes, it is necessary to properly develop implant emergence profile through meticulous soft tissue contouring.¹ It is of particular importance in esthetic areas and can impact restoration success.² Soft tissue can collapse within minutes of removal of a supra-implant component, and it is important to mitigate this consequence when impressing for a final restoration.³ This can be accomplished through a variety of different modalities such as customized healing abutments, provisional restorations, and customized impression copings.⁴ The purpose of this case study was to attempt to quantify the difference in soft tissue emergence in models fabricated using a digital impression, a customized impression coping, and a stock impression coping.

Materials and Methods

The patient presented with a healing abutment on a Straumann implant (SLA Active BL 4.1x12mm) at site #9 and over the course of one month, the soft tissue was contoured with a chairside implant provisional. After it was determined that soft tissue contour was adequate, three impressions were made: (1) heavy and light body PVS with a stock impression coping, (2) heavy and light body PVS with a custom impression coping, (3) digital impression with an Atlantis scan body.

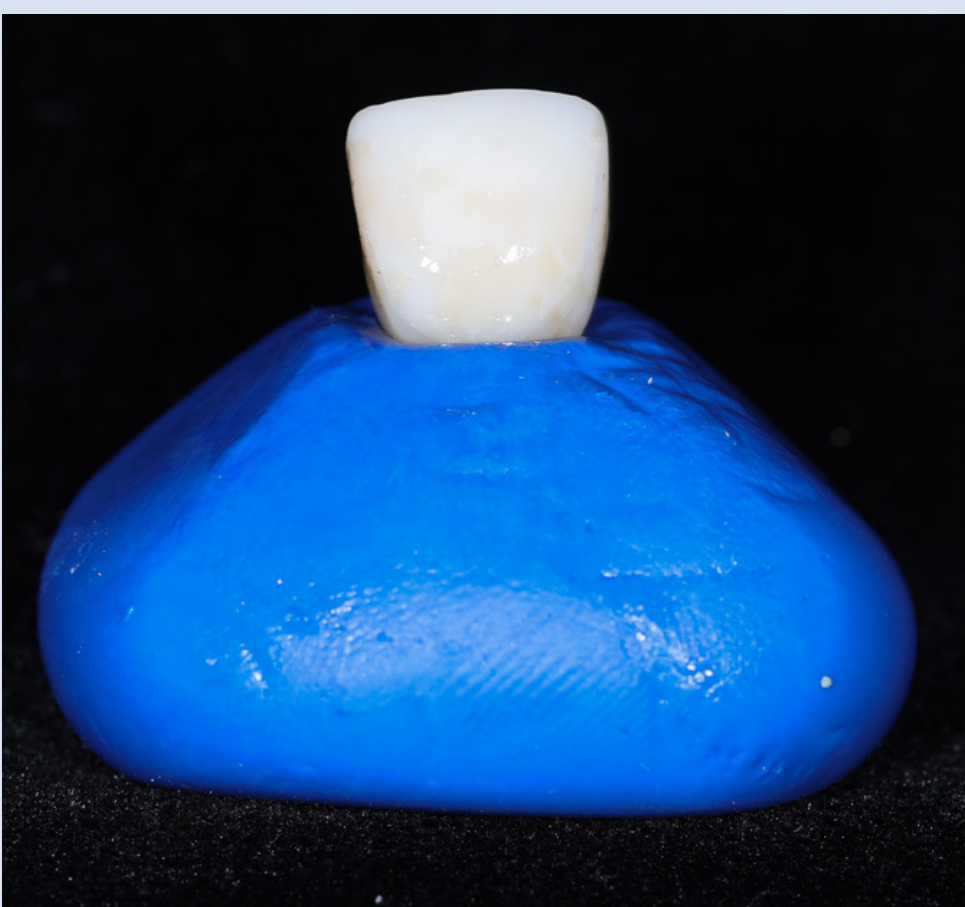
The custom impression coping was made by placing the implant provisional onto an analog and placing in a putty patty. The provisional was then removed and an impression coping was placed into the analog in the putty. Flowable composite was applied around the impression coping to replicate the contours of the provisional.

After the impressions were made, soft tissue mouldage was applied and the physical impressions were poured in a type IV die stone.

The resulting stone models were lab scanned, and the digital files were superimposed to detect differences in soft tissue emergence profile at buccal and palatal points of interest.



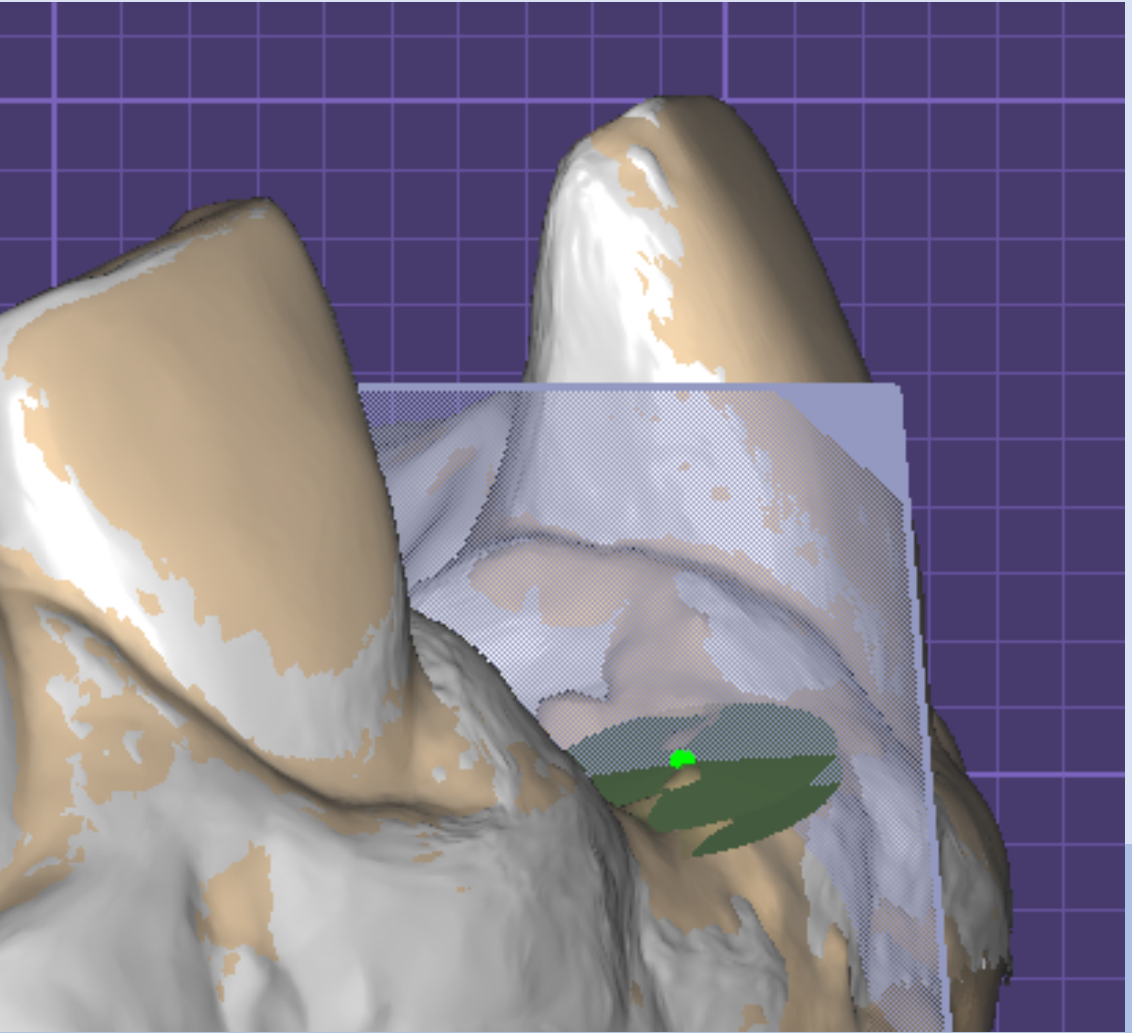
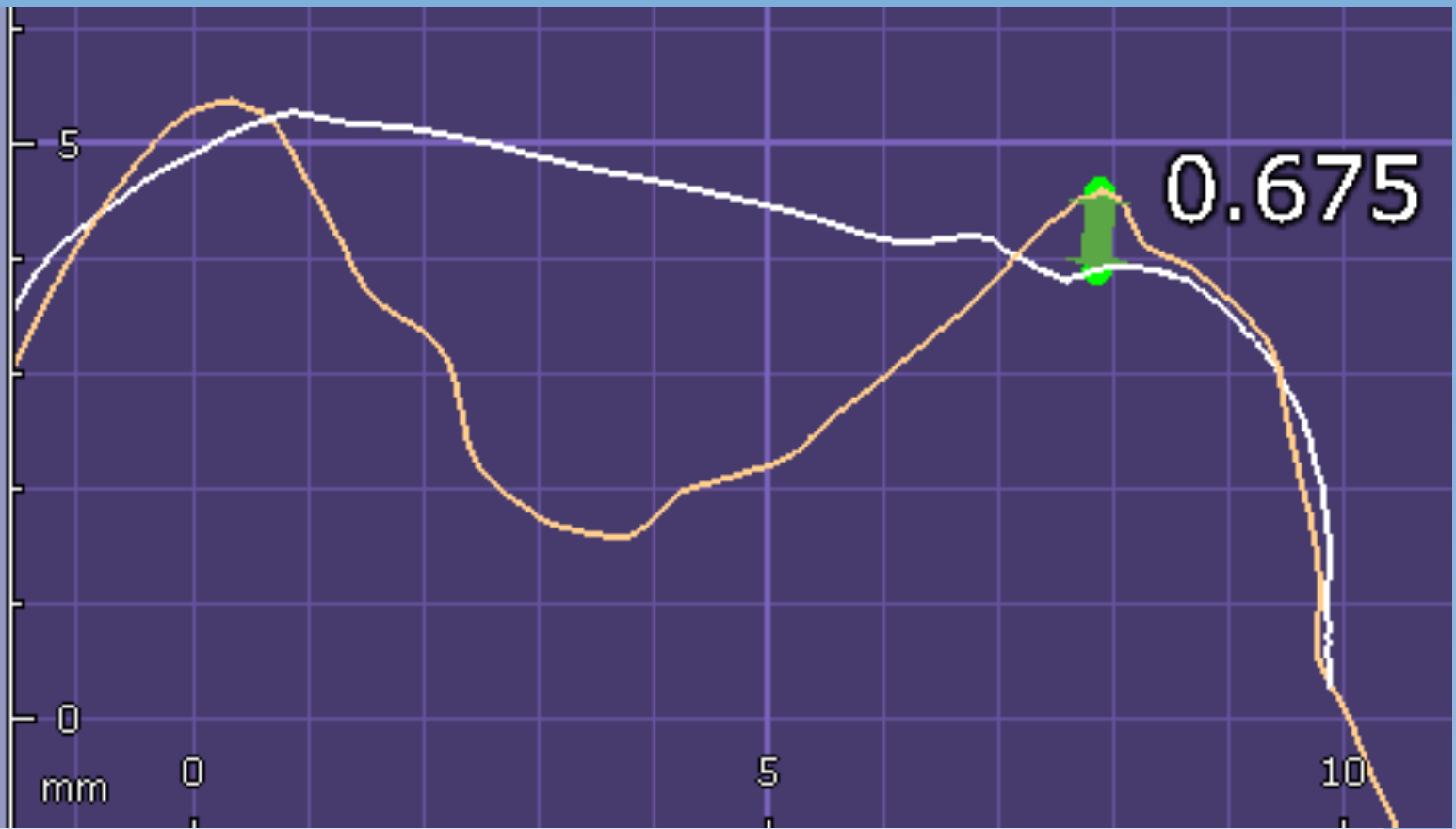
Provisional restoration #9



Provisional restoration in putty for custom coping fabrication

Results

Comparator	Buccal difference (mm)	Palatal difference (mm)
Scan to Custom abutment	0.675	0.418
Stock abutment to Custom abutment	0.144	0.608
Stock abutment to Scan	0.391	0.494



Discussion

Digital superimposition showed an appreciable difference in soft tissue contour between the three samples. A study with an increased sample size may be necessary to extrapolate results to clinical significance.

In a future study, it would be valuable to obtain an impression prior to removal of the healing abutment to more precisely quantify the value of using a custom impression coping. Additionally, fabricating final restorations using these impressions can provide valuable clinical insight, as well.

References

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