A Novel Method for Defining and Transferring to the Laboratory the Esthetic Data of the Edentulous Patient: A Randomized Clinical Trial

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Purpose: This trial aimed to compare a new technique for defining and transferring the esthetic arrangement to the laboratory with the traditional method. ***Materials and Methods:*** One hundred twenty-three consecutive edentulous patients were randomly assigned to a case or control group. The case group received arrangement using adhesive paper teeth. The control group received traditional standard care selection and arrangement of anterior teeth. Measured outcomes were the time needed for arrangement and adjustments, patient satisfaction, and number of adjustments at the trial session. ***Results:*** Satisfaction and number of adjustments needed were not statistically different in the two groups. The time needed for arranging teeth was statistically less in the case group. ***Conclusion:*** The technique reduces the time necessary for the esthetic arrangement while maintaining comparable quality of the trial and definitive denture. *Int J Prosthodont 2013;26:487–489. doi: 10.11607/ijp.3320*

The best arrangement technique for the anterior teeth in an edentulous patient is the traditional one that substitutes portions of the maxillary rim with resin teeth and is done by the clinician during an in-office procedure. The arrangement is checked until a satisfactory result is achieved for both the clinician and patient. The procedure, however, is time consuming.

Other systems have been proposed to decrease the arrangement time but they are not always reliable and may sacrifice personalization or three-dimensional structural modeling.[1–4]

A new method using Adhesive Paper Teeth Major Plus[5] (Major Moncalieri) may respond to these disadvantages. This randomized case-control clinical trial aimed to compare this new technique with the traditional method.

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Materials and Methods

One hundred twenty-three totally edentulous subjects were recruited from patients referred to the Department of Oral and Maxillofacial Rehabilitation, Torino University, for complete denture rehabilitation.

Subjects were randomly assigned to the case or control group using a random number allocation with both the clinician and patient blinded to the assignment. Case and control groups were similar based on age, sex, and previous use of complete dentures. All patients received the same treatment except for the arrangement of anterior teeth. The teeth for both the case and control groups were chosen and arranged following the same theoretical principles.

The case group received arrangement using the Adhesive Paper Teeth (Major Moncalieri). The control group received traditional standard care selection and arrangement of the anterior teeth. Treatment was provided by fifth-year dental students.

In the introduced method, all tooth shapes and sizes are available on adhesive plasticized paper that can be stuck onto the maxillary rim. Height and width correspond to those of the resin teeth (Fig 1). The shapes may be placed either together or singularly (Fig 2) so that personalized arrangements can be achieved. The rim with the paper teeth firmly attached is then transferred to the laboratory.

The laboratory technician marks the limits of the paper teeth on the rim with a spatula so that a silicone

Fig 1 Resin teeth *(top)* and adhesive paper teeth *(bottom).*

Fig 2 The adhesive paper teeth were simply affixed onto the maxillary rim. Application and modification of the arrangement is extremely simple and fast.

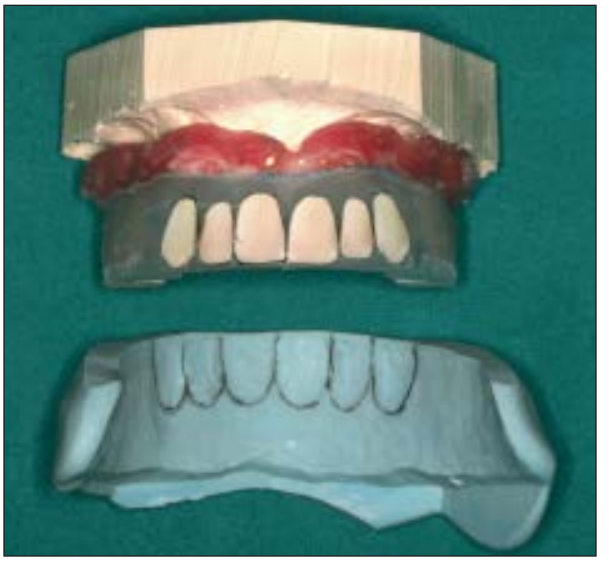

Fig 3 Silicone index made by the technician on the paper teeth arrangement to guide the mounting of the teeth for the wax try-in.

index made on the vestibular side of the rim can record the position of the teeth for guiding the arrangement (Fig 3).

The trial denture is checked clinically, and any necessary adjustments are made. The trial arrangement may also be compared with the paper teeth one, which remains intact after the laboratory procedures. The denture is sent back to the laboratory for processing and then delivered to the patient.

Measured outcomes were the time needed for the clinical procedures, number of adjustments at the trial session, and patient satisfaction after 1 week using a visual analog scale. Comparisons of means of the data obtained were made. All variables were continuous, and means between the case and control groups were compared using the Student *t* test.

Table 1 Time Employed for the Arrangement of Anterior Teeth in the Two Groups

	Satisfaction		Total time (min)		No. of adjustments 12 + 2 remounting
Group	Mean	SD	Mean	SD	
Case (n = 71)	9.72	0.79	28.3	6.8	19.72%
Control (n = 52)	9.68	0.93	125.3	41.2	11.54%
Δ	0.04				
*P**	.72		$< 10^{-7}$		.33

*Statistically significant.

Results

Mean chair time for the arrangement was 28.3 ± 6.8 minutes for the case group and 125.3 ± 41.2 minutes for the control group ($P < .0000001$), comprehensive of time spent for final checkup and necessary adjustments (19.7% of case subjects and 11.5% of control subjects [$P = .33$]). In the case group, the adjustments included two cases (2.8%) for which a remounting was necessary. Patient esthetic satisfaction showed mean values of 9.72/10 in the case group and 9.68/10 in the control group ($P = .72$) (Table 1).

Discussion

The visual/optical effect and patient satisfaction obtained with the adhesive paper teeth was similar to those obtained with real teeth, even without three-dimensional representation, to allow both clinicians and patients to visualize the final result and work on the arrangement until obtaining a satisfactory result with less chair time.

The number of cases without adjustments at the trial session was considered a measure of the precision and reliability of the method. The number of adjustments, including remountings, in the two groups was not statistically different.

Remountings were necessary because of operator mistakes during the fixing procedure of the Adhesive Paper Teeth method. To apply this technique, operators have to follow a strict protocol to ensure that bases with teeth arrive at the dental laboratory undamaged.

Patients were equally satisfied with both the treatment and esthetic results. The time necessary for the arrangement of the anterior teeth, adjustments, and remountings with the Adhesive Paper Teeth method was considerably and significantly reduced ($P < .0000001$).

Conclusion

This randomized trial demonstrates an opportunity for saving time in the anterior teeth arrangement procedure while also maintaining a good quality of care.

Acknowledgments

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