A Novel Approach in Treatment to Patient with Restricted Mouth Opening

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Introduction

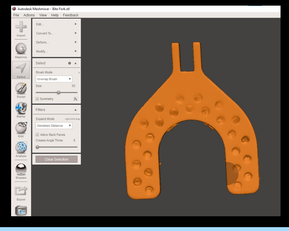
The evolution of digital dentistry, practitioners are now being able to treat patients with alternative methods, tailored to the patients needs. In 2019 Petre stated, "Conventional workflows in prosthetic dentistry are being replaced by digital-assisted technologies which have improved the speed, accuracy, and reliability of the definitive prosthesis." [1] All patients are not created equal, so when unique situations presents itself, utilizing CAD/CAM technology is beneficial.

Case Report

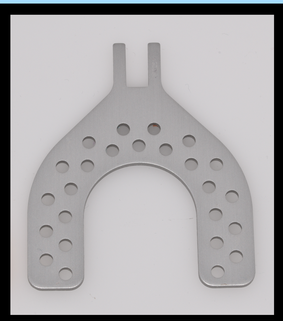
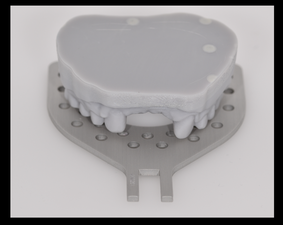
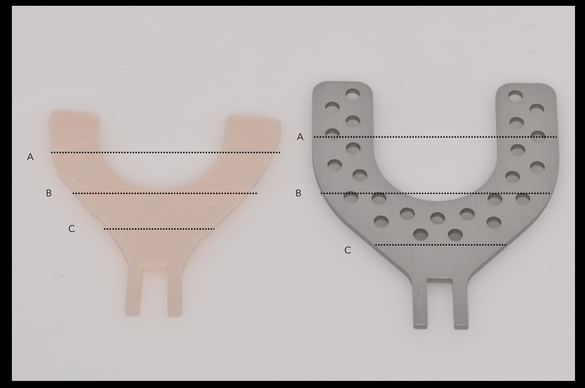
A patient presented to the UNC Graduate Prosthodontics clinic with congenitally missing maxillary lateral and central incisors. The patient had received several surgeries to rehabilitate bilateral cleft lip and palate. Fibrotic scar tissue caused her upper lip to have very little mobility. Patient had restrictive opening. The traditional bite fork was too large to fit in patients oral cavity. A digital approach was taken to fabricate bite fork. Stock facebow bite fork was scanned using 3shape E4 lab scanner. STL file was then taken to meshmixer software, where modifications were made. After sufficient reduction, bite fork was nested and printed using Carbon printer. Bite fork was able to was able to fit in patients mouth to record proper facebow.

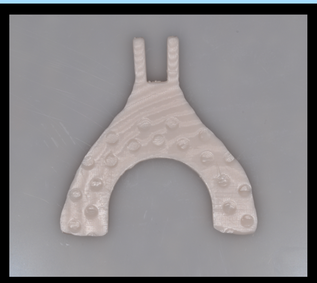
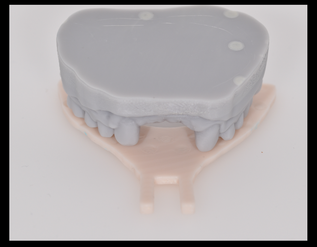
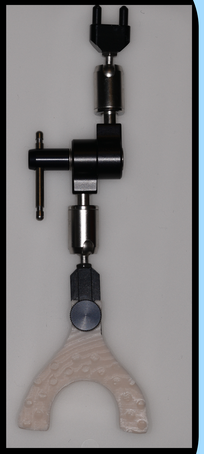
Pre-Op

Fabrication Method



Comparison

Printed Bite Fork
A: 53mm
B: 33mm
C: 17mm

Stock Bite Fork
A: 58mm
B: 44mm
C: 23mm

Courtesy of UNC Grad Prosthodontics: Patient Authorization for the Use, Access and Disclosure of PHI, Photography, Videotaping or Recording of Care

Discussion

Traditionally patients with cleft palate are treated using conventional methods and ready to use stock materials. Our novel approach reiterates the fact that daily used equipments such as a simple bite fork could be a challenge in patients with history of multiple oral surgeries causing scar tissue build up and ultimately limited mouth opening.

This method was both beneficial to the patient, and efficient for diagnostic data gathering. Looking into the future, this method could be utilized for patients with restrictive mouth opening.

When diagnostic data is needed, it is important to use novel approaches to achieve the goal for the treatment procedure selected. In his article describing the importance of facebows, Lazzari said one of the main advantages of facebows are, "It aids in securing the anteroposterior cast position with relation to the condyles of the mandible." [2] In this case we achieved our goal of fitting a bite fork intrao-orally to be able to accurately record the patients maxillary plane.

References

[1] Alexandru Petre, Sergiu Drafta, Cosmin Stefanescu, Luminita Oancea, Virtual facebow technique using standardized background images, The Journal of Prosthetic Dentistry, Volume 121, Issue 5, 2019, Pages 724-728.

2 Lazzari, J. B. (1955). Application of the hanau model "C" face-bow. *The Journal of Prosthetic Dentistry*, *5*(5), 626–628. https://doi.org/10.1016/0022-3913(55)90088-3