A CASE REPORT OF EXTREME MAKE OVER - CONVERSION CROWN

Sadasiva Kadandale, [1] *Padmini Govindasamy,* [2] *Krishnaraj Rajaram,* [3] *Mahendirakumar Nagarajan* [4]

1 *Professor, Department of Conservative Dentistry & Endodontics, Chettinad Dental College & Research Institute, Kelambakkam, Tamilnadu*
2 *Professor, Department of Conservative Dentistry & Endodontics, Madha Dental College & Hospital, Chennai, Tamilnadu*
3 *Professor, Department of Orthodontics & Dentofacial Orthopedics, SRM Dental College & Hospital, Chennai, Tamilnadu*
4 *Senior Lecturer, Department of Prosthodontics, Crown & Bridge and Implantology, Raja Muthiah Dental College & Hospital, Chidambaram, Tamilnadu*

Abstract

Beautifully aligned front teeth are an asset to any body's smile and confidence and any trauma to it is a nightmare and an unpleasant experience. This case report discusses a case of lost anterior teeth due to trauma and preexisting cross bite which adds complexity to the problem. Patient needed orthodontic correction and prosthodontic rehabilitation of anterior teeth. Time and cost factor seems to be hindrance to regular treatment planning and patient refused to undergo orthodontic correction which will take minimum of one year. Preoperative impressions were taken and mock wax up was done to make it to normal alignment and shape and treatment was done. Some deviation from regular treatment planning and patients demands requires exhaustive workups and treatment planning which leads to clinical success.

Key words: Alignment of teeth, Conversion crowns, Cross bite, Extreme make over.

Introduction

Beautiful smile and properly aligned anterior teeth is asset to anybody's confidence level and happiness. Trauma to anterior teeth which is very common in children and adolescents creating traumatic dental injury (TDI).[1] Evidence suggests that there is also an impact of treatment of dental trauma on the quality of life (QoL) of the individual.[2] Recent studies of adolescents have indicated that treatment of permanent incisors with enamel-dentin fractures does not eliminate the impact of trauma on daily life.[3] Anterior teeth malocclusion (AMT) also adds up to the esthetic problems and functional problems to the patient.[4] This paper discusses about a case of traumatic dental injury and tooth loss and preexisting malocclusion.

Case report

A 25 year old male presented with complaints of bleeding gums and ill fitting fixed partial denture in anterior teeth. Patient gives a history of TDI and followed by avulsion of tooth no 11, 12 and has a treatment history of fixed partial denture 6 years ago. Patient was not satisfied with present fixed partial denture (FPD) and added to it was bleeding gums and discoloration of FPD. Clinical examination revealed FPD in relation to 13 and 21 , missing 11, 12 and OPG revealed missing 11, 12 and secondary caries in 13, 21 and clinically FPD facing was with acrylic and was worn out and bleeding on probing and metal was seen in palatal side creating grayish discoloration and on palatal side a wrap around design for 13 was present which was caries prone. (Figure 1 a,b & c)

On removal of the FPD by cutting with trihawk bur, it revealed the presence of cross bite in 13, 21. (Figure 2a & b)

Patient was explained about cross bite and prosthodontic problems and the patient was not willing for prolonged regular orthodontic treatment and requested for new FPD. Considering the cross bite and caries prone areas and gingival health and emergence profile of the new FPD, the following treatment was planned and executed with patient consent.

1) Root canal treatment for 13,21
2) Crown lengthening for 13, crown preparation of 13, 21 (Figure 3 a & b)
3) Mock wax up trial and metal try in was done and metal ceramic bridge trial was given (Figure 3 c & d)
4) The finished FPD was cemented with type 1 GIC. The new FPD was giving full coverage restorations and margins were kept in self cleansable areas and the emergence profile was normal and the gingival health was restored. (Figure 4 a & b)

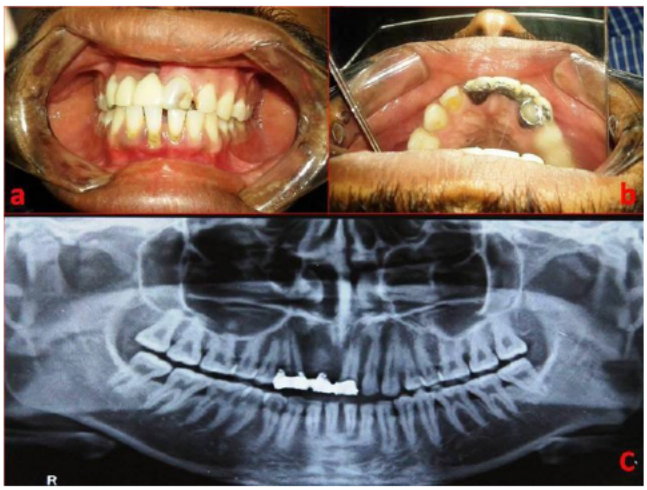

Figure 1 (a) Faulty bridge shows greyish discoloration in anterior region; (b) Occlusal view of the bridge, showing wrap around design on the canine; (c) Orthopantomogram (OPG) view showing faulty bridge and secondary caries.

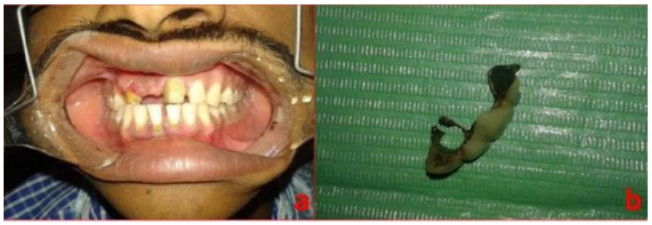

Figure 2 (a) Occlusion after removal of the bridge clearly shows cross bite; (b) Prosthesis after removal

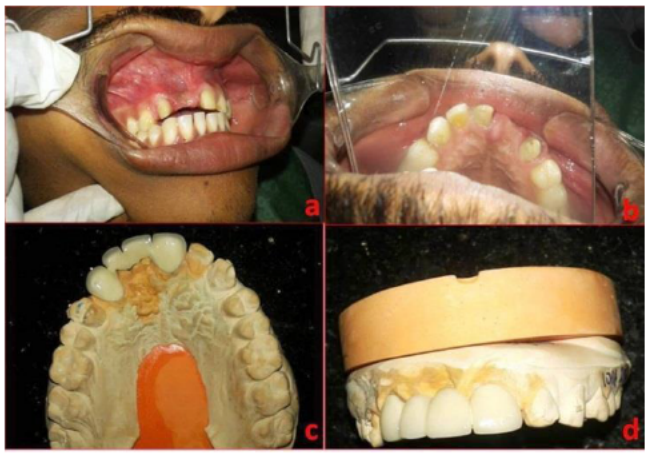

Figure 3 (a) Crown preparations in 21&13 after crown lengthening in 23, facial view; (b) Occlusal view; (c) Permanent bridge facial view; (d) Occlusal view

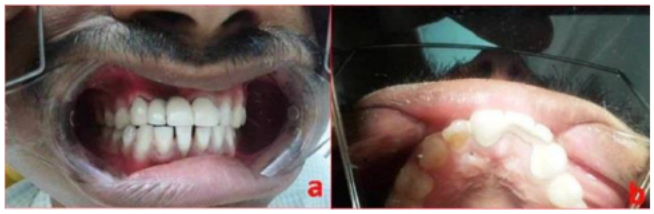

Figure 4 (a) Cemented prosthesis – Facial view; (b) Occlusal view

Discussion

Any dental treatment involving anterior teeth should bring back confidence and quality of life (QOL) and treatment involving TDI are multifactorial, such as number of tooth lost, already existing malocclusion (AMT) and treatment period and the costs involved and the psychological problems pertaining to the loss of anterior teeth especially in adolescents.[5,6] In our case treatment planning was supposed to be challenging and technically required careful treatment planning. once the FPD was removed then only it revealed cross bite and the reason for making wrap around design for 13 by the previous dentist was under stood and the drawbacks of the older design of FPD was carious prone and was esthetically not pleasing because of metal exposure and grayish discoloration. Patient was explained regarding treatment plan of correcting orthodontically the cross bite and giving regular FPD but the patient was not willing for the same for time and cost factor. Extracting 13 & 21 was not considered because of increase in long span bridge and patient willingness.

Root canal treatment was done in 13, 21 and it aided in crown preparation of palatally placed 13 and 21 and crown lengthening was performed in 13 for increased retention for FPD.[7–9]

Wax up was done for FPD creating illusions and extreme make over to compensate for labial fullness for 13 & 21 and mock wax pattern used to demonstrate the esthetic finish to get golden proportion.[10–12]

The perception of alignment and symmetry are important while making of extreme makeover/conversion crowns and preoperative photographs and study models are extremely useful in analyzing the smile design and in producing illusions and emergence profile. The gingival architecture has to be given due importance and the design of FPD should be complimentary to gingival health.[13–15]

Extreme make over or conversion crowns may be extremely useful in the management of malocclusion, supernumerary teeth where patient don't want extraction, peg laterals, tooth to jaw size discrepancy i.e. Large jaw and small teeth in cases where crestal bone is deficient in anterior and not optimal for implant placements.

Conclusion

The concept of conversion crown/ Extreme make over is beneficial in clinically challenging cases where patients with TDI, AMT and patients not willing to undergo prolonged orthodontic treatment for correction. Even in patients where crestal bone is deficient and implant placement seems impossible and preexisting AMT this concept works well. Proper understanding of the clinical situation and patient needs should result in acceptable clinical results and success.

References

1. Aldrigui JM, Abanto J, Carvalho TS, Mendes FM, Wanderley MT, Bonecker MT et al. Impact of traumatic dental injuries and malocclusions on quality of life of young children. Health Qual Life Outcomes 2011;9:78.
2. Filstrup SL, Briskie D, da Fonseca M, Lawrence L, Wandera A, Inglehart MR. Early childhood caries and quality of life: child and parent perspectives. Pediatr Dent 2003;25(5):431-440.
3. Oliveira LB, Marcenes W, Ardenghi TM, Sheiham A, Bönecker M. Traumatic dental injuries and associated factors among Brazilian preschool children. Dent Traumatol 2007;23(2):76-81.
4. Govindarajan M, Reddy VN, Ramalingam K, Durai KS, Rao PA, Prabhu A. Prevalence of traumatic dental injuries to anterior teeth among three to thirteen year old school children of Tamilnadu. Contemp Clin Dent 2012;3(2):164-167.
5. Jabarifar SE, Golkari A, Ijadi MH, Jafarzadeh M, Khadem P. Validation of a Farsi version of the Early Childhood Oral Health Impact Scale (F-ECOHIS). BMC Oral Health 2010;10:4.
6. Granville-Garcia AF, de Menezes VA, de Lira PI. Dental trauma and associated factors in Brazilian preschoolers. Dent Traumatol 2006;22(6):318-322.
7. Brägger U, Lauchenauer D, Lang NP. Surgical crown lengthening of the clinical crown. J Clin Periodontol 1992;19(1):58–63.
8. Padbury A Jr, Eber R, Wang HL. Interactions between the gingiva and the margin of restorations. J Clin Periodontol 2003;30(5):379–385.

9. Galen WW, Mueller KI. Restoration of the Endodontically Treated Tooth. In Cohen, S. Burns, RC, Pathways of the Pulp, 8th Edition. St. Louis: Mosby, Inc. 2002. pp784.
10. Chiche GJ, Pinault A. Smile Rejuvenation A methodic approach. Pract Periodontics Aesthet 2010;13:225–232.
11. Bhuvaneswaran M. Principles of smile design. J Conserv Dent 2010;13(4):225-232
12. Murthy BVS, Ramani N. Evaluation of natural smile: Golden proportion, RED or Golden percentage. J Conserv Dent 2008;11(1):16–21.
13. Lombardi RE. The principles of visual perception and their clinical application in dental esthetics. J Prosthet Dent 1973;29(4):358-382.
14. Vig RG, Brundo GC. The kinetics of anterior tooth display. J Prosthet Dent 1978;39(5):502-504.
15. Preston JD. The golden proportion revisited. J Esthet Dent 1993;5(6):247-251.

Corresponding Author

Dr. Sadasiva K
Professor
Department of Conservative Dentistry & Endodontics
Chettinad Dental College & Research Institute,
Chettinad Health City, Kelambakkam,
Kanchipuram District, Tamilnadu, INDIA
Email: - drsadasiva@yahoo.co.in