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A Case Report on Orthodontic Management of an Adolescent Cleft Patient

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Abstract: *One of the most common congenital defect involving the face and jaws is cleft lip and palate. Treatment of cleft lip and palate is always by team approach and orthodontist plays an important role in it. Hence this case report discusses the details regarding orthodontic management of cleft lip and palate in a 15 year old adolescent female patient who presented with a class I molar and canine relationship on right side and end on left side, maxillary and mandibular anterior crowding, increased overbite, over retained maxillary deciduous left lateral incisor and a supernumerary tooth, missing maxillary left lateral incisor and a severely rotated maxillary left central incisor. The patient was treated with a Preadjusted edgewise appliance with non extraction line of treatment . The canine and molar relationship, the arch alignment, overbite was corrected and also the missing maxillary left lateral incisor was replaced with a clear plastic appliance which acted as a retainer and a provisional bridge. The total treatment time was only ten months. The orthodontic and restorative procedures as well as the clear plastic appliance has resulted with a significant improvement in esthetics and self confidence of the patient.*

Keywords - *Cleft lip and palate, Box Loop, Clear Plastic Appliance*

I. Introduction

Cleft lip and palate occur approximately every 1 in 1000 live births in India[1]. The incidence varies in different races and prevalence of cleft types also vary by gender. Treatment of any craniofacial anamolies is by team approach consisting of various specialists. Patients with cleft lip and palate routinely recquire extensive and prolonged orthodontic treatment [2].Timing and sequencing of orthodontic care may be divided into four distinct developmental periods : 1) Neonatal/Infant maxillary orthopedics, 2) Orthodontic considerations in the primary dentition, 3) Mixed dentition to include presurgical consideration before an alveolar bone graft is placed, and 4) Final treatment in permanent dentition with orthodontics only or combined with orthognathic surgery. The ultimate outcome for team based care is to have a fully rehabilitated patient who is satisfied with the treatment outcome in terms of speech, occlusion, function and facial and dental esthetics. cleft lip and palate patients are also self conscious about his / her body image, facial appearance. Any facial scars already detract from the cosmetic appearance, and derogatory comments by peers have a profound psychological effect [3].

II. Case Report

15 year old adolescent female patient with complaints of irregularly placed teeth in upper front tooth region presented with a history of surgical repair of unilateral cleft lip at an early age of 10 months [4]. She had a straight profile, very faint scar on the upper lip and a mesofacial facial pattern. (Fig.1) Intraorally maxillary and mandibular anterior crowding, scar of the unilateral cleft palate and alveolus on the left side along with over retained maxillary deciduous left lateral incisor and a supernumerary tooth, missing maxillary left lateral incisor and a severely rotated maxillary left central incisor was present.She had class I molar and canine relationship on right side and end on left side with overjet of 4 mm and overbite of 5mm, there was also spacing of 12.5mm distal to maxillary left central incisor.(Fig.2) Ortho-pantomogram and cephalometric analysis confirmed the clinical diagnosis.(Fig.3)

III. Treatment Progress

After the initial prophylaxis and extraction of over retained maxillary deciduous left lateral incisor and a supernumerary tooth, patient was treated with a 0.022″ x 0.028″ preadjusted edgewise appliance of MBT Prescription with non extraction line of treatment. Initial leveling and alignment was done by using a Box loop

to derotate the severely rotated maxillary left central incisor (anchorage was prepared in the form of Modified TPA with Nance button) and 1mm of proximal stripping was done irt lower anteriors for correction of minor crowding followed by placement of 0.016″ NITI wires, 0.019″x 0.025″ rectangular NITI wires and then with 0.019″x 0.025″ Stainless steel wires was placed in both upper and lower arches. (Fig.4) The canine and molar relationship on left side was corrected by giving class II elastics and overbite was also corrected. (Fig.5,6,7) Finally the missing maxillary left lateral incisor was replaced with a clear plastic appliance which acted as a retainer and a provisional bridge, since the patient is only 15 years old and a permanent bridge cannot be placed until age of 17 to 18 years. clear plastic appliance for retention and tooth movement have gained appeal with public and clinicians because they are removable device that snaps over the teeth and for all practical purposes is not noticeable. These appliances are also inexpensive, is fabricated quicker, has minimal bulk, and has high strength [5]. (Fig.8)

IV. Results & Conclusion

The total Orthodontic treatment time was only ten months and all the objectives of treatment was achieved. The dental arches were well aligned, class I molar and canine relation with normal overjet and overbite. The maxillary left central incisor was aesthetically built up to match its counterpart. A clear plastic appliance was given which acted as a retainer and a provisional bridge. (Fig.9) Patient was highly satisfied with clear plastic appliance which has resulted with a significant improvement in esthetics and self confidence of the patient.(Fig.10)

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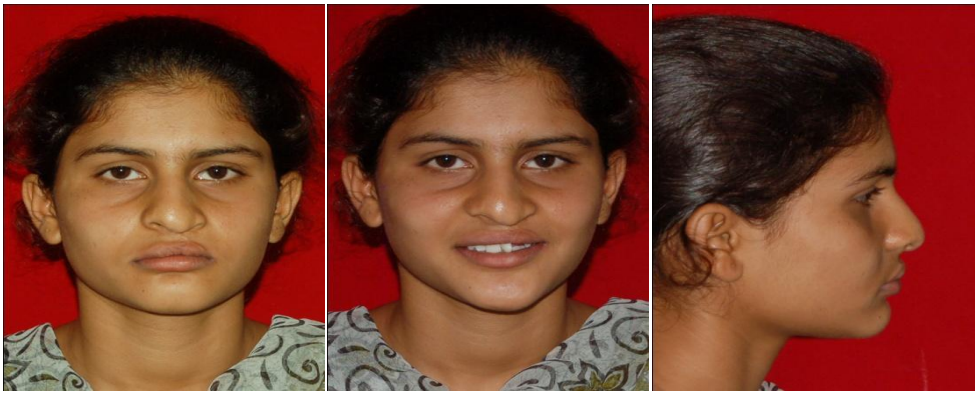


Fig 1: Pre Treatment Extraoral Photographs

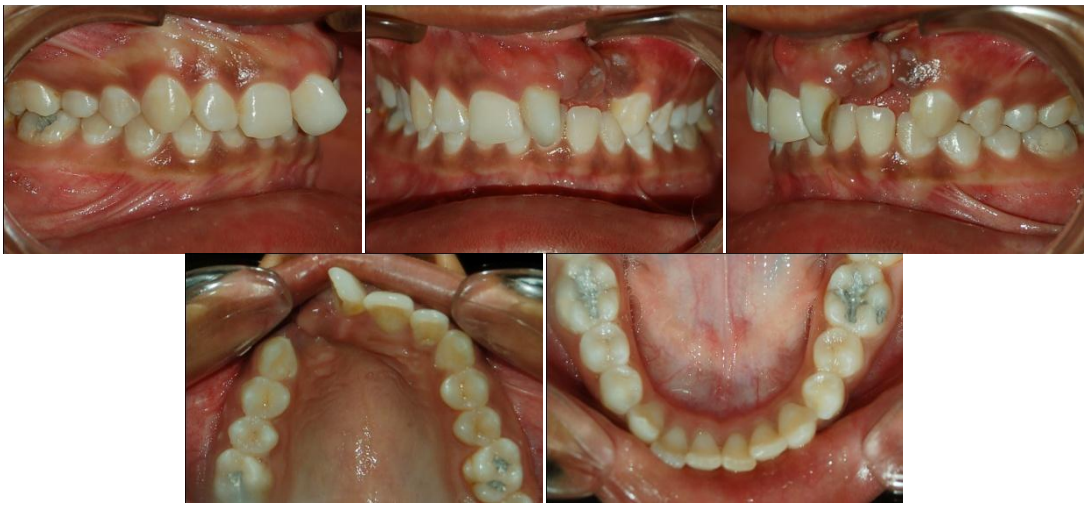


Fig 2: Pre Treatment Intraoral Photographs

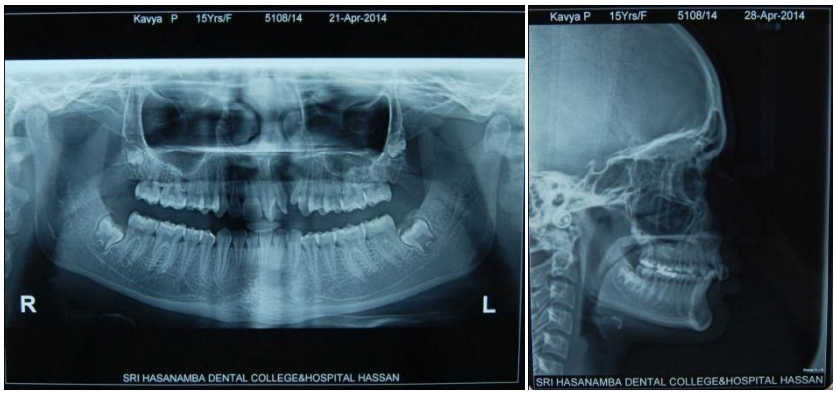


Fig 3: Pre Treatment Radiographs

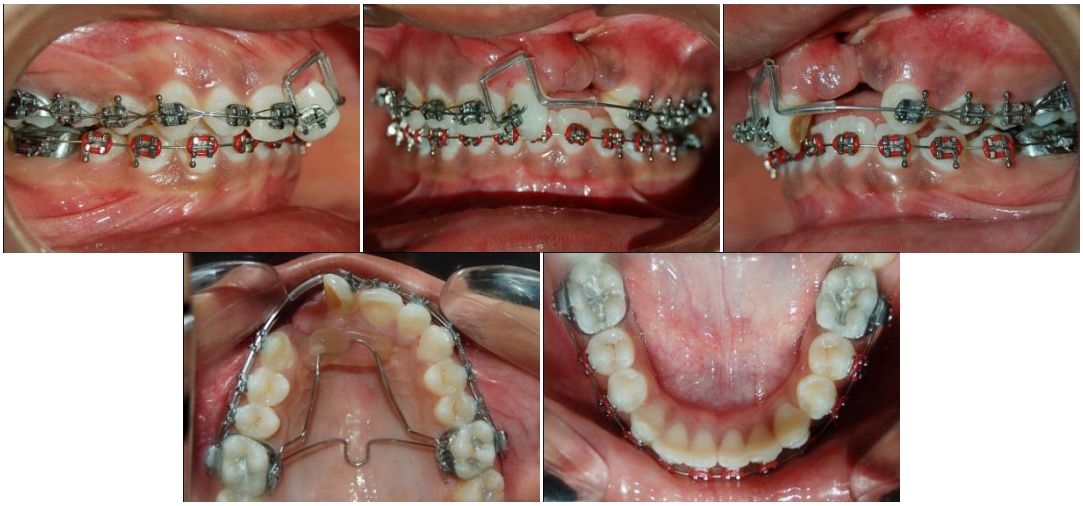
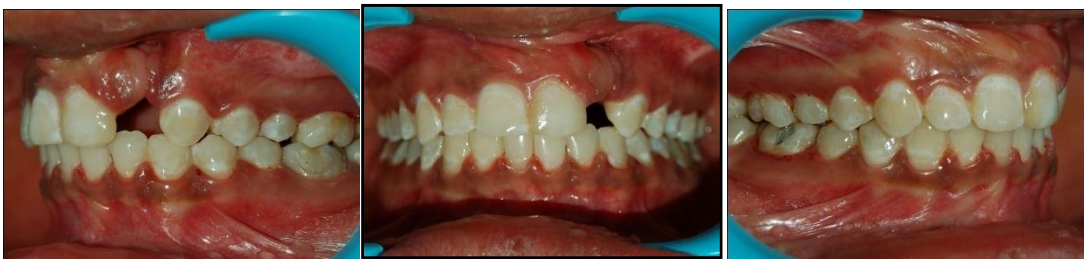


Fig 4: Box Loop Intraoral Photographs

Fig 5: Post Treatment Extraoral Photographs



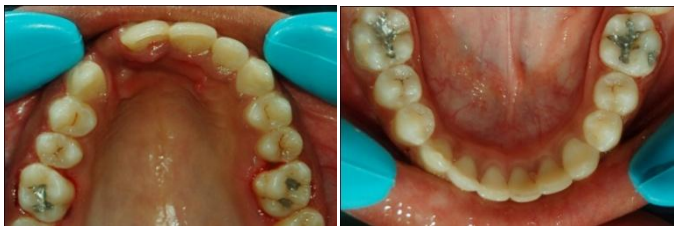


Fig 6: Post Treatment Intraoral Photographs

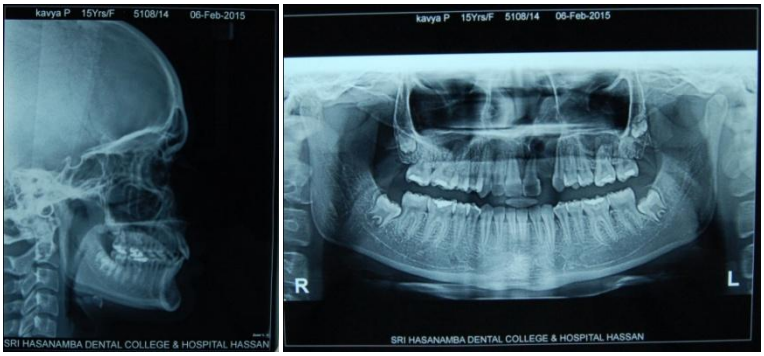


Fig 7: Post Treatment Radiographs

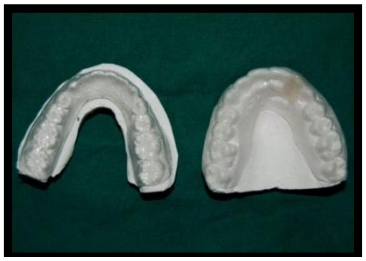


Fig 8: Clear Plastic Appliance

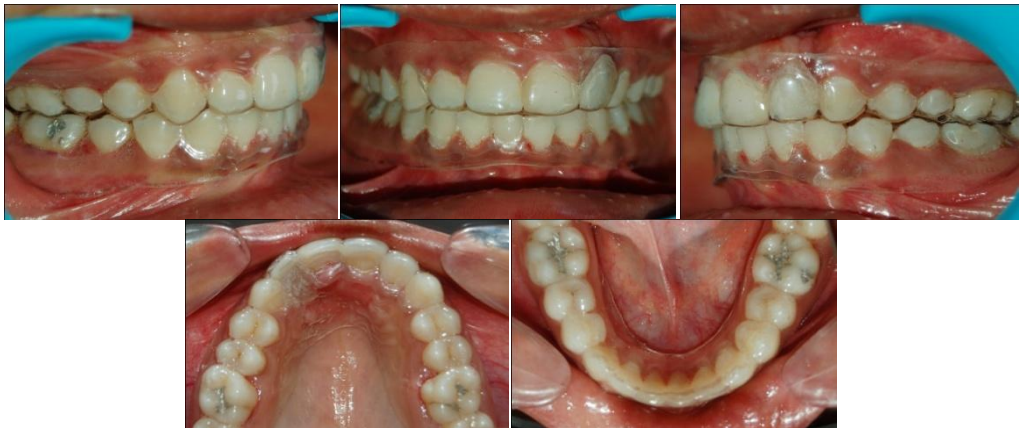


Fig 9: Post Treatment Intraoral Photographs with Clear Plastic Appliance

Fig 10: Comparision of Pre and Post Treatment Extraoral Smile Photographs.