

MANAGEMENT OF BILATERALLY MISSING MAXILLARY LATERAL INCISORS WITH STRATERGIC IMPLANTS - A CASE REPORT

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ABSTRACT

Bilaterally missing permanent laterals is a phenomenon which causes much distress to the patient due to aesthetic issues and also discomfort while speaking. Though several treatment modalities have been developed to treat the edentulous areas, implants and in particular strategic implants have been found to be better option due to its immediate functional loading quality and avoidance of periimplantitis, because of smooth surface crestal microthreads which does not allow bacterial invasion. This article out line a case report of a young male patient with bilaterally missing laterals and subsequent treatment with strategic implants with three year follow up.

Key words: Bilaterally Missing permanent lateral incisors, strategic implants

INTRODUCTION

Congenital bilaterally missing maxillary laterals occurs in almost 2% of the population in the world in the permanent dentition phase¹. Except for the third molars, agenesis of the maxillary lateral incisor has been the most frequent kind among different populations. Dental agenesis in the maxillary anterior region compromises smile balance and symmetry and compromises the self-confidence of the patient in social situations where they have to smile or speak publicly².

Treatment modalities for bilaterally missing lateral incisors is dependent on the space that is present between the canines and the central incisors. If there is insufficient space (less than 4mm) then the canines are orthodontically moved into the space of the lateral and the premolar to space of the canine and the canine is crowned to look like an incisor.

If there is sufficient space, a removable partial denture may be provided in the traditional fashion to replace the laterals, but this option is un-acceptable to most patients as the denture can turn loose within a short span of time in addition to causing hindrances in mastication and phonation. Maintenance of the removable denture also turns out to pose problems along with issues of food entrapment around the denture leading to further dental issues. The fixed replacement options are bridgework and the implant supported crowns. The bridgework needs to be fabricated over the canine and the central incisor as abutments and the lateral incisor as the pontic. This involves unnecessary reduction of the adjacent teeth which may require root canals later on.

The best option available today is to replace the missing teeth with the help of dental implants. Through this option, the patient is able to procure a solution closest to natural teeth and today with keyhole implant surgery approaches, this option turns out to be the least invasive option available. Conventional two-piece implants have been used to replace missing laterals. However, the open surgical approach and the need for bone augmentation

to compensate for the labial defects which are very often found in cases of congenitally missing laterals, pose additional surgical steps. The delayed loading protocols followed with conventional two piece implants and the predisposition to peri implantitis due to the rough surface design adds to the complexity in offering solutions⁵.

In recent times, with the introduction of minimally invasive designs offered in strategic implantology, we are able to provide the patient with immediate load implant supported prostheses which can be placed employing key-hole surgical methods without the need for bone augmentation procedures. Strategic implantology is immediate functional loading implantology based on the principles of orthopedic traumatology³. A unique feature of Strategic Implants is that no bone augmentation procedures are required⁵. This is because the system has a wide variety of designs which can be used depending on the quality, width and height of bone available.

The KOC Implant design available in Strategic Implantology is of compressive screw design and is a rough surface implant with the revolutionary “no-it is” surface which reduces the possibilities for peri-implantitis to develop⁴. It's unique compression screw design helps in expanding bone even in thin ridge situations thereby helping avoid bone augmentation procedures⁶.

CASE REPORT

A patient reported to our center with a complaint of missing upper lateral incisors, and an unsightly smile. The patient was wearing a hawley's appliance with two acrylic lateral teeth attached to the plate. Clinical examination was done and patient was sent for radiographic diagnosis. Third molars of all the quadrants had been already extracted. Different treatment modalities to replace the missing teeth was discussed with the patient. The patient chose to go for dental implants as it would give a long lasting fixed teeth solution without compromising the health of the adjacent teeth as against bridges.



Fig 1: Extraoral view



Fig 3: Intraoral view



Fig 2: Intraoral view



Fig 4. Hawley's appliance with acrylic teeth

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A CBCT of the maxilla was done to assess the bone height and width in both areas.



Fig 5: Pre-Op OPG

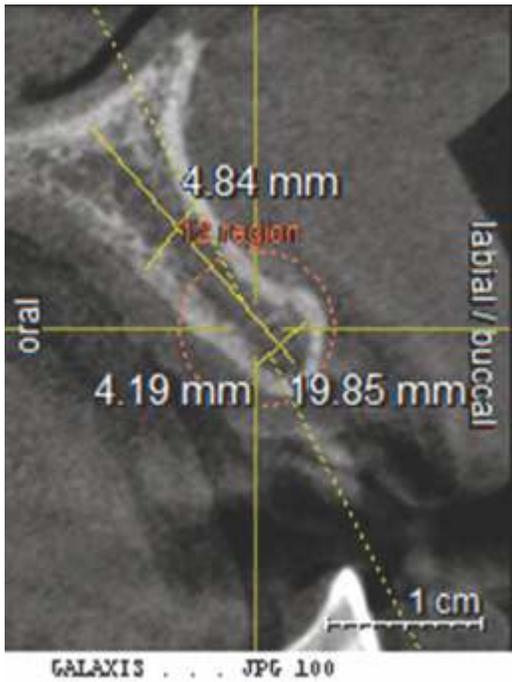


Fig 6 : CBCT [Rt]

In the right lateral incisor:

Mesiodistal width from the distal aspect of 11 to mesial aspect of 13 = 4.64 mm

Total length from alveolar crest to nasal floor = 19.85 mm

Palatal – labial width at alveolar crest = 4.19 mm

Palatal – labial width at alveolar base = 4.84 mm

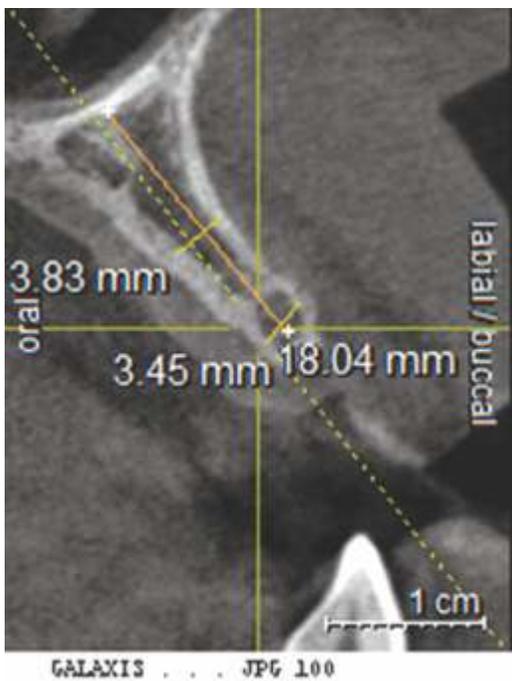


Fig 7: CBCT [Lt]

In the left lateral incisor:

Mesiodistal width from the mesial aspect of 23 to distal aspect of 21 = 5.05 mm

Total length from alveolar crest to nasal floor = 18.04 mm

Palatal – labial width at alveolar crest = 3.45 mm

Palatal – labial width at alveolar base = 3.83 mm

It was decided to use the KOC implant in both left and right laterals to facilitate their replacement. The patient was given local anesthesia in both the planned areas of implant placement. A flap was opened on the right side due to very deficient bone width to properly ascertain the purchase point as the bone thickness was less. Initial osteotomy was done with the BCD 1 pilot drill followed by the DOS 1 drill up to half the length of the proposed implant size. Two KOC 3.7mm X 15 mm implants were placed.



ig 8 : Intra op KOC implant[Rt]



Fig 9: Intra op KOC implant[Lt]



Fig 10: After placement of temporary



Fig 11: Three days after healing of implants

An immediate Post Op CBCT was taken to assess the position of the implant in the coronal and sagittal sections which confirmed optimal positioning of the implant both mesio-distally and bucco-lingually. NSAIDs were given to control post op edema and pain. Impression was taken and temporary acrylic crowns were cemented by the second day of implant surgery. The patient returned after three years to replace the acrylic crowns. Clinical examination of the patient revealed that the excellent peri-implant gingival profile.

A CBCT was done to assess the status of the peri implant bone at the crestal levels. The bone levels were found to be excellent without any drop in bone height. After minimal preparation and adjustment of the abutment of the single piece KOC implant, Zirconia Crowns were fabricated and cemented over the implants with GIC luting cement.

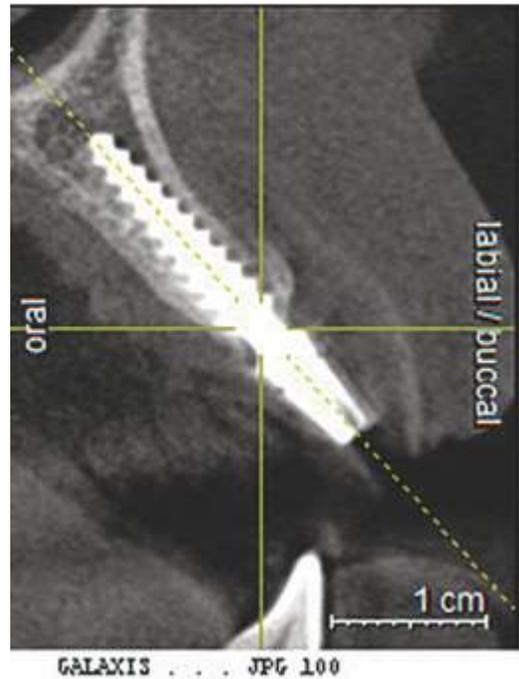


Fig 13: Post op CBCT [Rt]



Fig 12: Post op OPG

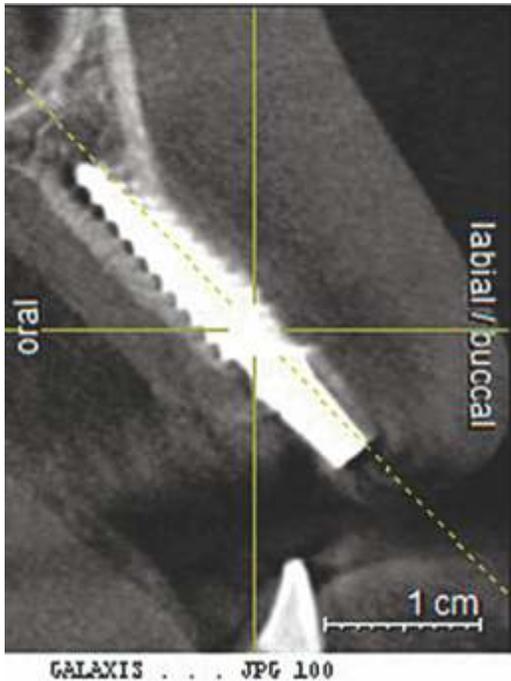


Fig 14 : Post op CBCT [Lt]



Fig 15: Zirconia crown labial view



Fig 16 : Zirconia crown palatal view

CONCLUSION

Immediate functional loading of implants is not only the requirement of the patient and the doctor but also facilitates more favorable bone response than delayed loading. KOC implants with its special compression screw design is one of the most ideal implants which will help the dental practitioner to provide an excellent immediate load solution for such patients. KOC implants placed following all prescribed protocols, have very high success rate

Table Taken from “Immediate functional loading: Results for the concept of the strategic Implant“

Table 15: Implants survival rate (for each implant type) for placement in fresh extraction sockets or healed bone

Type of implants	Placed into fresh extraction sockets yes/no	Radiological follow-up	Clinical inspection as follow- up	Patient report as follow- up
BECES	493/526 (48.4%/51.6%)	94.7%/93.0%	94.9%/93.0%	96.3%/95.6%
Significance (P)		0.761	0.745	0.867
KOS	29/114 (20.3%/79.7%)	100%/98.0%	100%/98.1%	100%/98.1%
Significance (P)		0.479	0.479	0.483
KOS+	2/4 (33.3%/66.7%)	0%/75.0%	0%/75.0%	0%/75.0%
Significance (P)		0.062	0.062	0.062

*Statistically significant. *Log rank. Survival rates for Implants BCS/BECS, KOS and KOS Plus. The survival of BOI implants is 100%

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