



Full mouth rehabilitation with cortical implants: an alternative treatment

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ABSTRACT: Implant placement in atrophied edentulous jaws is a very challenging procedure. Even though, surgical procedures like bone augmentation, sinus lift and nerve repositioning can be carried out, these procedures increase the overall treatment cost and risks which are always bound to it. Cortical implants have been developed to engage the basal/cortical bone and can be loaded immediately. The main principle of cortical implants is to utilizing the basal bone, which is less prone to infection and shows very minimal resorption. In conventional implant system, implants are loaded after 4-6 months; however cortical implants can be loaded immediately. This report shows a case of full mouth rehabilitation using multiple single piece cortical implants.

KEYWORDS: cortical implant, full mouth rehabilitation, atrophied ridges, syncrystallization.

I. INTRODUCTION

Bone grafts, sinus lift, nerve repositioning procedures are often used in cases of unfavorable anatomical conditions but despite their success rates, disadvantages like recipient and donor site morbidities are seen.¹ Most of the patients in the developing countries cannot afford all these surgical procedures so an alternative treatment is

needed for such patients. Cortical implantology or basal Implantology is a modern implant system which is uniquely designed to gain anchorage from the basal cortical bone.² Basal bone are heavily corticated and the load bearing capacity is very high when compared to crestal spongy bone, thus basal bone is subject to less resorption and infection.³

Basal bones are very strong and are considered as stress bearing areas of jaws, so when cortical implants are placed it can be immediately loaded.⁴ Rehabilitation of atrophied jaw bones is usually a very challenging procedure, and these cortical implants are designed in such a way to be used in atrophied jaw bones.⁵

II. CASE REPORT

A healthy 54 year old female patient presented with a chief complaint of unstable complete denture prosthesis. On intra oral examination thickness of maxillary and mandibular edentulous ridges was measured using a thickness gauge which was found to be inadequate for conventional implants. Patient was advised cbct and the bone thickness was found to be appropriate for placement of cortical implants. (Fig 1)

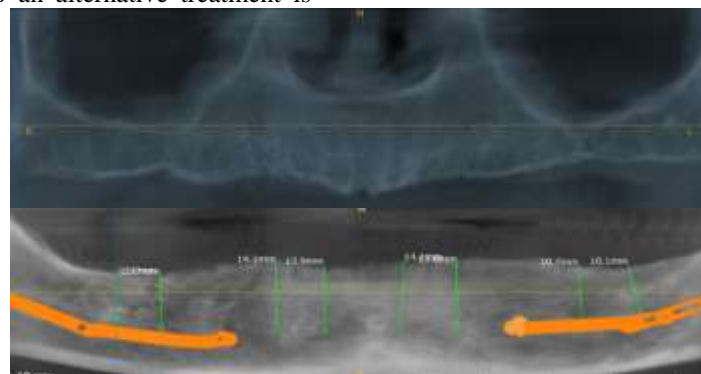


Figure 1- cone beam computed radiography

Placement of Cortical implants in maxillary and mandibular arches.(Fig 2)



Figure 2 – implant placement



Figure 3- syncrystallization

Immediate stabilization of cortical implants using syncrystallization was achieved (Fig 3) .A panoramic radiograph showing location of cortical implants (Fig 4). A light body putty

impression was made after adequately blocking out the undercut areas (under the syncrystallised wire). Patient was put on analgesics and antibiotics course.



Figure 4- Post op OPG

Patient was recalled the next day and jaw relation was recorded. During try in appointment lip fullness, smile and centric occlusion were evaluated. Once the Patient was satisfied with the trial denture, it was sent for final processing (Fig 5).

After two days patient was recalled for insertion of final prosthesis (Fig6). Final prosthesis was cemented using resin cement after correcting mild occlusal discrepancies. Patient was advised to maintain oral hygiene and was called for regular follow up.



Figure 5- Try-in



Figure 6 – Final prosthesis



III. DISCUSSION

Cortical implants were utilized in this case as sufficient amount of bone width was not available for conventional implants and patient was not very keen for multiple surgical procedures; and also she had financial issues.⁶ Surgical trauma can be reduced by insertion of cortical implant without raising a flap and with minimal soft tissue inflammation under the welded bar.⁷

During insertion of cortical implants different cortical bones are utilized to engage the implants and are non parallel, which are splinted using a metal bar and immediately loaded for function.⁸ Eight implants were placed flaplessly in the maxillary jaw engaging the basal bone, out of this 6 implants were placed engaging the nasal floor and 2 implants engaging the tuberopterygoid region, which provides more stability. 8 implants are placed in the Mandibular arches. Out of this 4 were placed in the anterior and 4 implants in the posterior region.⁹

Additionally basal implants have smooth surface with aggressive threads providing primary stability, immediate placement and immediate loading.¹⁰ Only drawback is its non retrievability like other purely cement retained prosthesis.

IV. CONCLUSION

Cortical implant has its own advantages of flapless, fast and cost effective procedure. It is a minimally invasive treatment, without a need of bone grafting and other surgical procedures. It satisfies patient expectations such as immediate placement, immediate loading and esthetic concerns. There is no evidence of peri-implantitis because of smooth surface of cortical implants. Thus cortical implants meet all expectations and demands of patient.

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