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CASE SERIES

## PLACEMENT OF IMPLANT THROUGH IMPACTED TEETH – DISCUSSION AND DESCRIPTIVE CASE SERIES

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### ABSTRACT

Implant placement in a region with impacted tooth is a therapeutic challenge for the dentist for both old and adult patients; especially, when patient needs surgical/restorative treatments along with esthetic concerns. In this case report implants were placed through horizontal maxillary impacted tooth, restored immediately by fixed partial prosthesis in adult patient. It may offer a possible therapeutic option for implant-supported restorations in patients, for whom surgery and orthodontic traction are not possible or patients who refuse to undergo more invasive extraction surgery. Although definitive planning and cautions are recommended as transcanine implant placement may involve long-term risk.

### KEYWORDS:

Transcanine implant placement, Implant placement through impacted teeth

## INTRODUCTION

Dental implant supported rehabilitation has become a widely accepted method for replacement of missing teeth. Three dimensionally sufficient volume of bone is required but becomes challenging if any impacted tooth causes obstruction in trajectory of implant placement. It has been stated that the implant surface should come in contact with the bone.<sup>1</sup>

But sometimes it becomes invasive to remove the tooth followed by delayed implant placement which might cause large residual bone as well as soft tissue defects.<sup>2</sup> Age plays a critical role in management of impacted canines with orthodontic treatment. This affects the treatment planning subsequently.

Although transcanine implant placement is an unconventional approach but less chances of collapse of cortical table and more chances of healing and patient acceptance. At the same time preservation of coronal part of alveolar crest, especially the labial bone plate prevents gingival recession.<sup>3,4</sup>

For this technique, impacted tooth has to be free from any pathology and asymptomatic. In this case, patient consent had been taken after explaining the benefits like avoidance of aggressive or invasive surgery; reduced financial cost; and increased speed of the final rehabilitation along with risks of postoperative pain due to pulpal tissue damage, followed by removal of the implant and the canine; bone grafting. The aim of this article is to report the non invasive unconventional protocols for missing tooth space with impacted canine.

## PROCEDURE

In present case series three patients treated with six implants between 36yrs to 54 yrs by

this unconventional treatment way i.e. through an impacted canine in maxilla. The orthodontic traction of tooth was not intended due to patient age, density of bone and position of tooth. (fig1- 3) After considering all conservative parameters, transcanine placement of implant was planned with informed consent of patient. Penetration of implant was in radicular portion of tooth in one tooth i.e. 23, through pulp chamber in four teeth and through the crown in one tooth i.e. 22. Under radiographical evaluation, implants were placed after raising a full mucoperiosteal flap to get access to alveolar ridge. Conventional drilling sequence was used as per manufacturer instructions for implants (Bioner, Rodriguez San Pedro, Spain). The implants were seated with no more than a 40–50 Ncm insertion torque (fig 4-7). Implants were immediately loaded (fig 8,9). Special care was taken to have the contour of restoration with optimal support and regeneration of peri - implant soft tissues. Post operative evaluation was done with CBCT. Placement of the dental implants through impacted canines and the creation of interfaces other than implant-bone interfaces did not lead to postoperative pain or implant failure.

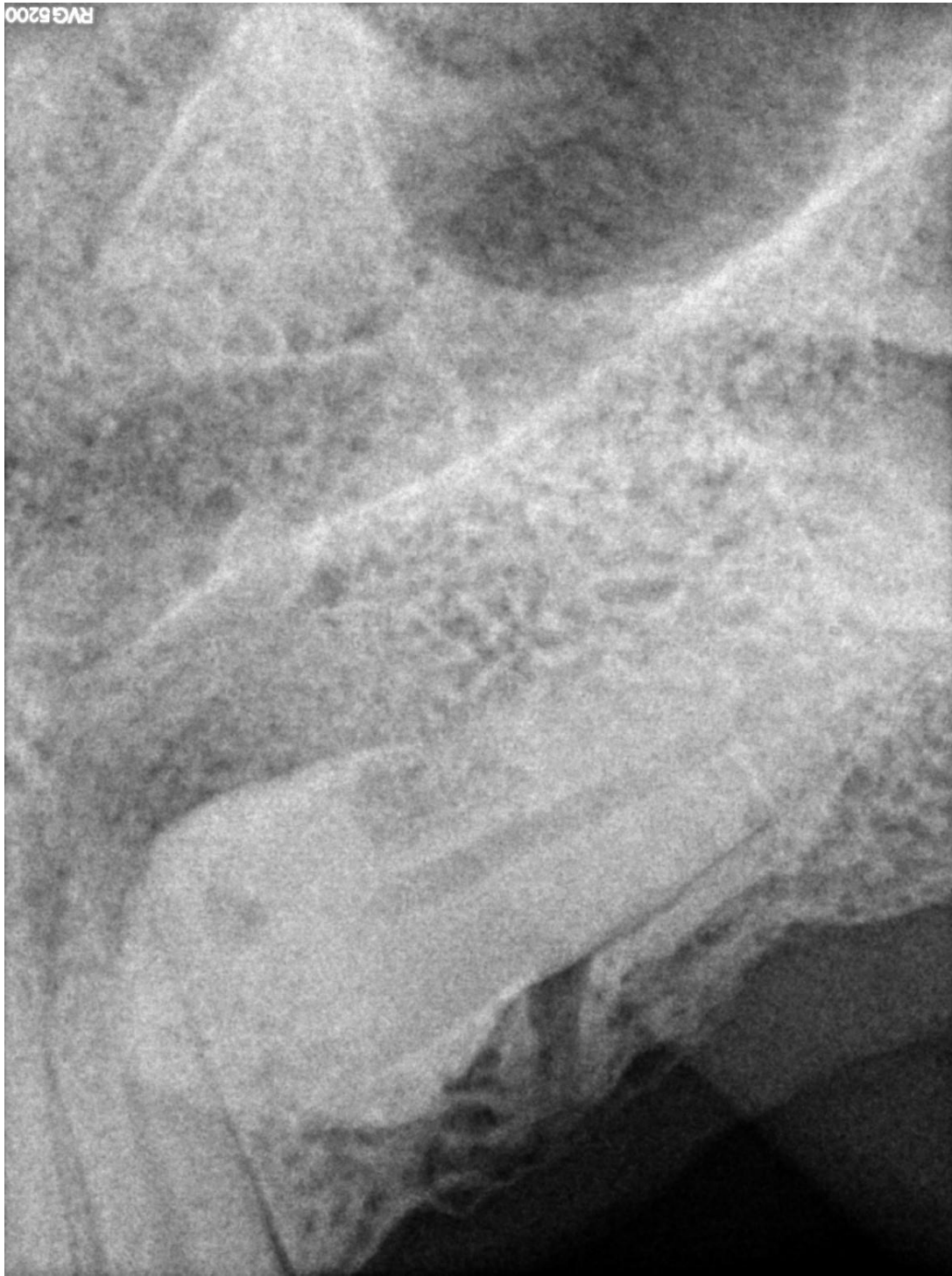


Figure 1 – preoperative radiographic images with horizontally placed impacted canine

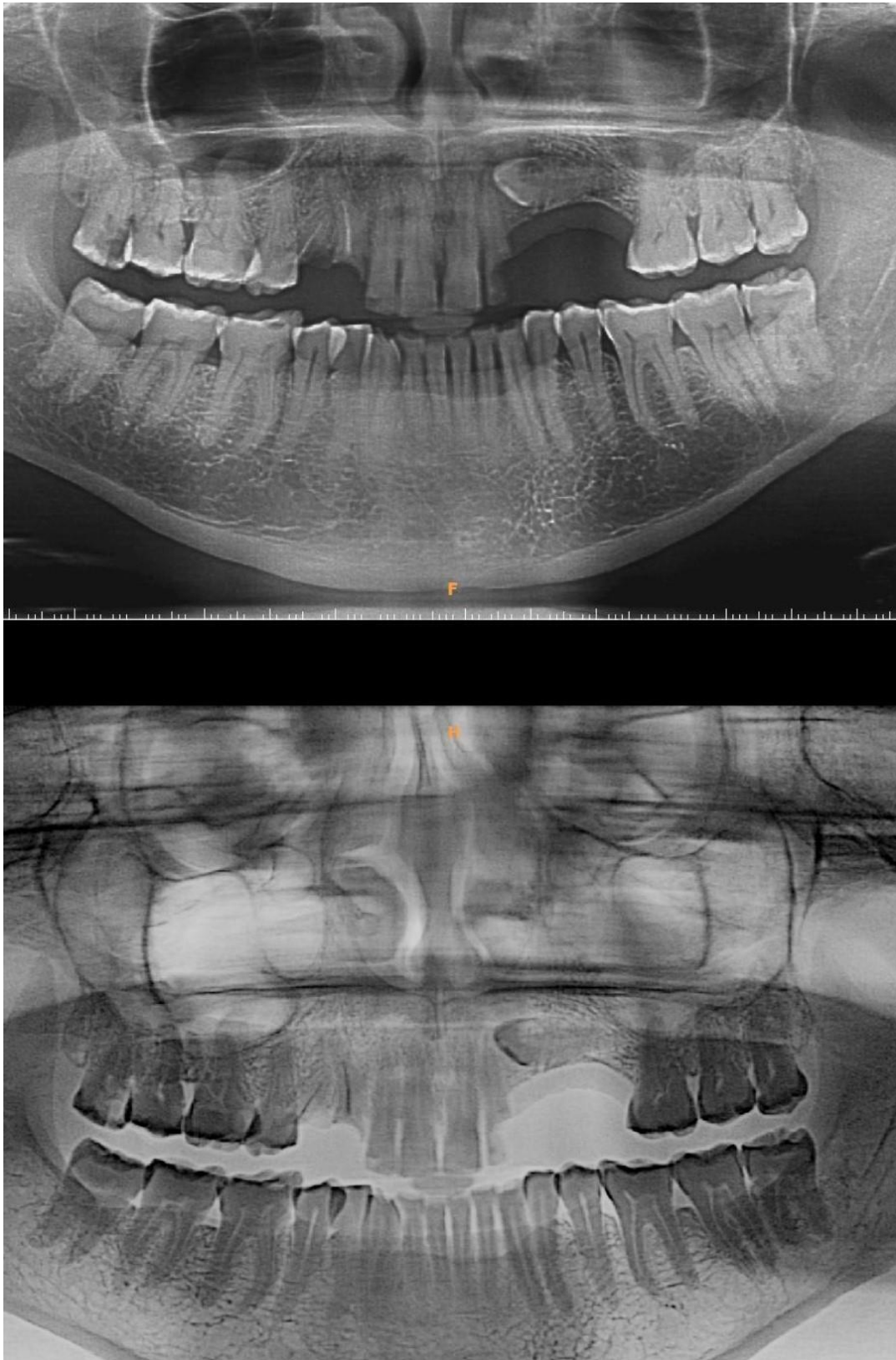


Figure 2 – preoperative OPG

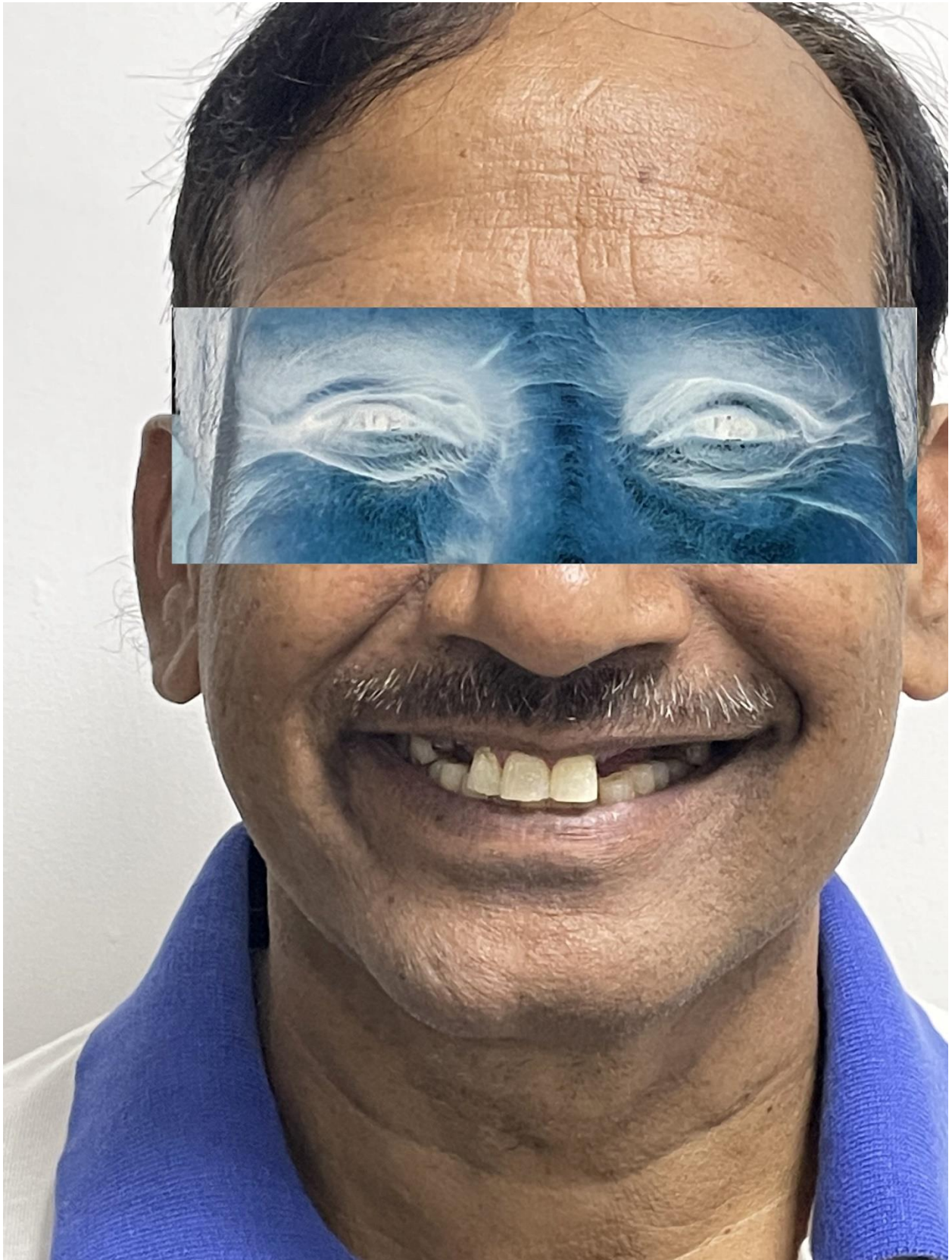


Figure 3 – preoperative clinical image with adequate width of bone and soft tissues

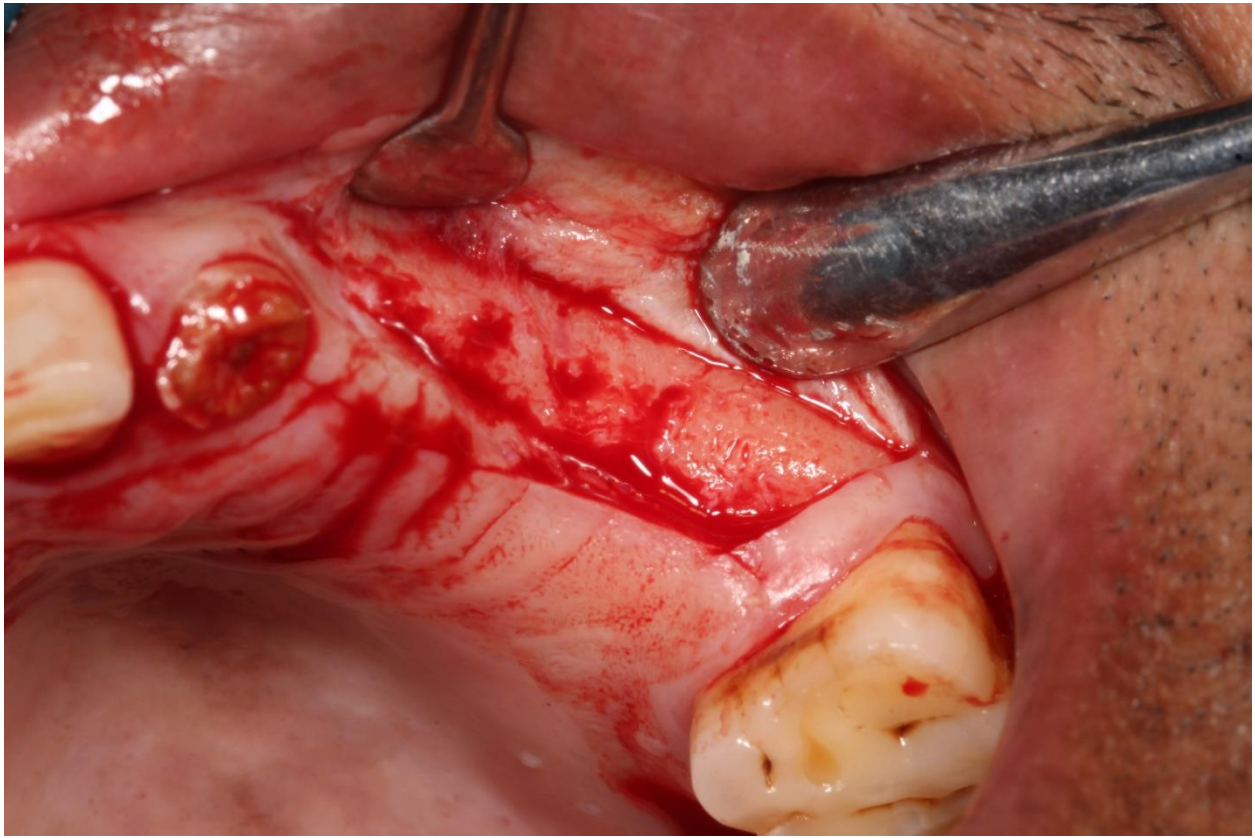


Figure 4 – incision and raised full mucoperiosteal flap

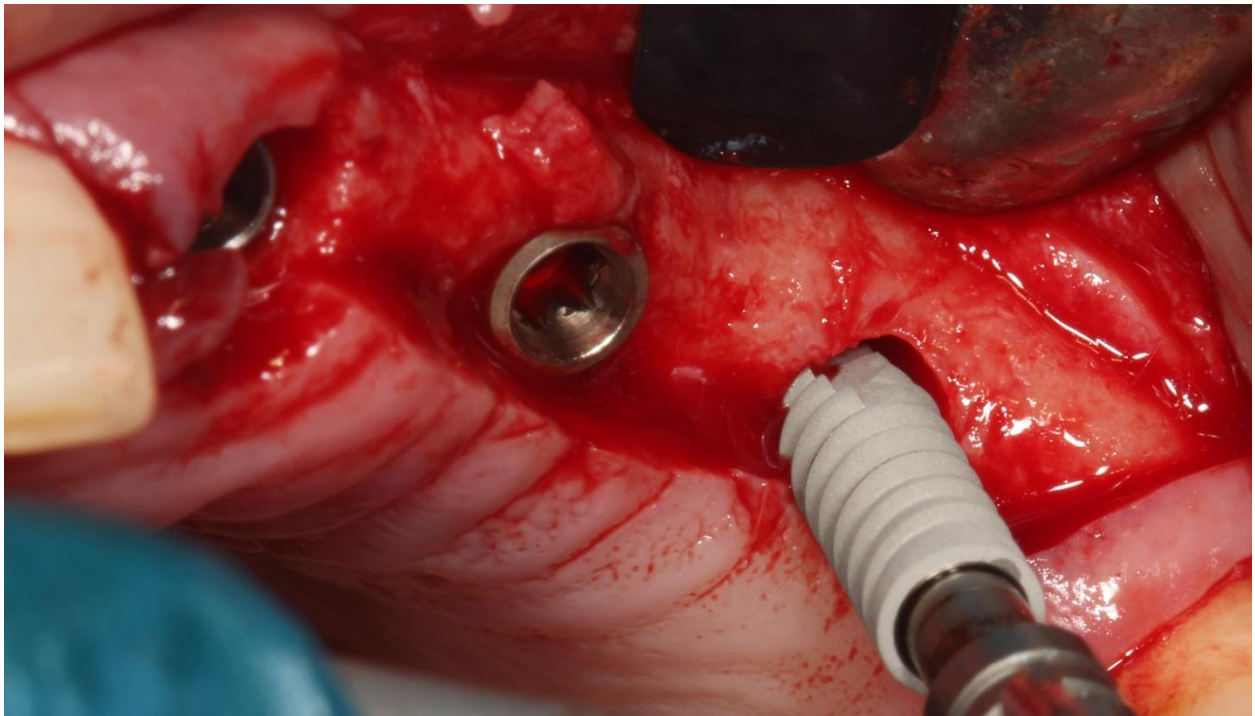


Figure 5 – implant placement, drill through the bone and the impacted tooth.

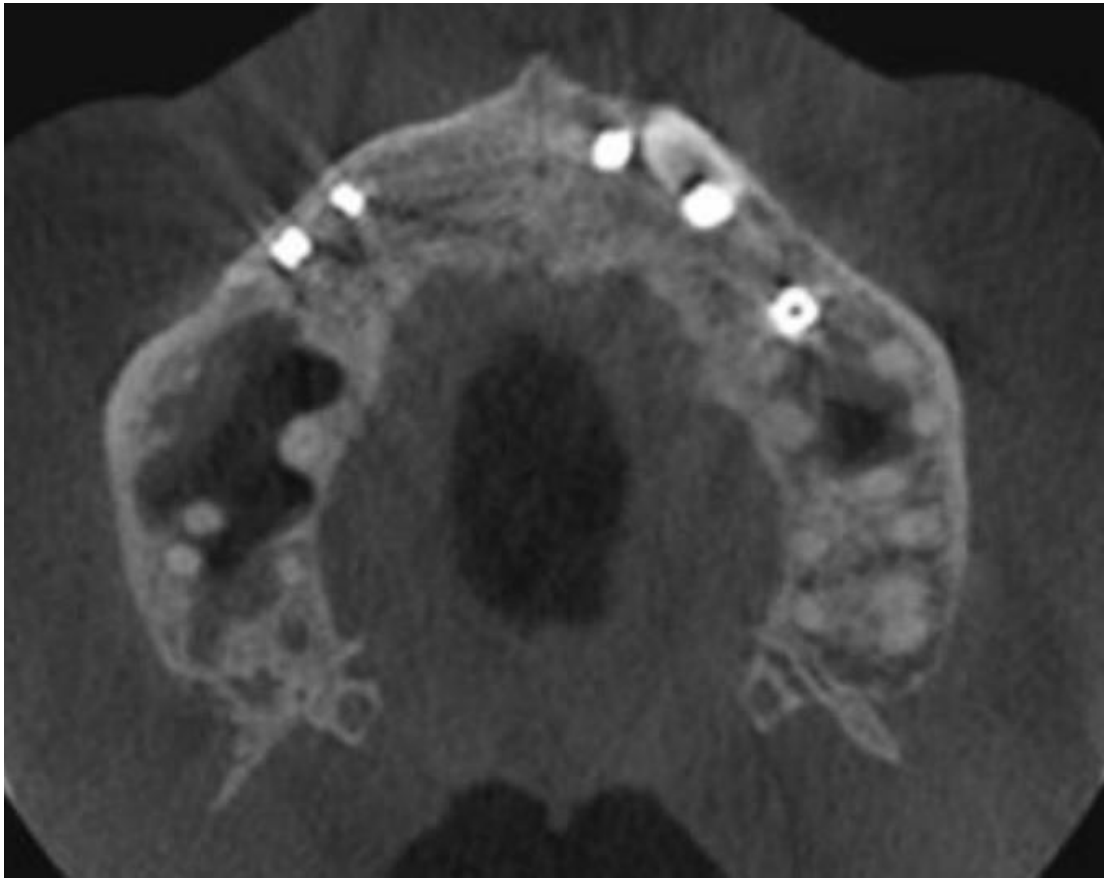


Figure 6 – postoperative CBCT image after implant placement

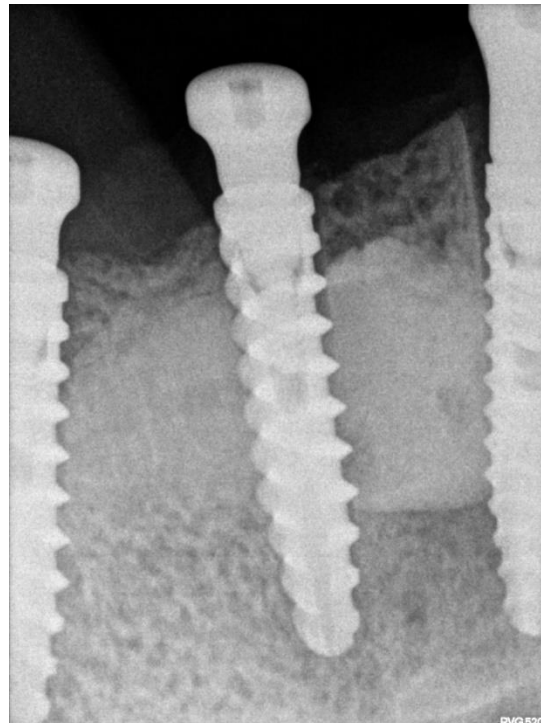


Figure 7 – postoperative implant placement IOPA

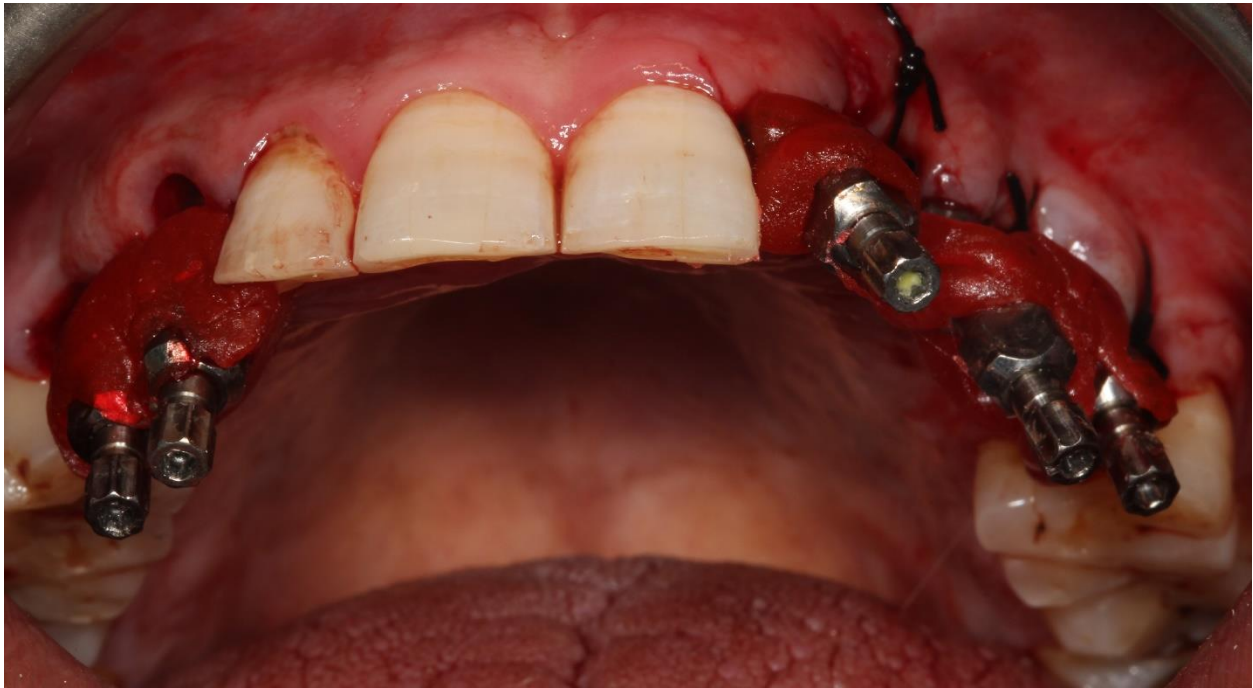


Figure 8 – jig trial

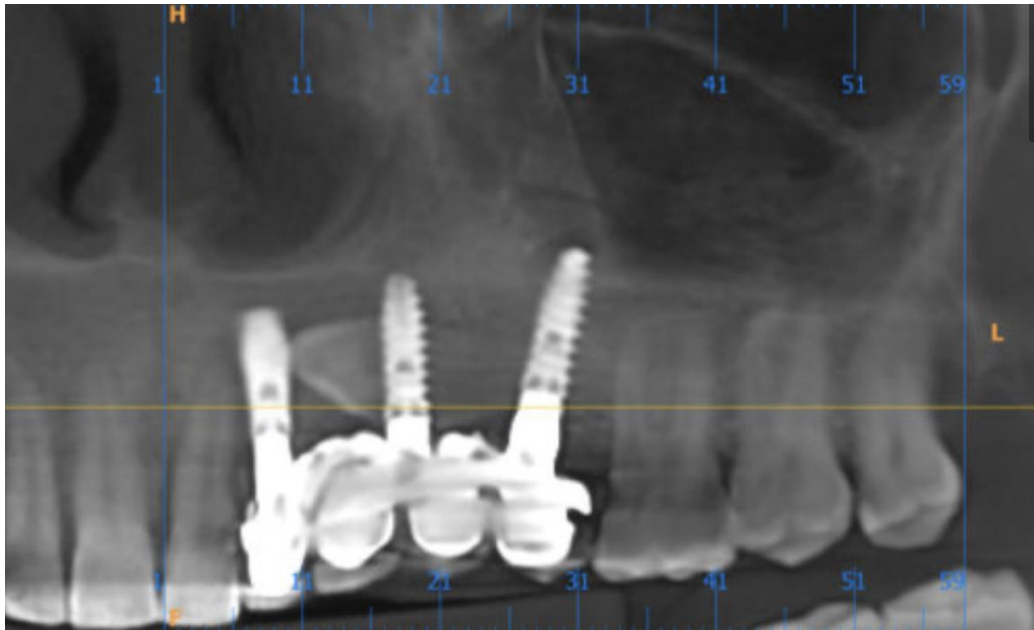


Figure 9 – postoperative CBCT image after prosthesis placement





Figure – 10 postoperative clinical image

#### DISCUSSION

Dental implant supported rehabilitation is a method for replacement of missing teeth even in case of impacted tooth because the

prognosis for successful orthodontic resolution of an impacted tooth in an adult is poorer than in a younger patient and that prognosis worsens with age. Furthermore, if

it's performed in older patients, outcome may take considerably longer duration. Different interfaces are created because of dentointegration when implant comes in contact with an impacted tooth. That includes: Implant – periodontal ligament interface; the implant – cement interface; implant – dentine interface; implant – pulp interface and implant – enamel interface. Clinically, there should be no mobility, pain or any subjective sensation.

Primarily stability of Implant comes from mechanical anchorage or secondarily from biological anchorage with dental tissues but it's not like osseointegration.<sup>5</sup> Colonization of pores of implant surface occurs by mineral integration over osseointegration.<sup>6,7</sup> The reason for avoiding encroaching the impacted tooth by clinician, because it would infringe upon a deep-anchored element of paradigm of implantology.<sup>8</sup> Although the concern of pulp and implant contact which could lead to postoperative pain was present, but no pain was reported.<sup>9</sup> Applying an immediate implant placement protocol aids in shortened treatment duration, lesser alveolar atrophy, better aesthetics in single surgical procedure. Thus time, morbidity and cost of the treatment are reduced.<sup>10</sup>

Immediate prosthesis of the immediately placed implant also give better support to the surrounding peri-implant tissue for preservation of the original architecture, conditions which are in favor for an optimal esthetic result.<sup>11</sup>

Selection of implants also plays a major role. Cone shaped core and dual pitch thread and neutral apex allows safe insertion with optimal primary stability which allows for immediate loading. Bioetch surface enhance

osseointegration. Bioner implants (Bioner, Rodriguez San Pedro, Spain) with conical connections were used. Implants were placed at subcrestal level which minimized the bone loss and improved aesthetics.<sup>12</sup> Radiographically, there should be absence of resorptive changes and continuous radiolucency around at the bone - implant, tooth or root implant surface.<sup>13</sup>

Davaparnah et al.<sup>2</sup> published about a paradigmatic change in approaches to intentional drilling and implant placement through dental. The protocol achieved success rates similar to conventional implant placement. This treatment may be considered an alternative for patients presenting deleterious health, advanced age, or those who does not want extensive extraction surgery. Usually, in middle-aged patients presenting an impacted tooth, extraction of the tooth with simultaneous implant placement and guided tissue regeneration is considered the gold standard treatment. But this approach is more invasive and prolongs treatment time, particularly in situations in which the cortical bone is not adequately preserved and so simultaneous implant placement is not possible.

Placing dental implants through impacted teeth seems to offer an alternative therapeutic option for implant-supported restorations.<sup>14</sup> As this maintains the integrity of the soft tissue as well and optimize aesthetic outcomes because of preservation of dental papillae. Placing dental implants through impacted teeth or residual roots could share some similarities to the socket shield technique.

Nevertheless, few differences can be established. The socket shield technique is

intended to maintain the bundle of bone on the buccal side, through a partial root extraction, while the procedure of dental implants through impacted teeth is used for providing a primary stability. Moreover, the aim of each technique is different; the socket shield tries to avoid the inevitable alveolar ridge reduction associated with tooth loss, while the implant placement through impacted teeth may avoid invasive extraction surgeries.<sup>15</sup>

F. Pérez-González et. al<sup>16</sup> presented a systematic review for implant placement via impacted tooth may offer a valid therapeutic option for implant-supported restorations with minimum bone loss, enhanced stability, maintenance of contour of soft tissues and better osseointegration along with less trauma to patients.

## CONCLUSION

Transcanine implant generates interfaces other than implant bone but there was no postoperative pain or implant failure. Clinically healing was observed. Immediate loading can also be performed for prosthetic rehabilitation of jaw. Within the limitations, transcanine implantation (non invasive method) could represent a valuable alternative to standard implant protocols.

## CONFLICT OF INTEREST

None

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