Annales Africaines de Médecine
Cas Clinique

Immediate implants placement after maxillary central incisors extraction: a case report

Placement des implants immédiats après extraction des incisives centrales supérieures : un cas clinique

Augustin Mantshumba Milolo[1,3], Fidele Nyimi Bushabu[2,3], Elias Lubadi Tshilumba[1,3], Danny Kanyana Makolo[4], Grace Paka Lubamba[2,3,5], Fifi Balepukayi Mpiana[3,6], Patrick Ngimbi Phaka[2], Em Kalala Kazadi[7]

Correspondence
Augustin Mantshumba Milolo, DDS, MSc, PhD
E-mail address: augustin.mantshumba@unikin.ac.cd
Department of Prosthodontics, Faculty of Dental Medicine, Hospital of the University of Kinshasa, Kinshasa, Democratic Republic of the Congo

Résumé

Un homme de 67 ans a reçu deux implants immédiats après extraction dentaire atraumatique des deux incisives centrales supérieures fracturées. Les implants ont été posés sans lambeau et une restauration provisoire a été mise en place trois jours suivant la pose. Après cinq mois, aucune complication n'a été observée et le patient était satisfait des résultats esthétiques et fonctionnels.

Mots-clés : Implants immédiats, extraction, prothèse, ostéointégration

Reçu le 18 mars 2024
Accepté le 4 avril 2025
https://dx.doi.org/10.4314/aamed.v19i1.22

1. Department of Prosthodontics, Faculty of Dental Medicine, Hospital of the University of Kinshasa, Kinshasa, Democratic Republic of the Congo
2. Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Hospital of the University of Kinshasa, Kinshasa, Democratic Republic of the Congo
3. National Center of Research in Dental and Buccal Sciences, Kinshasa, Democratic Republic of the Congo.
4. Institute of Health Sciences of Kinshasa, Kinshasa, Democratic Republic of the Congo.
5. Department of Head and Neck Oncology, West China School/Hospital of Stomatology, Sichuan University, Chengdu, Sichuan, People's Republic of China
6. Department of Orthodontics, Faculty of Dental Medicine, Hospital of the University of Kinshasa, Kinshasa, Democratic Republic of the Congo
7. Department of Periodontology, Faculty of Dental Medicine, Hospital of the University of Kinshasa, Kinshasa, Democratic Republic of the Congo

Summary

A 67-year-old male received two immediate dental implants after atraumatic extraction of fractured maxillary central incisors. Implants were placed flaplessly, and a provisional restoration was loaded 3 days post-placement. After 5 months, no complications were observed, and the patient was satisfied with the esthetic and functional outcomes.

Keywords: immediate implants, extraction, prosthesis, osseointegration

Received: March 18th, 2024
Accepted: April 4th, 2025
https://dx.doi.org/10.4314/aamed.v19i1.22

Introduction

The loss of natural teeth represents a health problem; it is associated with functional, esthetic, and may decrease the patient's quality of life (1-2). Immediate implant placement is a modern approach that reduces treatment time and surgical interventions (3).

This is the first reported case of immediate implant placement in Democratic Republic of Congo.

Case description

A 67-year-old male, Congolese was admitted to our service of implantology for dental implants rehabilitation.

The medical history and physical examination revealed trauma to central incisors with incomplete endodontic treatment. Patient's general health condition was good. Clinical examination and imaging assessment with Orthopantomograph (OPG) (figure 1), Periapical and Occlusal radiographs confirmed the absence of underlying pathology, teeth root were unrestorable, but surrounded by a healthy bone of good volume, and the soft tissue architecture and quality were favorable to implant therapy. The planned treatment consisted to extraction of both maxillary central incisors, followed by two immediate implants placement.

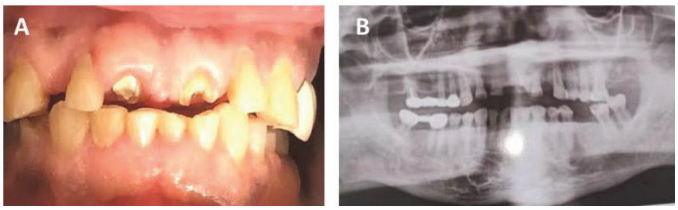

Figure 1. Preoperative images: A. Intraoral clinical image showing both maxillary central incisors with fractured crowns; B. Preoperative Orthopantomograph

Antibiotics prophylaxis was administered as a twice oral dose of 2 g amoxicillin followed by analgesic, especially paracetamol as a single oral dose 1g and rinsing mouth with chlorhexidine.

Under local anaesthesia infiltration with Mepivacaine 3%, both maxillary central incisors were removed atraumatically (figure 2) by rotational movements. The diagnostic was Kennedy Class IV post-extraction.

Immediately after extraction, the osteotomy site was prepared by a series of gradually larger drills, the implant site was irrigated with sterile saline to remove any residual bone chips/other residue following preparation. The depth of the osteotomy site was ascertained with implant depth probe. The implants were removed from the sterile vial using the insertion tool and placed directly into the osteotomy site (Figure 2).

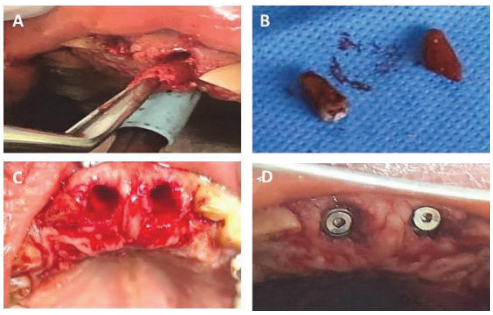

Figure 2. Intraoperative images: A-C. Atraumatic extraction of maxillary central incisors, maintaining the labial plate and supporting soft tissues intact; D. Immediate implants placement. Following which, the insertion mount was removed and hex driver was placed into the implant internal hex & ratcheted with torque controlled implant ratchet. Primary implant stability was assessed with the torque controlled ratchet. The covers screws, provided with the implants package were then placed. The flap margins were then sutured without tension using 4-0 Vicryl in interrupted fashion. A radiograph was taken post operatively to evaluate the implant position (Figure 3). After 5 months of follow-up, the patient is very satisfied with the functional and esthetic outcomes of the provisional restorations.

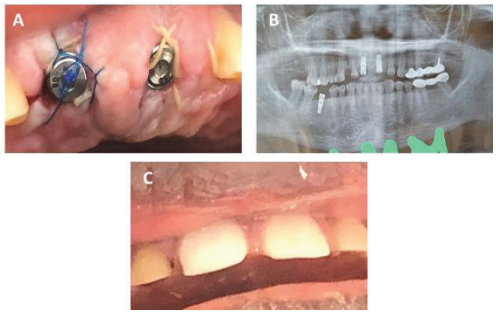

Figure 3. *Postoperative images: A. Intraoral clinical image showing the implants replacing both maxillary central incisors at 3 days post-placement before provisional restorations loading; B. Postoperative Orthopantomograph before provisional restorations loading; C. Intraoral clinical image showing the loading of provisional restorations*

Discussion

Replacement of missing teeth with dental implants offers a most valuable alternative to conventional dental prostheses supported either by remaining teeth or adjacent oral soft tissues (2,4-5).

The success of dental implant therapy is based on the patient cooperation and adherence to the treatment planning (2,6,7). Primary implant stability and lack of micromovements are among the determining factors necessary for predicting the success of osseointegrated dental implants (3-4).

Immediate implant placement is most commonly indicated in cases of tooth extraction done with pathologies not compromising the implant success, patient systemically healthy, adequate soft tissue, adequate hard tissue, intact labial/buccal plate, and thick tissue biotype; In our case, the teeth were extracted atraumatically with preservation of supporting hard and soft tissues and without flap reflection, and this is the main reason why immediate placement was recommended.

Computed tomography (CT) or Cone-beam computed tomography (CBCT) scans are usually recommended during assessment to ensure a correct implant placement (2,7). Although the CT scan was asked during preoperative assessment, due to limited financial resource, our patient was only able to do Orthopantomograph, Periapical and Occlusal radiographs.

A removable provisional prosthesis was loaded after 3 days following the implants placement, which is considered as early loading strategy. The healing time for osseointegration of the implant varies between 4 and 6 months postsurgery, after completion of healing, the final crown can be placed (6).

Conclusion

The immediate implants placement in our case was found safe, reliable, feasible and successful, and provided satisfactory functional and esthetic outcomes. Accurate and careful case selection, preoperative assessment, diagnostic and treatment planning play important roles in achieving these outcomes that improve the patient's self-esteem and quality of life.

Acknowledgment

The authors would like to thank Professor Joke Duyck and Doctor Philippe Vuylsteke from KU Leuven University for their support and collaboration.

Conflict of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

Authors contributions

Mantshumba M A, Lubadi T E, Nyimi B F, Ngimbi P P contributed to the surgery and conception of study. Paka L G, Kanyana M D, Kalala K E, Nyimi B F contributed to the writing. Mantshumba M A, Balepukayi M F, Lubadi T E contributed to the manuscript revisions.

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Cite this article as: Milolo AM, Bushabu FN, Tshilumba EL, Makolo DK, Lubamba GP, Mpiana FB, *et al.* Immediate implants placement after maxillary central incisors extraction: a case report. *Ann*. *Afr Med*. 2025; **19** (1): e6785-e6788. https://dx.doi.org/10.4314/aamed.v19i1.22