

# COMPLEX CLINICAL CASE OF IMPLANT-BASED DENTAL RESTORATION

S. CERNUȘCĂ-MIȚARIU<sup>1</sup>, M. BURUIAN<sup>2</sup>

<sup>1</sup>Ph D candidate University of Medicine and Pharmacy Tg Mures, <sup>2</sup>University of Medicine and Pharmacy Tg Mures

**Keywords:** screw implants, prosthetic restoration, diabetes, ortopantomography, CT 3D

**Abstract:** CM, patient, features a total maxillary edentation and partly terminal-front-terminal mandible edentation. The teeth have a third degree mobility. He is an insulin-dependent diabetes patient and wants to benefit from a fixed prosthetic work, which requires several implants to be made, preceded by pre-prosthetic surgical interventions

**Cuvinte cheie:** implante șurub, restaurare protetică, diabet, ortopantomografie, CT 3D

**Rezumat:** Pacientul CM se prezintă cu o stare de edentație totală maxilară și parțială termino-fronto-terminală mandibulară. Dinții prezenți au mobilitate gradul III. Pacientul este diabetic insulino-dependent. Acesta își dorește o protezare fixă drept care urmează să i se aplice mai multe implante precedate de intervenții chirurgicale proprotetice.

## CASE PRESENTATION

Patient CM, aged 46, is examined on November 11, 2009. He is diagnosed with total maxillary edentation and terminal-frontal-terminal mandibular edentation. The remaining teeth exhibit a 3rd degree mobility. An ortopantomograph and a computer tomography (CT 3D) investigation are necessary and he is sent to the laboratory for further clinical evaluation, especially for the measurement of his glycemia. On December 12, 2009, the patient returns with the test results and, upon his glycemia being 266 mg/dL, he is sent for specific treatment of his diabetic condition.

Figure no.1. Initial radiography OPT and CBCT



The OPT radiograph and the CT3D investigation show that the vertical dimension (0.64 mm) is insufficient (fig.2) for applying implants to the upper maxillary, necessitating bilateral sinus lifting. The patient returns two month later, with his glycemia measuring 140mg/dL. Osseous augmentation is decided upon, preceded by sinus lift procedures (fig3).

Figure no. 2. CT3D slice

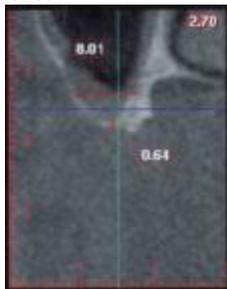


Figure no. 3. Limit of the sinusal cavity



During the same intervention, four implants are applied to the mandible, in zones 4.4., 4.3, 4.2, 3.3. (fig.4), as well as two temporary maxillary implants in the spaces 1.1 and 2.1., in order to increase the stability of the total upper prosthetic work.

Figure no. 4. Implants applied to the mandible



Two months the application of implants, the patient has an episode of hyperglycemia (600 mg/dL) and loses his right-foot halluces, as well as the implant in the 4.4 zone (fig.5). In June 2010, after glycemia gets back to normal, two more maxillary implants are applied in zones 1.3 and 2.3, by means of osseous condensation.

<sup>1</sup>Corresponding Author: Sebastian Cernusca Mitariu, 6, Stefan cel Mare street, Sibiu, email sebastian3007@yahoo.com tel: +40 (269) 21.2941  
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## CLINICAL ASPECTS

**Figure no. 5. Loss of 4.4 mandible implant**



In August 2010, the patient returns for a medical check-up. The inspection and periost test evince the failure of the osseointegration of the implants in zones 4.3 and 4.2, necessitating their removal. (fig.6).

**Figure no. 6. Removal of 4.3,4.2 implants**



On September 4, 2010, the patient returns, his glycemia is within normal limits, and implants are applied to zones 1.5., 2.5 (20mm vertical dimension), and 1.7, 2.7 (18 mm). Four months later the ceramic prosthetic work is performed on the upper-jaw implants. (fig.7) The tracks of future mandible implants are established, based on the OPT radiography and the CBCT investigation..

**Figure no. 7. Implants and ceramic prosthetic work applied to the upper-jaw**



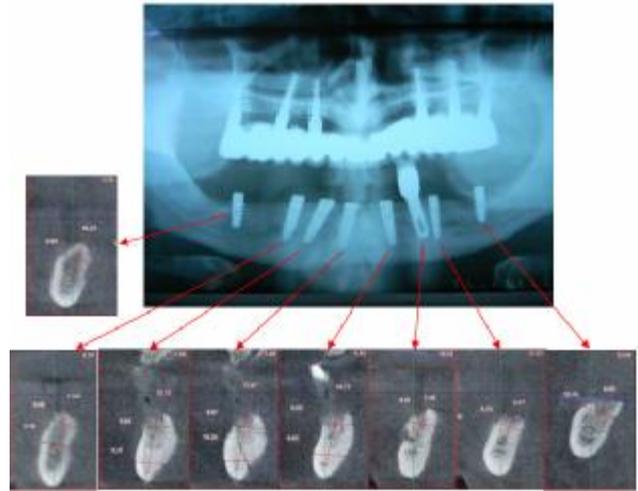
On September 2, 2011, the patient returns to the dental clinic, with his glycemia within normal limits, and implants are applied to the 4.3, 4.2., 4.1, 3.1/3.2 zones.

**Figure no. 8. Implants applied to the mandible**



On September 9, 2011, implants are applied to positions 3.4., 3.6 (D), and 4.6 (see picture below).

**Figure no. 9. Implants applied to the mandible and the initial CT3D slices**



In the zones 3.3 and 3.4, the alveolar inferior nerve was deviated towards the vestibular one because the vertical dimension was 5.77 and 7.39 respectively, which would not have been enabled the insertion of implants without their intersecting the mandible canal.

### CONCLUSIONS

The case we presented demonstrates that implants can be applied to patients suffering from insulin-dependent diabetes, as well as from diabetes in general, provided the patients control their glycemia.

An unfavorable prosthetic field requires pre-prosthetic surgical interventions: sinus lifting, osseointegration, and, in the case described above, the deviation of the left alveolar inferior nerve towards the vestibular one.

None of these interventions would have been possible without the aid of radiological imagery investigations: orthopantomography and 3-D computer tomography.

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