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## **Is the Success of Implant Surgery Influenced by Hepatitis B Condition? A Case Report**

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A male patient 54 years old referred to the clinic for extraction of the upper right lateral incisor due to serious periodontal problems. The history revealed hepatitis B infection without other exogenous or endogenous conditions and relative or absolute contraindications for implant surgery. It was planned to place surgically an implant in the fresh wound socket immediately after the extraction. The extraction performed with luxators with a maximum respect to the surrounding bone. A small buccal flap raised for gaining access at the area. The bone defect caused by periodontitis was found mainly in the buccal aspect. The use of bovine bone graft was found very useful as a scaffold for filling the defect. The bone substitute was applied mixed with fresh blood by using a small dental curved spatula. The healing was uncomplicated. It was concluded that the carrier of hepatitis B does not pose complication when the treatment is adherent to the surgical protocols.

**Key words:** Hepatitis B, dental implants, surgery

## INTRODUCTION

Edentulous jaws constitute a problematic status creating complex functional and aesthetic dysfunction. One of the treatment options of the last decades for restoring edentulism is the osseous dental implant placement (Leblebicioglu *et al.*, 2007). The concern about the propriety of each individual case is based on the history taking and medico-dental examination including laboratory measurements (Falender, 1995). Viral blood disorders may be a relative contraindication regarding not the possibility of spreading the infection to dental staff (Fasunloro and Owotade, 2004) but only the treatment effectiveness if there is alteration of the bone mass.

Viral hepatitis is not considered according to the available evidence a contraindication for implant surgery and prosthetic restoration but the chronic hepatitis induced osteoporosis and osteomalacia may affect in general the bone mineral density (Schiefke *et al.*, 2005). This case reports the immediate surgical implantation of a 10 mm regular SLA titanium implant (Straumann<sup>®</sup>) and xenograft placement (Bio-Oss<sup>®</sup>) as an anatomical scaffold following extraction of the upper right lateral incisor in a hepatitis B carrier. It was our interest to follow strictly the pre-surgical and inter-surgical protocol in such a patient for the evaluation of this case. The possible influence of hepatitis on mandibular and maxillary bone mineral density is discussed with a great emphasis on the surgical implantation. One year after surgery the synocta<sup>®</sup> restoration used for the prosthesis.

## CASE REPORT

A male patient 54 years old referred to the clinic for extraction of the upper right lateral incisor (Fig. 1). The tooth was affected by chronic inflammation due to severe periodontitis and failed endodontic treatment (Fig. 2). The history taking revealed hepatitis B from unprotected sexual contact. The clinical examination showed grade-III tooth mobility and serious cleft like gingival recession on the buccal aspect of the associated root. The blood components found to be in normal range. The sedimentation rate of the red blood cells was 10mm at the first hour. The hepatic enzymes were also found normal (AST = 25 U/L and ALT = 24 U/L). The patient was not taking any medication and also was non-smoker.

The tooth was extracted under local anaesthesia (2% lignocaine with 1:80000 adrenaline) and the granulomatous tissue was removed from the open socket properly using Mitchell trimmer and small bone excavators (Fig. 3). The implant was screwed 4 mm apically to the root apex providing primary stability. The implant screwed under 25 N cm<sup>-1</sup> using the special torque instrument. The buccal aspect of the implant filled with bio-oss<sup>®</sup> spongiosa particle size 0.25-1 mm mixed with



Fig. 1: Upper right lateral incisor with crown restoration affected by severe periodontitis



Fig. 2: Dental apical radiography revealed the severity of periodontitis



Fig. 3: Post-extraction, the bone defect is mainly limited in the buccal aspect

fresh wound blood and sterile saline solution. A buccal advancement flap was performed by cutting the periosteum at the base of the trapezoid flap to restore the cleft pattern of the buccal attached gingivae. The healing was uneventful. The radiological evaluation four months later was normal (Fig. 4) and the percussion of the implant neck using a blunt stainless steel dental instrument showed that sharp audible noise was a good indicator of a successive osseointegration.



Fig. 4: The implant to bone contact surface showed normal radiographic features

The prosthetic restoration was performed using a 1.5 mm synocta<sup>R</sup> abutment four months later with occlusal adjustment allowing for a minimal contact to agonist in centric occlusion and lateral movements of the mandible.

#### DISCUSSION

In dentistry, viral hepatitis B is considered to be dangerous due to cross infection risk after sharp injuries. Nowadays the immunization against hepatitis B should be necessary for every medical-dental staff prior any contact with patients (Fasunloro and Owotage, 2004). Therefore the risk for cross infection to the staff is highly decreased. There is a lack of evidence in the existing literature regarding the relative risk of dental implants placement in hepatitis B patients. Therefore it was our interest to follow strictly the pre-surgical and inter-surgical protocol in such a patient for the evaluation of this case. The main reason that chronic viral hepatitis may be of interest for the outcome of the implant restoration may be when the bone quality and quantity is altered. According to Mahdy *et al.* (2007) the low level of serum IGF-1 may take place in the process of bone loss in such patients. But, the previous concept is in contrary with the suggestion of Yenice *et al.* (2006) who concluded that hepatitis B does not pose a risk for osteoporosis and low bone mineral density.

It is important factor before placing immediately an implant in the socket, post-extraction, to have a thorough cleaning of the cavity. Any left granulomatous or cystic tissue would affect the osseointegration process by increasing the failure risk. In our case the socket was cleaned with small excavators and the socket irrigated thoroughly with saline solution to remove any left debris or free standing tissue. The patient was not covered prophylactically with antibiotics. Post-surgery the patient advised to rinse the mouth with 0.12% chlorhexidine antiseptic solution for a week.

The particle size (0.25-1 mm) of the bone substitute used for advanced filling of the defect. This permitted the small bone particle to be in close contact with the curretted

bone having as a consequence a predicting healing. Additionally the bone was spongy allowing better micro-healing event. This event is only of interest when the implant is primarily stable during surgery prior using the bone substitute (Lioubavina-Hack *et al.*, 2006). In our case the implant placed 4 mm apically to the root apex; a bone depth that allowed the implant to be stable. The final torque measured during implant insertion was 25 N cm<sup>-1</sup>. Therefore the healing was uneventful. We, the authors considered the ideal torque between 20-30 N cm<sup>-1</sup>. When the torque is less than 20 N cm<sup>-1</sup> the risk of stability failure is increased. When the torque is more than 30 N cm<sup>-1</sup> the risk of bone micro-fracture and suppression of osteoblasts may affect osseointegration on the titanium surface.

Concluding the hepatitis B carriers were not considered to be a group of relative or absolute contraindication for implantology. However it is meaningful to avoid such a surgery in active acute or active chronic hepatitis. This case report gave us the indications to consider hepatitis B carriers as good volunteers for implant surgery when the well established relative or absolute contraindications are missing and when the clinical and laboratory examination is compatible with a successive surgical procedure according to the guidelines.

#### REFERENCES

- Falender, L.G., 1995. Diagnosis and treatment planning for implant dentistry. J. Indiana. Dent. Assoc., 74: 16-19.
- Fasunloro, A. and F.J. Owotade, 2004. Occupational hazards among clinical dental staff. J. Contemp. Dent. Pract., 5: 134-152.
- Leblebicioglu, B., S. Rawal and A. Mariotti, 2007. A review of the functional and esthetic requirements for dental implants. J. Am. Dent. Assoc., 138: 321-329.
- Lioubavina-Hack, N., N.P. Lang and T. Karring, 2006. Significance of primary stability for osseointegration of dental implants. Clin. Oral. Implants. Res., 17: 244-250.
- Mahdy, K.A., H.H. Ahmed, F. Manna and A. Abdel-Shaheed, 2007. Clinical benefits of biochemical markers of bone turnover in Egyptian children with chronic liver diseases. World. J. Gastroenterol., 13: 785-790.
- Schiefke, I., A. Fach, M. Wiedmann, A.V. Aretin, E. Schenker and G. Borte *et al.*, 2005. Reduced bone mineral density and altered bone turnover markers in patients with non-cirrhotic chronic hepatitis B or C infection. World. J. Gastroenterol., 11: 1843-1847.
- Yenice, N., M. Gumrah, O. Mehtap, A. Kozan and S. Turkmen, 2006. Assessment of bone metabolism and mineral density in chronic viral hepatitis. Turk. J. Gastroenterol., 17: 260-266.