

Management of life threatening arteriovenous intraosseous malformation of the mandible

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Authors:

Dr. Dr. Bettina Hohlweg-Majert,
Dr. Nils Weyer,
Dr. Dr. Wiebke Schupp,
Dr. Dr. Marc C. Metzger,
PD Dr. Dr. Ralf Schön, Department of Oral and Maxillofacial Surgery, University Hospital Freiburg

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Introduction

Life threatening bleedings are severe complications of intraosseous arteriovenous malformations in the maxillofacial area. The successful management of two cases with an arteriovenous malformation of the mandible is described.

Material and Methods

An 11 and a 14-year old child with an arteriovenous malformation (AVM) of the mandible presented with spontaneous intraoral bleedings. For the management of acute life threatening bleeding magnet resonance imaging angiography was performed. Intravenous embolisation was only partially successful therefore transoral intraosseous injections of embolising agent (Histoacryl, Ethibloc® Ethicon GmbH, Johnson and Johnson company, Germany) were conducted. Following embolisation no further bleeding occurred, but the bone in the area of embolisation became necrotic. Partial mandibular resection and secondary bony reconstruction were performed.



Fig. 1 (a): Normal clinical situation after life-threatening bleeding out of sulcus 36 during dental treatment.

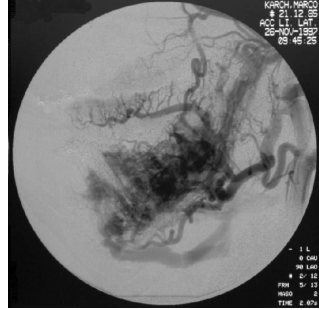


Fig. 1 (b): and angiographic report of the haemangioma of the left mandible of patient 1(b) are demonstrated.



Fig. 2: Perfusion of the haemangioma was noted by the collaterals of occipital artery and left vertebral artery. Postoperative x-ray after embolisation (a); axial view computed tomography scan of patient 1.

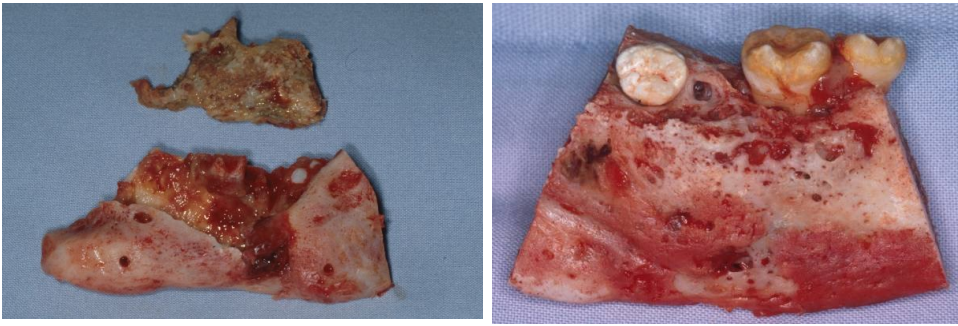


Fig. 3: Specimen of necrotic bone of the mandible after embolisation with histoacryl ((a) patient 1; (b) patient 2).

Fig. 4: X-ray of the following reconstruction using free fibula graft ((a) patient 1) and iliac crest ((b) patient 2). Normal mandibular form and function was achieved after insertion of dental implants patient 2(c).

Results

Mandibular form and function was achieved by bony reconstruction using free fibula and iliac crest bone grafts. No recurrence was noted in an eight year follow up period.



Fig. 4: X-ray of the following reconstruction using free fibula graft ((a) patient 1) and iliac crest ((b) patient 2). Normal mandibular form and function was achieved after insertion of dental implants patient 2(c).

Conclusions

Benign neoplasms, such as AVM are mainly described in children. The most common location for arteriovenous malformations are the soft tissue of the lip and the tongue. The ethnology is unknown.

The diagnosis of an intraosseous AVM in the mandible or maxilla is a rare clinical entity. It should be suspected when the interdental space is widened, teeth are mobile mucosa is discoloured or permanent bleedings occurs.

Embolisation of feeding vessels may reduce the lesion only temporarily as collateral vessels may develop. Therefore, embolisation should be used in combination with surgery to reduce risk of intraoperative bleeding and to obtain stable results [1;2]. To avoid extensive haemorrhage intraosseous embolisation with histoacryl appears to be safer than a bone resection during an emergency situation [3]. Complications of embolisation such as conclusion of pulmonary or cerebral vessels resulting in hemiplegia, blindness or facial paralysis have been reported.

Literature

1. Perugini M, Renzi, G, Gasparini, G, Cerulli, G, Becelli, R. Intraosseous hemangioma of the maxillofacial district: clinical analysis and surgical treatment in 10 consecutive patients. *J Craniofac Surg* 2004; 15: 980-5.
2. Giaoui L, Princ, G, Chiras, J, Guilbert, F, Bertrand, JC. Treatment of vascular malformations of the mandible: a description of 12 cases. *Int J Oral Maxillofac Surg* 2003; 32: 132-6.
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This Poster was submitted by Dr. Dr. Bettina Hohlweg-Majert.

Correspondence address:

Dr. Dr. Bettina Hohlweg-Majert

Department of Oral and Maxillofacial Surgery
University Hospital Freiburg
Hugstetterstr. 55
79106 Freiburg
Germany

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Bettina Hohlweg-Majert, Nils Weyer, Wiebke Schupp
 Marc C. Metzger, Ralf Schön
 Department of Oral and Maxillofacial Surgery,
 Albert-Ludwigs-University Freiburg, Germany



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Conclusion

A life threatening bleeding of intraosseous arteriovenous malformations of the mandible was successfully managed by embolisation and secondary reconstruction. Mandibular form and function in the pediatric patients were reconstructed using bone grafts in combination with osseointegrated dental implants.

Literature:

1. Perugini M, Renzi G, Gasparini G, Cerulli G, Becelli R. Intraosseous hemangiomas of the maxillofacial district: clinical analysis and surgical treatment in 10 consecutive patients. *J Craniofac Surg* 2004; 15:980-5.
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3. Vargel I, Mavili ME, Cantler HL, Celikge S, Erk Y. Surgical excision of cutaneous vascular lesions after percutaneous injection of n-butyl 2-cyanoacrylate. *Ann Plast Surg* 2001; 46:658-9.

Affiliation:

Dr. Dr. Bettina Hohlweg-Majert
 Department of Oral and Maxillofacial
 Surgery, University Clinic, Albert-
 Ludwigs-University, Hugstetterstr. 55,
 D-79106 Freiburg, Germany,
 email: Bettina.majert@uniklinik-
 freiburg.de