ARTERIOVENOUS MALFORMATION OF THE MANDIBLE: A RARE BUT LIFE-THREATENING DISEASE

Baharudin Abdullah, Abdullah Pohchi* & Abdul Rani Samsudin*

Department of Otorhinolaryngology ORL - Head and Neck Surgery
School of Medical Sciences, *School of Dental Sciences, Universiti Sains Malaysia,
16150 Kubang Kerian, Kelantan, Malaysia

AVM in the mandible is rare. It may present with recurrent episodes of unexplained gingival haemorrhage, bony swelling, tooth mobility or facial asymmetry. We reported our experience in managing a case of a 15 year old Malay girl who presented with a life threatening bleeding from her mandible.

Key words: Arteriovenous Malformation, Mandible

Introduction

AVM in the mandible may present with recurrent episodes of unexplained gingival haemorrhage, bony swelling, tooth mobility or facial asymmetry. The most unfortunate presentation however follows dental extraction or bone biopsy when severe, exsanguinating and torrential hemorrhage may occur. Occasionally, a patient may only present with a sentinel molar bleeding which precede the hemorrhage and this fact should not be overlooked (1). Sometimes a bruit can be heard on auscultation over the involved area and a sensation on the region innervated by the mandibular branch of the trigeminal nerve (V) may be altered.

Case Report

A 15 year old Malay girl from Ipoh, Perak who experienced persistent severe bleeding from the lower right gum was referred to our hospital. Her problem started when she was seven years old whos, she experienced bleeding from the lower right first premolar tooth. The bleeding was minimal but recurred which prompted her parents to bring her to a private dental clinic in Ipoh several times. The bleeding was about 4 to 5 times per year. Unfortunately had the bleeding got worse and never

Figure 1: The orthopantomogram (OPG) showed a soap bubble appearance of the right mandible.
resolved. She developed persistent bleeding from the same region at the age of 15 years and was brought to Ipoh General Hospital. The bleeding occurred spontaneously without any trauma to that region. Each bleeding filled up 1 to 2 cupfuls. Applying pressure will only stop the bleeding temporarily.

On examination there was a diffuse swelling on the outer aspect of the right mandible. Intraorally there was a bluish lesion in the right retromolar trigone which extended anteriorly to the premolar region. No bleeding was seen. The throat and the neck were normal. Other systemic examination was unremarkable. No lesion seen in the nasopharynx, oropharynx and hypopharynx on flexible endoscopy. Her orthopanthomogram (OPG) and CT scan showed a soap bubble appearance of the right side of the mandible extending from the right ramus to

*Figure 1:* The computed tomography (CT) scan of the mandible demonstrated the abnormal right mandible.

*Figure 3:* Selective catheterization of the right lingual artery for embolization.
the body of the mandible up to the 1st molar area
figure 1 and figure 2. A diagnosis of AVM of
mandible was made which was subsequently
confirmed by magnetic resonance imaging (MRI)
and magnetic resonance angiography (MRA). MRI
brain with gadolinium showed no intracranial
involvement.

Selective embolization of the right lingual
artery was performed prior to the right segmental
mandibulectomy (figure 3). A median lower lip split
and right submandibular incision was made. A silk
string was placed under the external carotid artery
to secure bleeding in case hemorrhage occurs
intraoperatively. The periosteal flap of the mandible
was raised. A tumor mass was seen involving the
lateral surface and cortex of the ramus of the right
mandible extending to the second molar tooth region.
Feeding vessels were noted along the condyle. A
segmental mandibulectomy was performed by
removing part of the right mandible between the
right second premolar and first molar teeth to the
right condylar head. The defect was reconstructed
by using a 7cm rib graft taken from the right fifth
rib. The graft was placed over the defect and fixed
to the mandible with reconstructive titanium plate
and screws on both sides. Postoperatively the patient
was managed for 1 day in the intensive care unit.
She recovered well and was discharged on day 7
postoperatively.

Discussion

Arteriovenous malformations (AVM) arising
within the mandible is exceedingly rare but
potentially life threatening. The lesion is more often
located in the horizontal portion of the lower jaw
than in the condylar process or in the temporomandibular joint (2).

An OPG may disclose multilocular
radiolucent areas with ‘honeycomb’ or ‘soap bubble’
appearance or unilocular osteolytic images or simple
radiolucency without peculiar characteristics;
sometimes with cortical expansion, dental
dislocation and root resorption of the teeth (2). Less
common presentation includes extension of bony
spicules extending at right angles into the lesion
(sunburst or sunray appearance) which is highly
diagnostic of AVM (1).

Resection has been advocated both as primary
therapy and as salvage treatment after failure of
conservative measures (3). The indications for
resection suggested are obstruction of visual axis;
large lesion with thrombocytopenia; obstruction of
luminal structures; uncontrollable ulceration,
hemorrhage or infection; atypical growth suggesting
alternative diagnosis; cardiopulmonary
decompensation from arteriovenous shunting and;
small lesions that can be excised without cosmetic
or functional risk (3).

In this patient resection of the mandible
(segmental mandibulectomy) proved to be life
saving.

Corresponding Author :

Dr. Baharudin Abdullah MBBS(Mal), MMED ORL-
HNS (USM)
Department of Otorhinolaryngology ORL - Head
and Neck Surgery(ORL-HNS),
School of Medical Sciences,
Universiti Sains Malaysia, Health Campus,
16150 Kubang Kerian, Kelantan, Malaysia
Tel: + 609-7664110
Fax: +609-7653370
Email: baharudin@kb.usm.my

Otorhinolaryngology ORL

References

1. Sofferman R.A. and Summers G.W. Bilateral
arteriovenous malformation of the mandible. 
2. Maurizi M., Fiumicelli A., Paludetti G. and Simoncelli
C. Arteriovenous fistula of the mandible: a review of
the literature and report of a case. Int J Pediatric
Complex hemangiomas of infants and children. Arch