Percutaneous Transvenous Glue Embolization of a Large Mandibular Arteriovenous Malformation: Neuroendovascular 2-Dimensional Operative Video

Sophia F. Shakur, MD, Ali Alaraj, MD

Department of Neurosurgery, University of Illinois at Chicago, Chicago, Illinois

Vascular anomalies are often found within the soft tissues of the maxillofacial region but are rarely found within bone. Intraosseous mandibular arteriovenous malformations (AVM) are high-flow vascular shunts characterized as fistulous connections between the external carotid artery branches and intraosseous mandibular veins. These AVMs can be life threatening due to catastrophic hemorrhage and so treatment is indicated. Treatment options include surgical resection and/or endovascular embolization via transarterial, transvenous, or percutaneous routes. Direct percutaneous access has been described infrequently in the literature and is thought to carry a high risk of procedural hemorrhage. Here, we showcase percutaneous glue embolization of a large mandibular AVM. A 16-year-old male presented with a pulsatile and enlarging mandibular mass. Craniofacial computed tomography scan and digital subtraction angiography were consistent with an intraosseous mandibular AVM. It was decided to perform preoperative embolization. Using roadmap guidance, a 22-gauge needle was inserted through the mandible and into a venous lake within the AVM. A total of 12 mL of the liquid embolic agent N-BCA (N-butyl cyanoacrylate; Codman Neurovascular Inc, Raynham, Massachusetts) was injected and seen to cast the AVM. The patient then underwent surgical resection and reconstruction of the mandible by the oral

Watch now at <https://academic.oup.com/ons/article-lookup/doi/10.1093/ons/oxx240>

maxillofacial surgery team the next day. The patient recovered from the procedures without any complications. Informed patient consent for the procedure and for publication was obtained.

Disclosures

Dr Alaraj has a research grant from NIH and is a consultant for Cordis-Codman. Dr Shakur has no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

COMMENT

This video demonstrates a very interesting case of an intraosseous mandibular AVM treated initially with intra-arterial nBCA embolization followed by percutaneous transvenous embolization. This was then followed by resection of the AVM and reconstruction of the mandible. The authors nicely provide a step-by-step description of the procedure and emphasize the thought process involved in endovascular decision making. This is a rare case which demonstrates the different endovascular management approaches to treat such lesions, in a multidisciplinary setting. We congratulate the authors for this nice result.

Ziad A. Hage
Charlotte, North Carolina