International Journal of Research in Medical Sciences
Gupta R et al. Int J Res Med Sci. 2015 Nov;3(11):3427-3429
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20151205

Case Report

Arteriovenous malformation of external ear and temporal region: a case report

Richa Gupta*, Anil Agrawal

Department of ENT, S.S. Medical College, Rewa, MP, India

Received: 11 September 2015
Accepted: 05 October 2015

***Correspondence:**
Dr. Richa Gupta,
E-mail: dr_richa_tulip@yahoo.com

ABSTRACT

Arteriovenous malformations (AVMs) of the scalp are remarkably rare. We report a case of 20 years old female complaining of swelling over right pinna and scalp since 2 years with known history of trauma. This case report represents pathogenesis, clinical features and management of the disease.

Keywords: Arteriovenous malformations, External carotid artery, Pinna, Traumatic

INTRODUCTION

Arteriovenous malformations (AVMs) are abnormal vascular shunts resulting from faulty maturation events during embryologic blood vessel development.[1]

AVMs are usually present at birth but commonly manifest in childhood or adolescence.[2] Many AVMs are asymptomatic, but may develop bleeding or cosmetic deformity. The pathogenesis, clinical features and management of this lesion has been discussed. These must be differentiated from haemangiomas, which are neoplastic, affect females more than males, and may regress spontaneously.

The treatment plan for AVMs is still controversial. The size of AVM and feeding vessels has a major impact on their management.

CASE REPORT

We report a case of 20 year old female who presented to Department of ENT, SS Medical College, Rewa (M.P.) with the symptoms of swelling over right pinna and scalp since 2 years. Patient elicited history of trauma to right ear two years back following which swelling developed and progressed gradually. There was no history of headache, tinnitus or pain. Also she revealed that bleeding occurs from swelling on any further trauma or manipulation which stops after prolonged pressure application. There had been three episodes of bleeding in the past.

On inspection a diffuse swelling of size 7 x 6 cm^2 was present over right pinna and temporal region. Pinna was pushed forward and outwards. The overlying skin was normal. Engorged vein & pulsations were clearly seen. The margins were irregular and ill defined. The transillumination test was negative. On palpation swelling was compressible and non tender with no underlying bone defect. Fluctuation test was positive. Pulsations were felt. On auscultation continuous bruit was heard (Figure 1). External auditory canal and tympanic membrane was normal.

The CT scan angiography of face and cranium with contrast was done. Spirally acquires CT study performed in arterial phase with coronal and sagittal reconstruction

revealed large AV malformation in right pinna and in the extracalvareal soft tissue scalp of right parietal AV malformation fed from right posterior, superficial temporal and greater occipital of right external carotid artery and also small feeder from right vertebral artery and thyrocervical trunk. The nidus showed ecstatic and dyslastic dilatation of arterial feeder. The draining venous channels showed aneurismal dilatation. It was draining into external and internal jugular vein. There was no feeder from intracranial circulation (Figure 2).

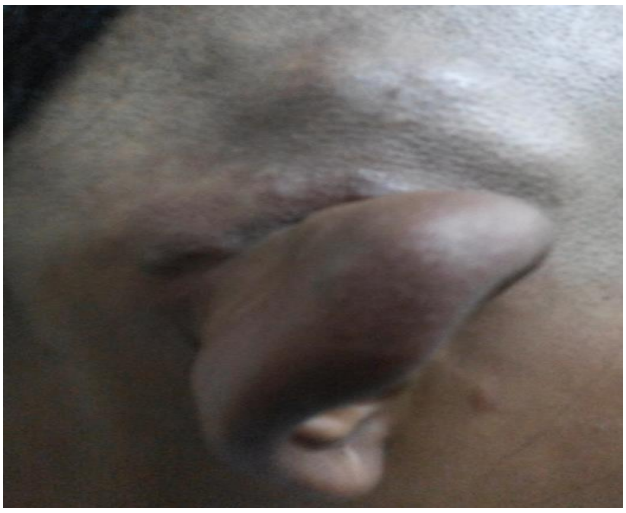

Figure 1: AVM right pinna and temporal region.

All blood parameters were within normal range. External carotid artery ligation with cauterisation and ligation of feeding vessels of AVM was performed under general anaesthesia. Patient stood procedure well. This approach resulted in favourable outcome.

The patient was under observation with coverage of antibiotics and discharged later on with adequate advice.

DISCUSSION

Arteriovenous malformations (AVMs) are lesions related to errors of vascular morphogenesis. AVM may be congenital or traumatic. In our case trauma was the triggering factor. It is generally thought that AVM arises from multiple developmental defects causing the primitive capillary bed to fail to persist.[3,4]

Arteriovenous malformations are rare in the auricular region but are common intracranially. They can be divided into two categories: fast-flowing and slow-flowing lesions. Fast flowing lesions are predominantly arteriovenous fistulas whereas venous, capillary, and lymphatic lesions produce slow blood flow malformations. The arterial origin of external ear vascular malformations can be from the posterior auricular, occipital, temporal and an occipital branch of the extracranial vertebral artery.[5] As in present case AVM was found to be fed from right posterior, superficial temporal and greater occipital of right external carotid artery with small feeder from right vertebral artery and thyrocervical trunk.

Their size can increase rapidly secondary to infection, trauma, ligation, attempted excision or via hormonal influences such as during pregnancy and puberty.[6]

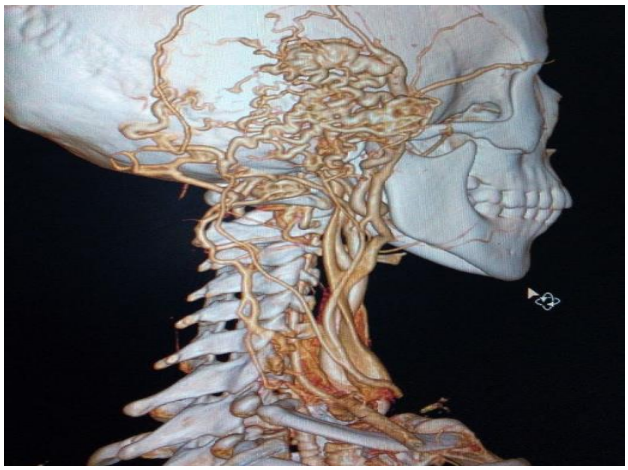

Figure 2: CT angiogram.

These lesions can be classified into four stages as described by Schobinger, I: cutaneous blush/warmth; II: Bruit, audible pulsations, expanding lesion; III: Pain, ulceration, bleeding and infection; and IV: Cardiac failure. Our case was diagnosed as stage II.

The CT scan angiography has provided significant improvements in vascular applications allow non-invasive vascular evaluation. Advantages of CT angiography (CTA) include shorter acquisition times, retrospective creation of thinner sections from source data, improved 3D rendering with diminished artifacts. CTA can also provide a very high temporal resolution and the visualization of the related adjacent bony structures, which may be important in surgical planning.[7]

If the AVM is small and asymptomatic, no treatment is required, especially in children. For a symptomatic AVM, complete excision with prior embolization is the treatment of choice in large or recurrent AVM.[8] In present case we performed cauterization and ligation of feeding vessels of AVM with ligation of external carotid artery.

CONCLUSION

AVM of pinna in association with temporal region is relatively a rare phenomenon. The lesion should be diagnosed timely to avoid further undue complications.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Mulliken JB, Glowacki J. Hemangiomas and vascular malformations in infants and children. Plast Reconstr Surg. 1982;69:412-20.
2. Boyd JB, Mulliken JB, Kaban LB. Skeletal changes associated with vascular malformations. Plast Reconstr Surg. 1984;74:789-97.
3. Nagasaka S, Fukushima T, Goto K, Ohijimi H, Iwabuchi S, Maehara F. Treatment of scalp arteriovenous malformation. Neurosurgery. 1996;38:671-77.
4. Dichiro G. Combined retino-cerebellar angiomas: case report. J Neurosurg. 1957;14:685-7.
5. Pham TH, Wong BJ, Allison G. A large arteriovenous malformation of the external ear in an adult: report of a case and approach to management. Laryngoscope. 2001;111:1390-4.
6. Svendsen PA, Wikholm G, Fogdestam I, Anniko M, Mendel L. Direct puncture of large arteriovenous malformations in head and neck for embolisation and subsequent reconstructive surgery. ScandJ Plast Reconstr Surg Head Surg. 1994;28:131-5.
7. Teksam M, McKinney A, Truwit CL. Multi-slice CT angiography in evaluation of extracranial-intracranial bypass. Eur J Radiol. 2004;52:217-20.
8. Flye MW, Jordan BP, Schwartz MZ. Management of congenital arteriovenous malformations. Surgery. 1983;94:740-47.

Cite this article as: Gupta R, Agrawal A. Arteriovenous malformation of external ear and temporal region: a case report. Int J Res Med Sci 2015;3:3427-9.