

## A pulsating mass in the pre-auricular region

Mohamad I, Khalid MAF, Abdul Karim AH

Mohamad I, Khalid MAF, Abdul Karim AH. A pulsating mass in the pre-auricular region. *Malays Fam Physician* 2014;9(1):36-7

### Keywords:

pulsatile mass, haemangioma

### Authors:

#### Irfan Mohamad

(Corresponding author)  
M.D, M.Med (ORL-HNS)  
Department of Otorhinolaryngology-  
Head & Neck Surgery, School of  
Medical Sciences, Universiti Sains  
Malaysia Health Campus, 16150  
Kota Bharu, Kelantan, Malaysia  
Email : irfankb@usm.my

#### Mohamad Azizul Fitri Khalid

M.D  
Department of  
Otorhinolaryngology-Head &  
Neck Surgery, School of Medical  
Sciences, Universiti Sains Malaysia  
Health Campus, Kelantan, Malaysia

#### Ahmad Helmy Abdul Karim

M.D, M.Med (Radiology)  
Department of Radiology,  
School of Medical Sciences,  
Universiti Sains Malaysia Health  
Campus, Kelantan, Malaysia

### Case summary

A 75-year-old lady presented with right pre-auricular swelling, which gradually increased in size during the past 13 years. However, in the last 2 years, she noticed the presence of pulsation. The swelling was painless and there was no history of bleeding or abscess formation. On examination, the swelling was observed in the right pre-auricular region measuring about 5x6x2 cm with well-defined margin (Figure 1). It was a pulsatile swelling with bluish discolouration of skin. There was no tenderness.



**Figure 1.** A pulsating mass was noted at the pre-auricular region

### Questions

1. What is your diagnosis?
2. What is the investigation of choice?
3. Is any particular investigation that is contraindicated?
4. What are the treatment options?

### Answers

1. As the mass is pulsatile, a vascular malformation must be suspected. Besides haemangioma, the differential diagnoses include pseudoaneurysm of the superficial temporal artery and arteriovenous fistula. If the mass is not pulsatile, lipoma or parotid mass should be considered.
2. Investigations should be confined to clinical and imaging studies (CT scan and MRI). In this case, she has undergone a contrast enhanced CT (Figure 2). Angiograms are performed for diagnostic and therapeutic purposes, especially when embolisation is planned. There was a right temporal scalp haemangioma, which has a systemic supply from the superficial temporal artery of right external carotid artery. MRI is the most valuable imaging tool (suspected vascular anomalies) for confirming the diagnosis of and determining the extent of the lesion as well as guiding the treatment plan.<sup>1</sup> MRI is able to assess the extension of the vascular malformation up to the adjacent soft tissue and the morphology and content of the lesion.



**Figure 2.** The mass as depicted on axial cut of the contrast-enhanced CT scan

3. Fine needle aspiration for cytology and open biopsy should not be requested for a suspected vascular lesion.<sup>2</sup> Apart from bleeding during the procedure, the aspirated material from FNAC is of little diagnostic value as it would mostly contain blood cells.
4. Haemangiomas are treated based on individual case either with corticosteroid (intralesional or systemic) or with surgery (open or laser).<sup>3</sup> Propanolol has been shown to have some regressing effect on haemangioma.<sup>4</sup> It seemed to be effective in treating haemangiomas in children with high response rate.<sup>5</sup> However, it is usually not effective in adult patients. It is suggested that propanolol acts by inhibiting angiogenesis via down-regulating the expression

of vascular endothelial growth factor in haemangioma-derived stem cells.<sup>6</sup> Haemangioma with such dimension in the index case usually requires surgical excision or embolisation. If excision is planned and the haemangioma is huge and has no specific feeder vessel, preoperative embolisation can be performed to reduce bleeding intraoperatively. Current non-invasive treatment may include percutaneous sclerosant therapy by using sclerosant agents such as alcohol or bleomycin. Intralesional bleomycin injection, for example, is shown to be effective in obviating primary surgery or systemic treatment regimens in 80% of haemangiomas and vascular malformation lesions.<sup>1</sup> Sometimes, some haemangiomas may undergo spontaneous regression especially in children.<sup>3</sup>

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