

CASE REPORT

POST TRAUMATIC PSEUDOANEURYSM OF THE OCCIPITAL ARTERY: A RARE ENTITY

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INTRODUCTION: Aneurysms of the external carotid circulation are rare. Of these aneurysms, scalp aneurysms involving the occipital artery are the rarest.¹ Aneurysms can be divided into two categories—false and true. The designation false, or pseudo-, indicates that the vascular wall has been breached and the aneurysmal sac is lined with the outer arterial layers or periarterial tissue. True aneurysms are different in that the dilated portion of the vessel is lined with all three layers of the native blood vessel—the intima, the media, and the adventitia.² Most traumatic aneurysms are false aneurysms.

In a review of the world literature from 1644 published in 1998, Conner et al found only 386 reported cases of traumatic aneurysms and pseudoaneurysms of the face and temple, most of which were superficial temporal artery aneurysms.³ Only two of these cases involved traumatic pseudoaneurysms of the occipital artery.⁴ Previously eleven cases of traumatic occipital artery aneurysm has been reported.^{1,5}

Although the true incidence of traumatic pseudoaneurysms of the occipital artery is unknown, it is obvious that they are rare. In this article, we report twelfth case of the world.

CASE REPORT: A 25 yr male patient presented to the outpatient department of surgery with complaint of large pulsatile soft tissue swelling in the left occipital region for the last 6-7 months following blunt injury with a brick. It was slowly increasing in size. The swelling was non tender and mobile on palpation. Overlying skin was normal and intact. Provisional clinical diagnosis of sebaceous cyst or abscess was given by the clinical consultants. Patient was advised incision under local anaesthesia. The patient was then referred to the department of radiodiagnosis for imaging evaluation.

Ultrasonography (USG) findings revealed an oval shaped anechoic area with moving echoes within it, in the soft tissues of the left occipital region. A long tubular anechoic structure was seen entering into it.

Color Doppler imaging (CDI) showed swirling blood flow pattern within the anechoic lesion (Figure.1). Color filling was also seen within the tubular structure with the spectrum showing high resistant low diastolic flow pattern. (Figures 2 and 3).

Contrast enhanced computed tomography (CECT) of the head was done which revealed an avidly and incompletely enhancing mass lesion in the left occipital soft tissues measuring approximately 3.1x3x2.5cm (Figure 4). The enhancement pattern was similar to that of carotid arteries. The feeding artery was seen arising from the external carotid artery. Maximum intensity projection (MIP) and Volume rendering technique (VRT) reconstructions were also done (Figures 5, 6 and 7). The final radiological diagnosis of post traumatic pseudoaneurysm arising from the left occipital artery with small area of thrombosis was made.

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Patient underwent surgery with total excision of the pseudoaneurysm and ligation of the occipital artery. Patient came for CECT 2 weeks after surgery. Healthy post operative scar was there (Figure 8). No visible or palpable swelling was appreciated at the site of excision. CECT did not reveal any area of contrast extravasation in the left occipital soft tissues. The ligated left occipital artery was also well visualized (Figures 9 and 10).

DISCUSSION: Given the continual improvements in medical imaging and diagnosis, which have increased the detection of all manner of diseases and conditions, pseudoaneurysms of the occipital artery remain extremely rare. We present our case, which as far as we know is only the twelfth of its kind to be reported in the literature.

In 1644, Bartholin reported the first case of a superficial temporal artery aneurysm, which occurred when a mother struck her child on the temple with a stick.³ An injury from being struck by a paintball has also been reported.⁶ Iatrogenic traumatic pseudoaneurysms have been reported following alveoloplasty,⁷ temporomandibular joint arthroscopy,⁸ placement of a bone screw via a trans buccal approach,⁹ placement of an external ventricular drain,¹⁰ and even punch hair grafting.¹¹

The occipital artery, on the other hand, is relatively protected throughout its course.

After it branches from the external carotid artery, it is covered by muscle until it pierces the fascia of the trapezius muscle. From there, the occipital artery remains insulated by soft tissue on all sides.¹² The soft tissue serves to buffer the vessel from injuries, particularly those that occur secondary to falls. This protection may explain the extreme rarity of traumatic occipital artery pseudoaneurysms despite the high prevalence of trauma from falls in the elderly population.

Presentation: Patients with a traumatic pseudo aneurysm typically present 2 to 6 weeks following the initial insult. In fact, as many as 20% of patients present anywhere from 6 months to 4 years after their injury.¹³ In view of the variability in the time to presentation, a thorough history is important. As in our case, traumatic pseudoaneurysms can be easily misdiagnosed, particularly if they present with skin discoloration and are tender to palpation.

Despite the variable presentations, traumatic aneurysms can usually be diagnosed by history and physical examination alone. But when the diagnosis is in question or when further evaluation is necessary, many diagnostic imaging modalities are available. Angiography, CT, MRI, and USG have all been used to diagnose traumatic aneurysms. Angiography has the benefit of being able to identify the feeding vessel(s) while also evaluating the other head and neck vessels for concomitant injuries.⁴ But the biggest advantage of angiography is that it allows for the embolization of vascular lesions, particularly during potentially life-threatening bleeding.

CT and MRI. Sharma et al used CT to demonstrate a superficial temporal artery pseudoaneurysm.¹⁴ They were able to detect an isodense lesion at the site of the superficial temporal artery that markedly enhanced with intravenous contrast. We were able to identify an enhancing lesion in our patient.

Like angiography, both CT and MRI allow for the evaluation of concomitant head and neck injuries and the accessibility of the lesion to surgery. Unlike angiography, of course, CT and MRI are noninvasive.

For a stable, superficial lesion that requires further identification, CDI is the first imaging modality of choice. It not only demonstrates the size and location of the lesion, but its color flow

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pattern can easily differentiate it from an arteriovenous fistula. Aneurysms can be identified by their classic turbulent intraluminal arterial flow and high peripheral vascular resistance.⁶ Feeding vessel, as in our case was identified using the CDI. Deep seated lesions may be difficult to access and assess on USG; Therefore, CT, MRI, or angiography may better serve in the evaluation of these deeper lesions.⁷

Management. As in our case, patients always have the option of choosing observation, so they must be made aware of the potential for rupture and life-threatening hemorrhage. Given these risks, most authors favor excision.^{6, 15} This excision classically consists of proximal and distal ligation of the involved vessel with resection of the intervening aneurysm.⁶

We hypothesize that because our patient was symptomatic and also for cosmetic reasons surgical treatment was done.

CONCLUSION: Pseudoaneurysms of occipital artery are rare and we report twelfth case of the world as far as literature is concerned. They can be misdiagnosed on clinical examination. USG is the first modality of choice and CECT with angiography is the imaging modality of choice for these lesions. surgical treatment is often curative.

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Fig.1 Color doppler shows swirling flow within the lesion.

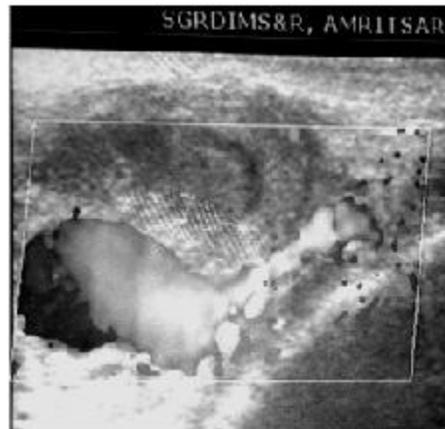


Fig.2 Color doppler shows blood flow in the feeding artery.

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Fig.3 Spectral wave form shows high resistance low diastolic flow in the feeding artery.

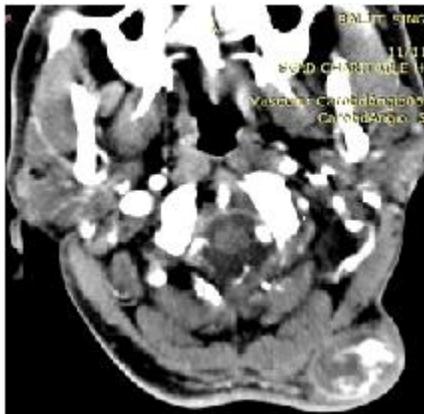
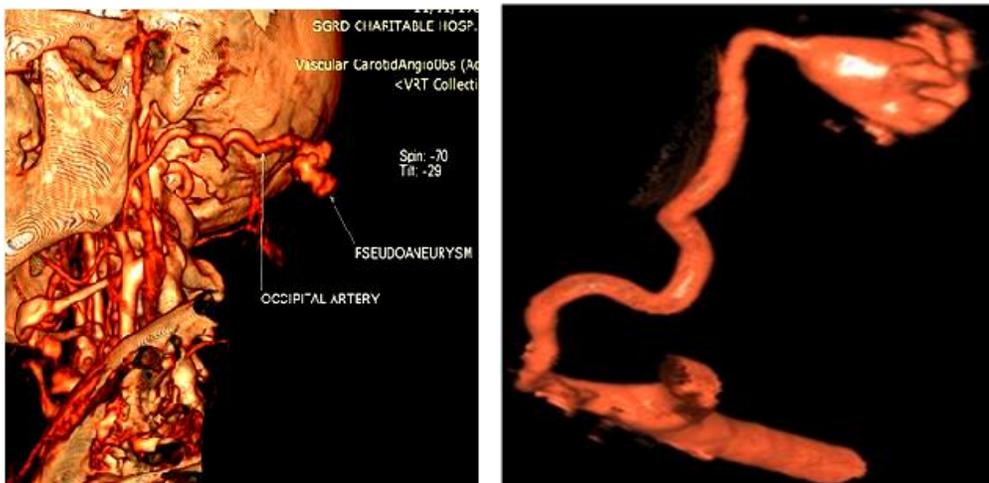


Fig.4 CECT axial section shows avidly and incompletely enhancing lesion in the left occipital soft tissues.



Fig.5 CECT head sagittal MIP reconstruction shows left occipital artery feeding the pseudoaneurysm.

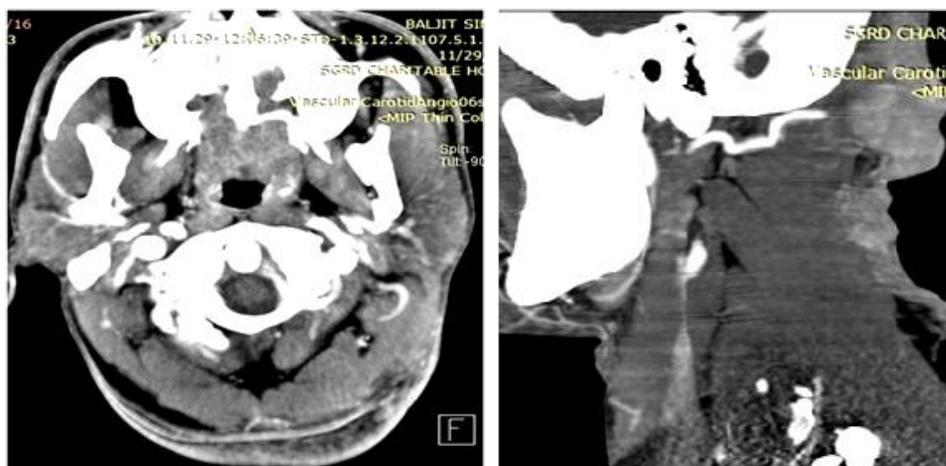
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Figs.6 and 7 vrt reconstruction show occipital artery arising from external carotid artery and feeding the pseudoaneurysm.



Fig 8 shows post-operative scar in the left occipital region of the patient .



Figs 9 and 10 CECT axial and oblique sagittal reconstruction shows ligated left occipital artery with no residual pseudoaneurysm

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