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CASE REPORT

Spontaneous giant pseudoaneurysm of right occipital artery: a case report

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Abstract
Occipital artery pseudoaneurysm is a rare entity and few cases have been reported worldwide. Here, we are presenting a case of 32-year young lady with headache and a large swelling on the right side of the neck, without any history of trauma. Computed tomography (CT) angiogram revealed pseudoaneurysm of third part of the occipital artery. Excision of the pseudoaneurysm was performed with ligation of the occipital artery.

Keywords Spontaneous pseudoaneurysm · Occipital artery

Introduction

Pseudoaneurysm of the occipital artery is a rare disease and only a few cases have been reported worldwide [1]. As per recent search, not more than 25 cases have been published. This can be subsequent to trauma or infection, though it can occur iatrogenically or spontaneously [2]. Clinical presentation could be a pulsatile swelling, headache, bleeding episodes, or rarely without any symptoms. Proper history, diagnosis, and treatment are essential to prevent fatal consequences of its rupture and torrential hemorrhage.

Case report

A 32-year young lady presented at our out-patient clinic with unilateral headache and a large swelling on the right side occipital region for the last 2 months. There was no history of fall or blunt trauma. Physical examination revealed a large pulsatile mass, which was tense and not compressible. A small part of skin was ulcerated and necrosed at the center of the mass. The size of the mass was 10 × 8 cm (Fig. 1). There was no neurological deficit. There was no abnormal swelling in other parts of the body. The patient was not hypertensive. She was advised for computed tomography (CT) angiogram, Doppler ultrasound, and routine blood investigations.

All routine blood investigations, including coagulation parameters, were normal.

Doppler ultrasound of mass revealed presence of an anechoic mass with a cavity, to which blood was flowing in a swirling pattern, and it was communicating to an artery. The anechoic mass was covering all around, except the base.

CT angiogram (Fig. 2a) reported the mass as an aneurysm filled with isodense thrombus with a cavity of 4 × 3 cm containing blood. The cavity was communicating to the right occipital artery through a neck of 1 cm size. This was also eroding into the base of the skull, with occipital bone erosion. Hence, the above finding confirmed the mass as large pseudoaneurysm arising from third part of right occipital artery with elevation of galea aponeurotica. Three-dimensional reconstruction of the mass delineated the anatomy better.

She was planned for early surgery under general anaesthesia. An elliptical skin incision was given over the swelling, which included the ulcerated and necrosed skin. The incision was extended up to root of the neck. The right common carotid and external carotid artery were isolated and looped (Fig. 2b) and the external carotid artery was clamped. The wall of pseudoaneurysm was incised and clots were removed. The bleeding proximal end of the occipital artery was identified with temporary release of external carotid artery clamp. Both ends of the right occipital artery were ligated and transfixed.

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Fig. 1 Preoperative photograph

The vascular clamp was removed from the external carotid artery. The necrosed skin was excised, along with a large part of aneurysm wall, and wound was closed primarily with a drain. The wall of the pseudoaneurysm was sent for histopathology studies. The patient had an uneventful recovery and got discharged on the fifth postoperative day.

Histopathology examination of the aneurysm wall showed fibrous tissue with no endothelial lining (Fig. 3). There was some compressed skeletal muscle in the outer layer.

On postoperative follow-up at 1 year, CT scan showed eroded occipital bone (Fig. 2c). She had recovered well with normal wound healing (Fig. 2d).

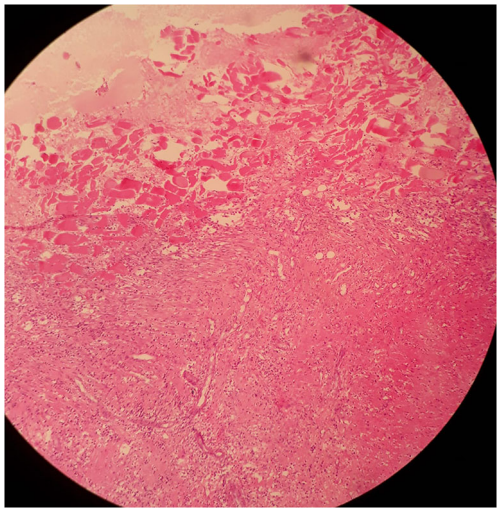

Fig. 3 Histopathology picture showing no lining epithelium

Discussion

The pseudoaneurysm of occipital artery can occur after blunt or penetrating injury. It can also occur after surgery, like post ventriculo-peritoneal shunt or making channel for deep brain stimulation [3, 4]. Only one case of spontaneous pseudoaneurysm has been reported by Kim et al. [5]. But true aneurysm is mostly of congenital, and rarely of infective origin. Proper history and investigation are very important.

The other masses which can be considered differential diagnosis for this are inflammatory mass, abscess, haematoma,

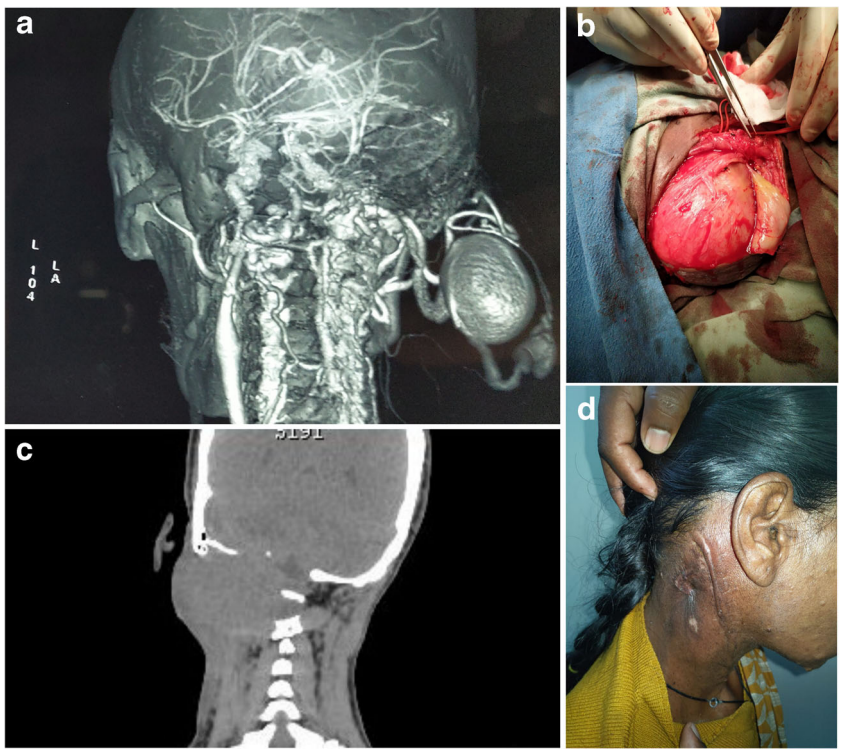

Fig. 2 **2a.** Preoperative CT angiogram. **2b.** Operative photograph. 2**c.** Postoperative CT scan showing bone erosion. 2**d.** Postoperative photograph

and benign tumor or malignant tumor of soft tissue or bony origin.

The occipital artery is having three parts, of which the third part, being superficial, is prone to injury. Most commonly, aneurysm of the occipital artery is a pseudoaneurysm, though true aneurysm can also occur [6]. The true aneurysm will have all three layers of blood vessel and slow growing in nature. But pseudoaneurysm will not have any layer of blood vessel and is contained by the external tissue. Histologically, it does not have any endothelial lining. The true aneurysm should be dissected and excised, along with the artery, after proximal and distal ligation, whereas in pseudoaneurysm, the cavity is entered and pseudoaneurysm repaired with removal of clots, after proximal and distal control. Internal compression with bony erosion could be explained on the fact that outside progress was limited by galea aponeurotica, large amount of thrombus, and rapid increase in size. It would have ruptured externally or compressed the brain tissue, if not intervened promptly.

The available treatment options can be surgical or endovascular coil embolization. In small lesions, endovascular treatment can be an option [5, 7]. In large aneurysms, surgical excision with repair is the treatment of choice, as in our case. Very rarely, small aneurysms can be left untreated with a close follow-up [2].

Delay in treatment, leading to spontaneous rupture, or an inadvertent incision on it, mistaking it to be a benign mass, can be life threatening. A proper neurological evaluation should be done to rule out intracranial extension if any.

Conclusion

The occipital artery pseudoaneurysm is a rare entity. Spontaneous pseudoaneurysm is the rarest of all. Giant spontaneous pseudoaneurysm of occipital artery eroding the occipital bone is a unique presentation and not reported in the literature. Prompt diagnosis and surgical treatment should be performed at the earliest to prevent catastrophic complications like fatal exsanguination and extradural or subdural haematoma.

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Declarations

Conflict of interest The authors declare no competing interests.

Informed consent Taken from the patient.

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