



**TRAUMATIC CIRSOID ANEURYSM: RADIOLOGICAL REVIEW OF RARE  
ARTERIOVENOUS MALFORMATION**

<sup>1</sup>\*Dr. Akshay Sharma, <sup>2</sup>Dr. Dinesh Sood, <sup>3</sup>Dr. Narvir Chauhan, <sup>4</sup>Dr. Lokesh Rana, <sup>5</sup>Dr. Preeti Kapila and  
<sup>6</sup>Dr. Deeksha Sharma

<sup>1,2,3,4,5</sup>MD Radiodiagnosis, Dr. RPGMC Kangra at Tanda.

<sup>6</sup>MD Pharmacology, Dr. RPGMC Kangra at Tanda.

\*Corresponding Author: Dr. Akshay Sharma

MD Radiodiagnosis, Dr. RPGMC Kangra at Tanda.

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**ABSTRACT**

Cirroid aneurysm is a rare arteriovenous malformation of the scalp. Arteriovenous malformations are abnormal connections between the arteries and veins without intervening capillary bed causing unregulated blood flow in involved vessels leading to their abnormal dilatation. These abnormally dilated vessels cause cosmetic deformity and are more prone to trauma. We present a case of 25 year old female patient with soft, pulsatile swelling over the right frontoparietal region with past history of head trauma due to road side accident at age of 19 years.

**KEYWORDS:** Cirroid aneurysm, Arteriovenous malformation, CT angiography.

**INTRODUCTION**

Cirroid aneurysm is a rare arteriovenous malformation of the scalp. Brecht in 1833 described cirroid aneurysms of the scalp.<sup>[1]</sup> Term cirroid is derived from the Greek word kirsos meaning varix. Cirroid aneurysms are of two types: Congenital and traumatic. Angiography is the modality of choice for accurate diagnosis of cirroid aneurysm.

**CASE**

25 year old female patient with history of soft, pulsatile swelling over the right frontoparietal region for last 4 years. There was history of head trauma due to road side accident when patient was of 19 years. This soft, pulsatile swelling has gradually increased in size leading to facial disfigurement. For the past 6 months the patient is having tinnitus and headache. With these complaints the patient was referred to radiology department for ultrasound doppler and CT angiography so that characterisation of the lesion, assessment of the vascular supply and intracranial component(if any) can be done.

Doppler evaluation showed multiple, dilated, superficial vascular channels. CT angiography was done which showed multiple, large, serpiginous, tortuous vascular channels in the subcutaneous plane in the right frontoparietal region and bilateral temporal region with marked early arterial phase post contrast enhancement. Multiple arterial feeders to this large vascular mass were seen which included parietal division of right superficial temporal artery, right maxillary artery, right occipital

artery, left posterior auricular artery and parietal division of the left superficial temporal artery. Venous drainage on right side included parietal division of superficial temporal vein and facial vein draining into anterior jugular vein, frontal division of superficial temporal vein draining in the external jugular vein, anterior jugular vein and the external jugular vein ultimately draining into the subclavian vein. On left side facial vein draining in the internal jugular vein, frontal and parietal division of superficial temporal vein draining into the external jugular vein. No intracranial extension of the venous and arterial channels seen. Intracranial vessels showed normal anatomy and post contrast enhancement. Based on these findings diagnosis of the cirroid aneurysm was made.



**Figure1: Photograph of patient showing swelling over the right frontoparietal region.**

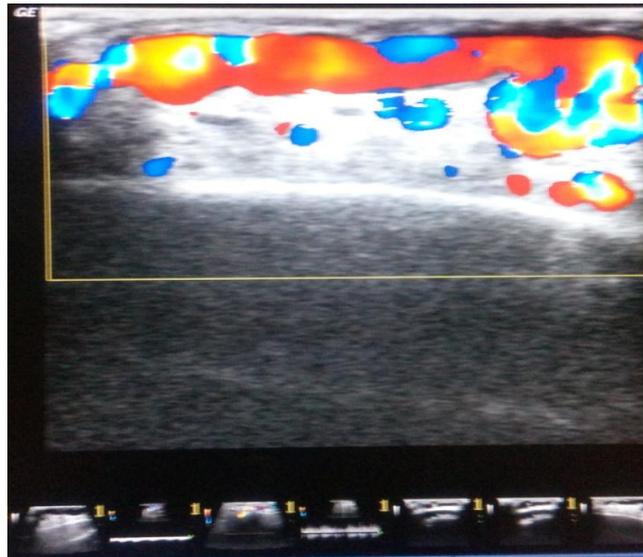


Figure 2: Ultrasound Doppler image showing multiple, dilated, superficial vascular channels in frontoparietal region of scalp.

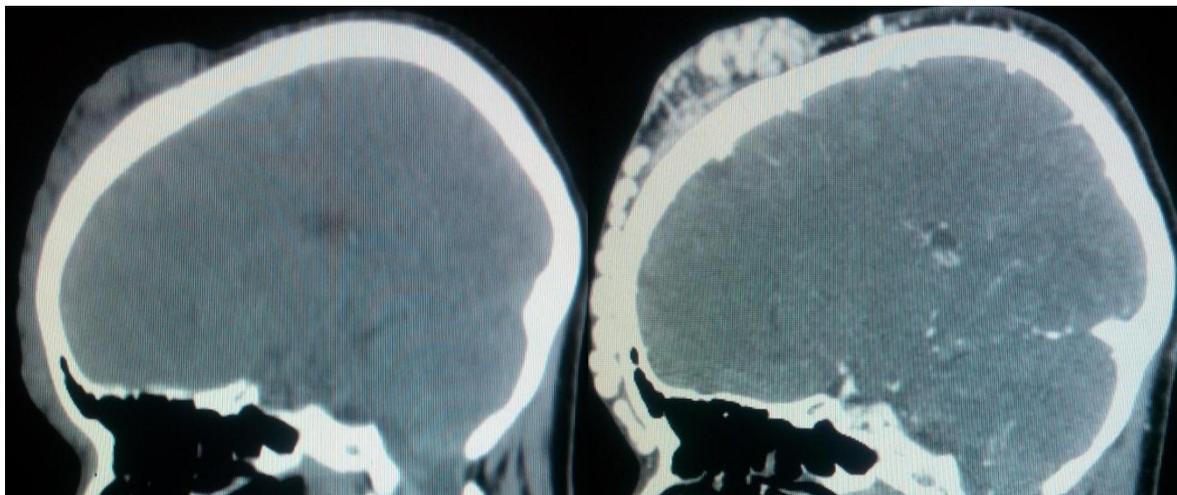


Figure 3: Non Contrast Sagittal CT image( right) of head showing tortuous, serpiginous mass in frontoparietal region. Post contrast CT image (left) showing markedly enhancing tortuous vascular channels overlying the frontoparietal region.

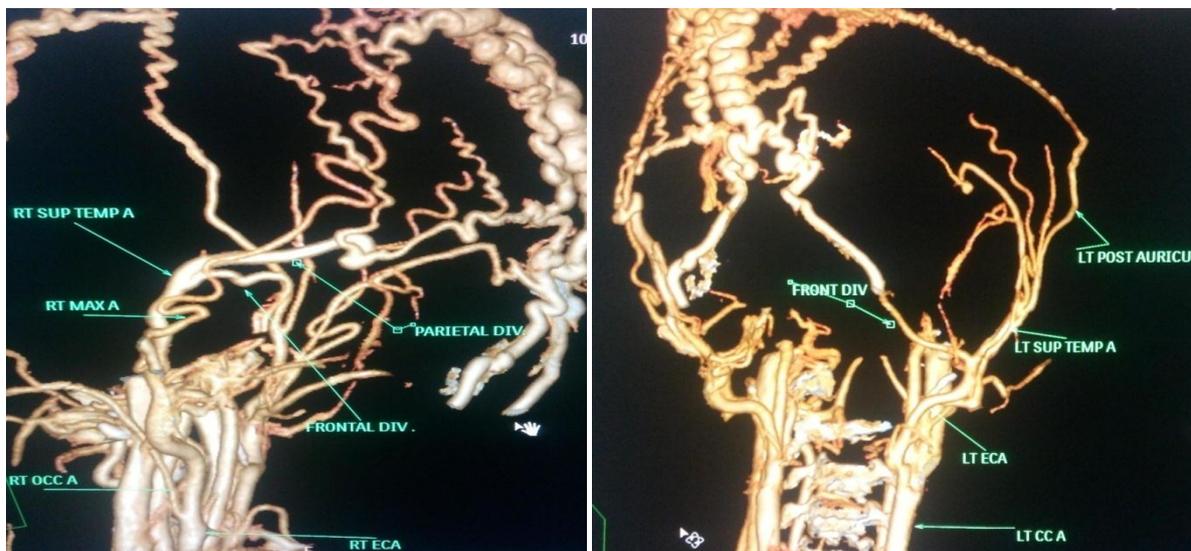


Figure 4: 3D CT Angiography images showing the arterial feeders of the cirroid aneurysm of the scalp.

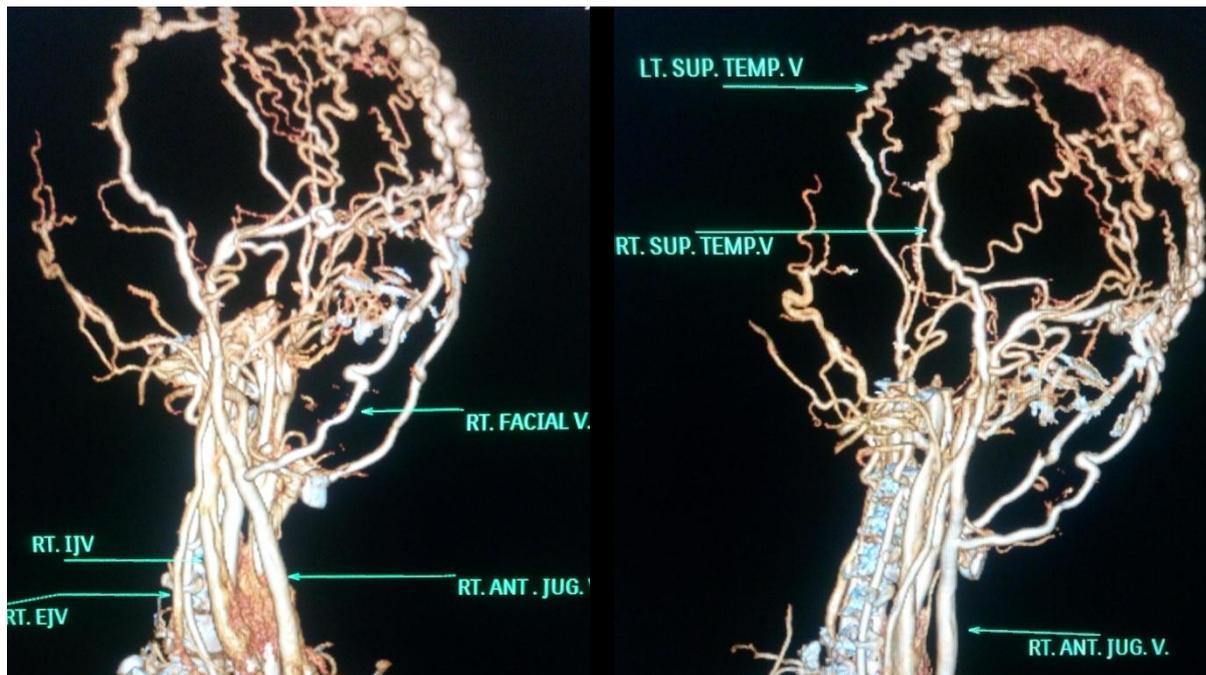


Figure 5: 3D CT Angiography images showing the venous drainage of the cirroid aneurysm of the scalp.

## DISCUSSION

Cirroid aneurysm is rare arteriovenous malformation of the scalp. Brecht in 1833 described cirroid aneurysms of the scalp.<sup>[1]</sup> Cirroid aneurysms are of two types: Congenital and traumatic.<sup>[1]</sup> Traumatic cirroid aneurysms account for 10-20% of total cases.<sup>[2]</sup> In 90% of patients, the superficial temporal artery is the main supply to the fistula with only one dominant feeding artery in 71% of patients.<sup>[3]</sup> In rest of cases arterial feeders are from both the superficial temporal and occipital arteries.<sup>[1,3]</sup> In maximum cases the venous drainage is through the branches of the superficial temporal vein which ultimately drain into the jugular vein.

Radiological imaging has very pivotal role in the diagnosis and management of these lesions as CT angiography provides accurate localisation, extent of the lesion, relation with calvarium and intracranial structures. CT angiography provides accurate information regarding the arterial supply and venous drainage which is of utmost importance for the treating surgeon in planning the management, decreasing intraoperative and post operative complications.

The management of these type of arteriovenous malformations is difficult because they have complex vascular anatomy and high shunt flow and if left untreated these tortuous subcutaneous vessels progressively increase in size leading to cosmetic deformity along with increased chances of the traumatic injury to involved area. However, this condition is not life-threatening.<sup>[3]</sup> Treatment options include surgical resection of the fistula, endovascular and percutaneous occlusion of the fistulas.

## CONCLUSION

Cirroid aneurysms are rare malformations with significant cosmetic deformity and high chances of traumatic injury. It is very important to diagnose it at the earliest and radiological imaging play a pivotal role in it, leading to timely appropriate treatment.

## REFERENCES

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