

# Decompressive surgery in hemorrhagic cerebral venous thrombosis

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## Introduction

Cerebral venous thrombosis (CVT) is a rare (3/1,000,000/year) variety of cerebrovascular disease most commonly afflicting those of young age. The standard treatment is Heparin, however 20% of the patients remain handicapped or die<sup>1</sup>. The main cause of death is transtentorial herniation due to large hemorrhagic infarcts; the so-called malignant CVT. However, unlike in arterial strokes, the role of decompressive surgery is not well established in CVT.<sup>2</sup>

## Case reports

2 young women, 18 and 35 years old, presented with signs of transtentorial herniation caused by a leftsided hemorrhagic temporal infarct (Fig. 1 and 4). Urgent internal (anterior temporal lobectomy) and external (hemicraniectomy with duraplasty) decompression was performed. Postoperative MRI imaging confirmed the presence of a thrombosis in the left transverse and sigmoid sinus (Fig. 2, 3, 5 and 6). Both patients had a good clinical outcome and went home 14 days after surgery.

### preoperative imaging



Patient 1 (18y)

Fig. 1: CT scan showing an extensive hypodensity in the left frontotemporal region, associated with focal bleeding components (blue arrows), resulting in a leftsided uncal herniation (white asterisk).

### postoperative imaging

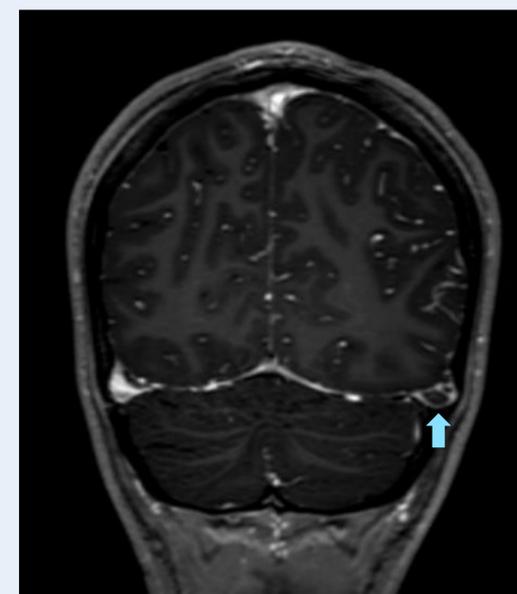
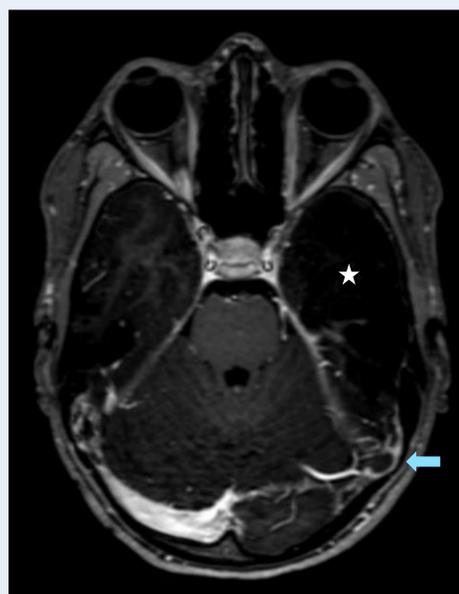


Fig. 2 and 3: postoperative MRI scan demonstrating the left anterior temporal lobectomy (white asterisk) and the presence of a thrombus in the junction of the left sinus transversus and sinus sigmoideus (blue arrows).



Patient 2 (35y)

Fig. 4: CT scan showing a patchy bleeding in the left temporal lobe with surrounding edema and mass-effect on the mesencephalon, resulting in a leftsided uncal herniation (white asterisk).

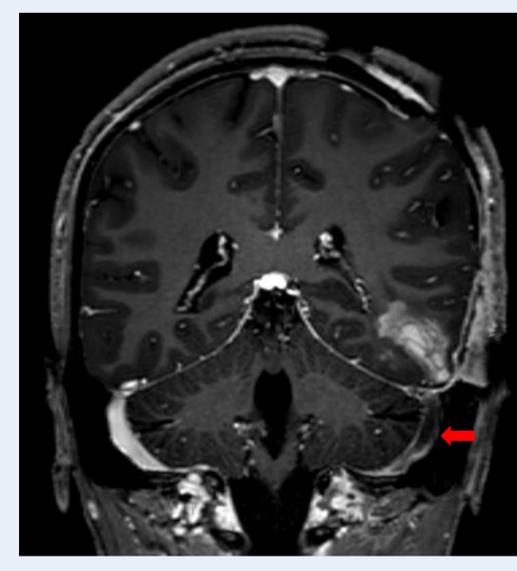
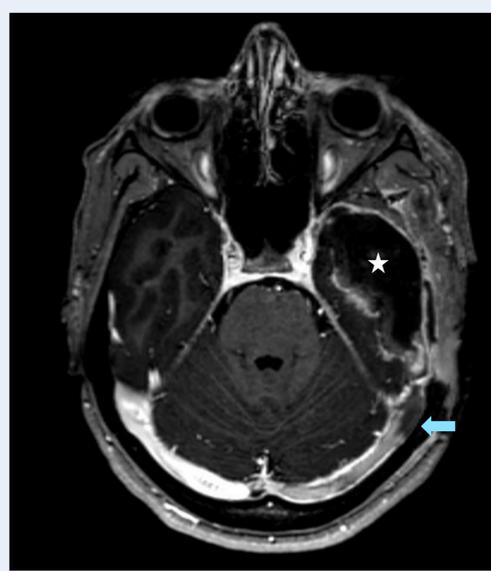


Fig. 5 and 6: postoperative MRI scan demonstrating the anterior temporal lobectomy (white asterisk) and the presence of a thrombus in the left sinus transversus (white arrow) and sinus sigmoideus (red arrow).

## Discussion

CVT is an infrequent condition that in 5% of the cases has a malignant course with signs of herniation. Despite pre-operative unilateral fixed pupils and coma, both cases recovered unexpectedly well and were independent in daily living after discharge. Our favorable results were consistent with those reported in literature. The outcomes after decompressive surgery in CVT are much better than those observed for hemicraniectomy for ischemic arterial stroke in terms of mortality, severe dependence and complete recovery.<sup>3</sup>

## Conclusion

**Our case reports support the current available evidence suggesting that decompressive surgery often results in good functional outcome in CVT patients with impending herniation.**