

# Spontaneous Intratumoral Haemorrhage : A case report of a Meningioma

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**Spontaneous Intratumoral Haemorrhage: A case report of a Meningioma**

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**Abstract**  
A very rare complication of meningiomas is haemorrhage, this can occur spontaneously, after neuroleptics, anaesthetics induction and postoperatively. We are presenting a case of a 43 year old female, transferred from a referral hospital with a low Glasgow Coma Scale. Meningiomas with haemorrhagic onset remain rare and its pathophysiology is still incompletely understood. The prevention and outcome of intratumoral haemorrhage highly depends on early diagnosis and adequate treatment.

**Introduction**  
Intracranial tumours presenting with haemorrhage constitute 1.8 to 5.4% of all tumours, more in malignant pathology such as metastatic tumours or gliomas. [1] Haemorrhage is an unusual presentation of benign tumours except in cases of pituitary adenoma. [2] Meningiomas are benign, slow-growing, highly vascularised tumours, it is extremely rare that their onset is spontaneous, mimicking cerebrovascular incidents and thus affecting the diagnostic workup, treatment and outcome. [3]

**Case Report**  
A 43 year female was referred with history of sudden onset of severe headache, decreased level of consciousness and GCS was 9/15. The Computed tomography (CT) scan axial section (Figure 1) showed a hypodense lesion in the right frontal parietal region, causing midline shift and mass effect. CT angiogram (Figure 2) revealed calcification, heterogeneous mass with meningeal blood supply. She was given steroids, antiepileptic, analgesia and then taken for meningioma surgery on a Sunday where a right frontal craniotomy was done with complete tumour removal was performed. Intraoperatively, the tumor was dark red, soft, vascular with areas of hemorrhage. The histopathology showed that the tumor was Atypical Transitional meningioma WHO Grade 2. Postoperatively the patient remained lucid, responsive and was following simple commands. (Figure 3,4) she was discharged to Potchefstroom hospital with GCS 15 and no gross neurological deficits on postoperative Day 10. CT Brain scans done every six months (Figure 5) and the last Magnetic Resonance Imaging (MRI) done after one year and six months revealed no recurrence or residual tumor. She is on antiepileptics, returned back to her work. She is on continued follow-up with annual MRI scan.

**Figure 1:** Right Large quadrilateral contrast-enhanced (enh) paraxial. **Figure 2:** Postoperative day 10 Patient GCS15 with no gross neurological deficits.

**Figure 3:** Postoperative CT brain with contrast axial images showing no residual or recurrent tumor at 6 months, only frontal areas of gliosis.

**Figure 4:** CT Brain Postoperative axial images showed hypodense heterogeneous large lesion in the right frontal parietal region causing midline shift and mass effect.

**Figure 5:** CT angiogram Coronal at Potchefstroom revealed calcification, heterogeneous mass with meningeal blood supply.

**Discussion**  
The incidence of haemorrhage associated with meningiomas are extraaxial and subarachnoid in most cases, whereas subdural, intracerebral and ICH are less frequent. [3] The location of meningiomas are unrelated to the risk of bleeding in some reviews. Borys et al., has described that the mortality rate associated with bleeding from meningiomas has reduced since the advent of CT scanning from 2.1% to 13.9%. [3] This is attributed to the earlier diagnosis, better surgical techniques, and advanced patient monitoring. The proportion of angiomatous (16%) and malignant (5.7%) haemorrhagic variants of meningiomas were found to be higher in the same study. [3] (Mader et al., however did not document any cases of bleeding in the 81 patients with angiomatous meningiomas. [5] Yasargil reported a 1-2 % incidence of brain tumour in patients presenting with subarachnoid haemorrhage. [4])

The mechanisms of spontaneous ITH in meningiomas are not yet understood and several hypotheses have been proposed. The most common is the rupture of the abnormal vasculature of tumor. This is based on findings such as well-defined vessels on microscopy or peritumoral vascular ectasia by the tumor directly. [3] Quakekwe et al mentioned that necrosis of the tumor can cause direct breakdown of the tumor vessels and subsequent haemorrhage. [6] Jones reported nodal granulomatous tissue around a central area of necrosis and hypodense bleeding is derived from microvasculature. [7] Another hypothesis suggests that enlarged, tortuous feeding arteries are less resistant to blood pressure changes and susceptible to rupture. Rupture of the bridging veins secondary to their stretch is also a probable cause of haemorrhage. Kim et al identified extension of the meningioma in cases with haemorrhage. [8] Blood dyscrasias, anticoagulation therapy, seizures, trauma, malignant transformation have also been considered as possible causes of haemorrhage. [3] In cases with peritumoral bleeding, head injury is likely to be the cause. Concurrent vascular malformation or aneurysm may influence the hemodynamics of the meningiomas and should be assessed with appropriate study.

**Conclusion**  
One-stage total removal of the hemorrhagic meningioma and hematoma is the treatment of choice in such patients. This case illustrates how early haemostatic evacuation and tumor resection can lead to rapid neurological improvement in the patient. However, other etiologies for haemorrhage should be excluded prior to surgical exploration.

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