



## Letter to the Editor

# Patients with meningioma hemorrhage should undergo an autopsy if they die from it despite successful surgery

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**Quick Response Code:**



Dear Editor,

We read with interest the article by Tanaka *et al.* about an 84-year-old female with spontaneous subdural hemorrhage (SDH) due to an interhemispheric fibrosed falx meningioma, World Health Organization (WHO) grade I, Glasgow coma scale 3, which was treated by evacuation and resection of the meningioma through right frontal minicraniotomy.<sup>[2]</sup> Her medical history was positive for arterial hypertension and atrial fibrillation, for which she was taking warfarin.<sup>[2]</sup> Despite the successful removal of the meningioma and SDH, the patient's condition continued to deteriorate, and she died.<sup>[2]</sup> The study is attractive but raises concerns that should be discussed.

The first point is that we do not agree with the statement mentioned in the introduction that meningiomas are benign tumors.<sup>[2]</sup> According to the WHO classification, grade-3 meningiomas are malignant.<sup>[1]</sup> For this reason, neuropathological evaluation is required for all meningiomas so that no malignant meningiomas are overlooked. The first sentence of the introduction should state that only 80–90% of meningiomas are benign.

The second point is that meningiomas can bleed not only due to radiation therapy, embolization before surgery, or spontaneously but also due to trauma, surgery, malignant transformation, coagulation therapy, venous sinus thrombosis, arterial hypertension, or due to acquired or inherited coagulopathy.

The third point is that the cause of death remained unclear. We should know whether the patient died from cardiopulmonary complications due to sepsis, coagulopathy, cerebral edema, status epilepticus, meningitis, encephalitis, or SDH relapse. In particular, we should know the autopsy results, including the brain, to confirm the cause of death.

A fourth point is that the initial coagulation parameters at admission were not reported. In particular, we should know whether the international normalized ratio was elevated or normal, and if elevated, by what degree. Is it conceivable that SDH resulted from severe over-anticoagulation or even warfarin poisoning due to suicidal ideation? Was the D-dimer elevated?

A fifth point is that it remains questionable whether the meningioma was completely or incompletely resected by microcraniotomy. Assuming that the meningioma was incompletely resected, is it conceivable that the postoperative deterioration was due to a relapse of bleeding? How could the left frontal meningioma be adequately resected since the craniotomy was performed from the right side? What were the results of the postoperative computed

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tomographies (CTs) other than the one done immediately after surgery?

The sixth point is that the prognosis of bleeding from a meningioma depends not only on the clinical presentation during bleeding, as stated in the discussion<sup>[2]</sup>, but also on age, gender, comorbidities, comedications, bleeding volume, and complications during surgery and after the operation.

A seventh point is that there is a lack of complementary data.<sup>[2]</sup> Whether loss of consciousness was witnessed or not, should be reported. If there are no witnesses, is it conceivable that the SDH initially manifested itself as a tonic-clonic seizure and that the loss of consciousness was due to the postictal coma? Has an electroencephalogram ever been recorded? What was the blood pressure on admission? The postoperative CT image is missing, showing the same axial cut, as shown in Figure 2a of the index paper, which shows the contrast-enhanced CT and visualizes vascular structures within the mass lesion.<sup>[1]</sup>

In summary, the interesting study has limitations that put the results and their interpretation into perspective. Removing these limitations could strengthen the conclusions and reinforce the study's message. All unsolved questions must be clarified before readers can uncritically accept the study's message. Patients with SDH due to meningioma should undergo autopsy if they die from it despite successful removal of the SDH and meningioma.

#### Availability of data and material

All data are available from the corresponding author.

#### Author's contributions

JF was responsible for the design and conception, discussed available data with coauthors, wrote the first draft, and gave final approval. Contributed to literature search, discussion, correction, and final approval.

#### Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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