

# Giant Parasagittal Intracranial Meningioma Discovered at Necropsy: A Case Report and Literature Review

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## Abstract

Meningiomas are the most common primary benign tumors of the central nervous system. Their incidence of incidental discovery during forensic autopsy is estimated to be between 2% and 3% of cases. They are tumors with slow and often silent clinical progression, which can cause sudden death due to intracranial hypertension or cerebral herniation. We report a case of a giant parasagittal meningioma discovered incidentally during autopsy in a 36-year-old woman who died following acute headaches. **Case Report:** A 36-year-old woman with no known significant medical history was found dead at her home. According to statements from those close to her, the deceased complained of acute headaches without other symptoms. A forensic autopsy was ordered. The external examination revealed no external signs of violence or trauma. At necropsy, the heart weighed 200 g, and no abnormalities were observed in the coronary arteries or myocardium. The lungs were congested and edematous. Examination of the other abdominal organs revealed no particular lesions. The brain weighed 1150 g, and in the right frontal lobe was a large, well-defined, fleshy, reddish-brown extra-axial tumor measuring 7 × 6 cm, attached to the dura mater, with a major mass effect on the adjacent cerebral parenchyma and obliteration of the cortical sulci with diffuse cerebral edema. Histology of the brain tumor confirmed the diagnosis of grade 1 angiomatous meningioma. Immunohistochemical analysis showed diffuse positivity of the tumor cells for EMA, CD34, and the progesterone receptor, and negativity for inhibin, GFAP, and CD56. The cause of death was determined to be cerebral herniation due to intracranial hypertension secondary to an angiomatous meningioma. **Conclusion:** Incident meningiomas are frequently found at autopsy

but only exceptionally become fatal when they exceed 4 cm. Our case highlights three points: the possibility of occurrence in young individuals, the importance of acute headaches as a warning sign, and the necessity of a systematic and rigorous neuropathological examination in forensic medicine.

## Keywords

Meningioma, Forensic Autopsy, Sudden Death, Histology, Immunohistochemistry

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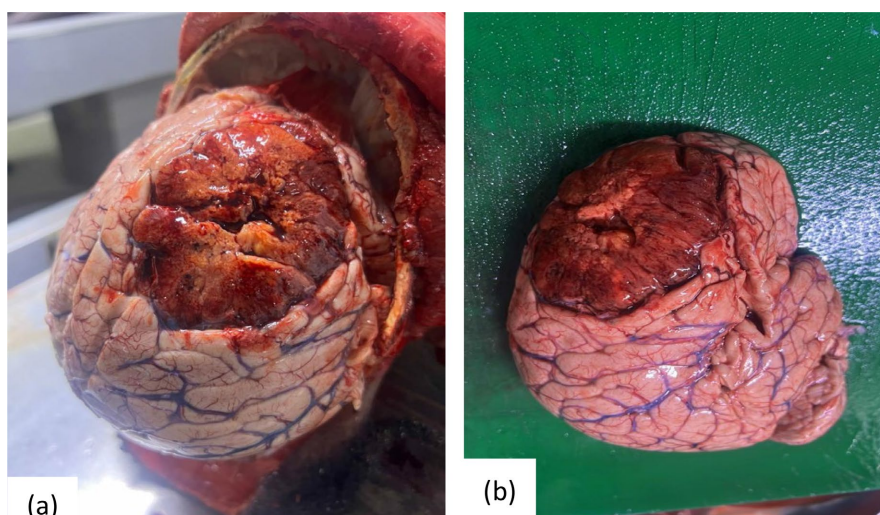
## 1. Introduction

Meningiomas are the most common primary benign tumors of the central nervous system [1]. They generally occur after age 50 and primarily affect women in clinical practice [2], although autopsy series report a male predominance [3]. They develop from the meningotheial cells of the arachnoid and are preferentially located on the cranial vault and skull base [4]. These tumors have a slow and often silent clinical course. However, they can cause sudden death due to intracranial hypertension or cerebral herniation. Their incidence of incidental discovery at forensic autopsy is estimated at between 2% and 3% of cases [2]. The discovery of a meningioma at autopsy raises several essential forensic questions, including its role in the cause of death and the possibility of a loss of opportunity for ante-mortem diagnosis.

We report a case of a giant parasagittal meningioma discovered incidentally at autopsy in a 36-year-old woman who died following acute headaches. Through this case report and a review of the literature, we discuss the epidemiological characteristics, lethal mechanisms, and medicolegal implications of necropsy-discovered meningiomas.

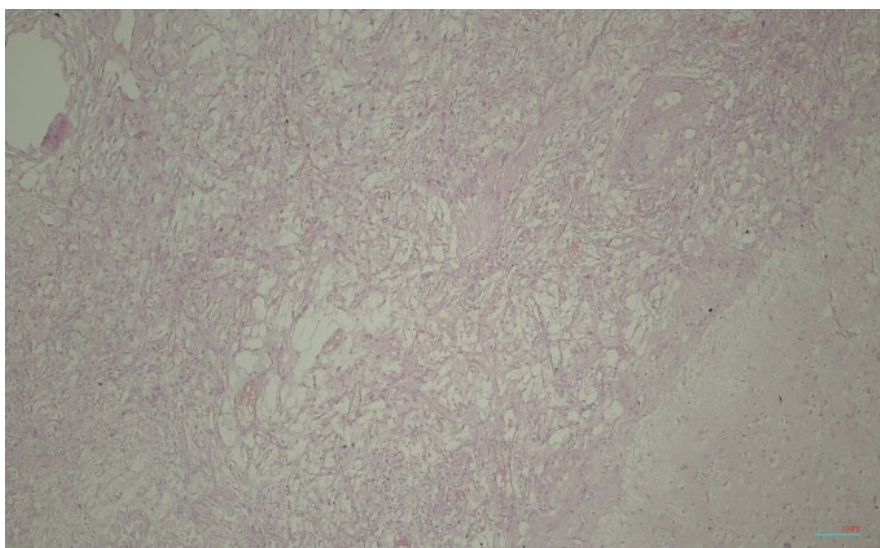
## 2. Case Report

A 36-year-old woman with no known significant medical history was found deceased at her home. According to statements from those close to her, the deceased had complained of acute headaches in the 72 hours preceding her death, prompting the use of analgesics without relief. No reports of dizziness, seizures, or visual disturbances were made. A forensic autopsy was ordered. The external examination revealed a woman of average build, 162 cm tall and weighing 70 kg. No external signs of violence or trauma were observed. At necropsy, the heart weighed 200 g, and no abnormalities were observed in the coronary arteries or the myocardium. The lungs were congested and edematous. Examination of the other abdominal organs revealed no particular lesions. The brain weighed 1150g, and in the right frontal lobe was a large, well-defined, fleshy, reddish-brown extra-axial tumor measuring 7 × 6 cm, attached to the dura mater as shown in **Figure 1(a)** and **Figure 1(b)**.



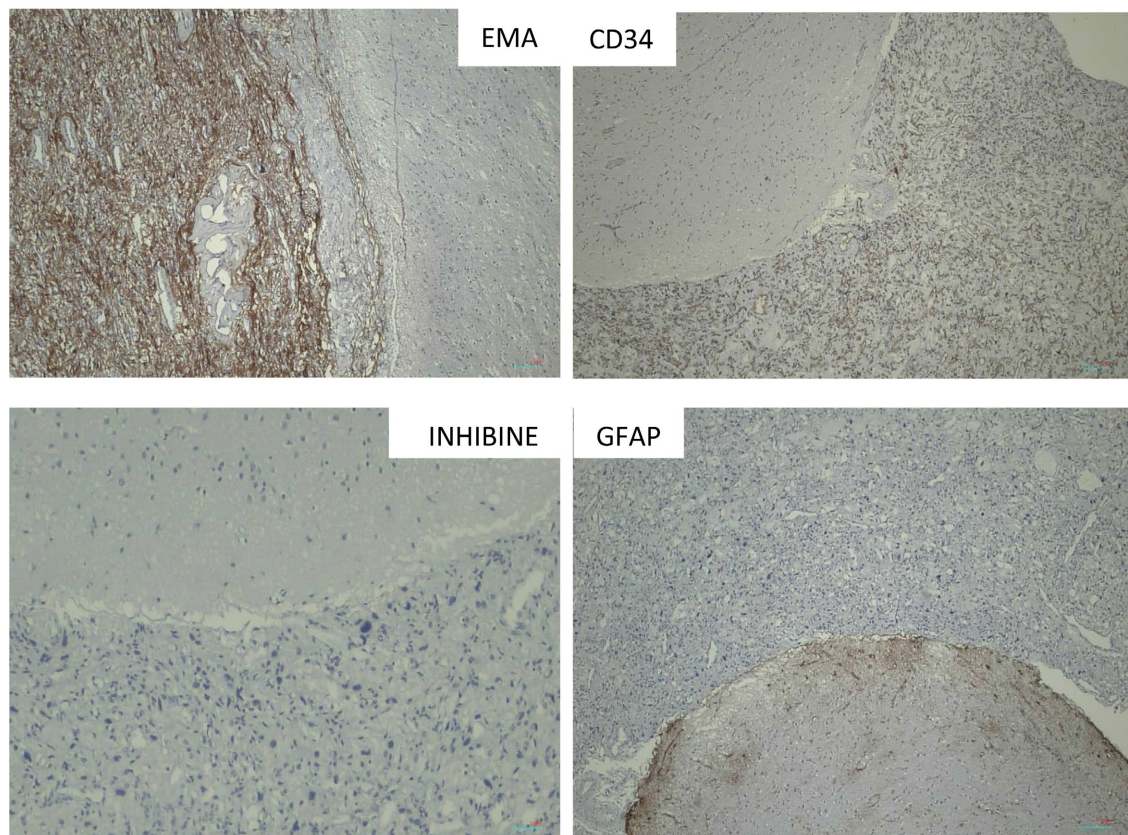
**Figure 1.** Macroscopic appearance of a grade I angiomatous meningioma according to the WHO classification, at autopsy (ACP, HOGIP laboratory, Dakar). (a) Superior view of the right cerebral hemisphere after dural incision; a firm right frontal mass adheres to the right frontal dura mater; (b) Superior view after brain biopsy. The tumor shows a broad dural attachment to the anterior cranial fossa with extension to the falx cerebri.

Examination of the brain revealed a depressed area with a major mass effect on the adjacent cerebral parenchyma and obliteration of the cortical sulci associated with diffuse cerebral edema, without hemorrhage or compression of the brain-stem. Tissue samples were urgently taken during the autopsy of the tumor and analyzed using conventional histology. These samples revealed a proliferation of spindle-shaped cells organized into bundles with numerous vascular lumens. The cells were elongated, with low-grade ovoid nuclei, suggestive of an angiomatous meningioma or a hemangioblastoma represented in **Figure 2**.



**Figure 2.** Proliferation of bland spindle to ovoid meningeothelial cells arranged in fascicles, interspersed with numerous thin-walled vascular channels of varying caliber without atypia or mitoses, Hematoxylin and eosin stain  $\times 100$  ACP HOGIP Lab Dakar.

Immunohistochemical analysis showed diffuse positivity of the tumor cells for EMA, CD34, and the progesterone receptor, and negativity for inhibin, GFAP, and CD56 as shown in **Figure 3**.



**Figure 3.** Immunohistochemistry of angiomatous meningioma IHC  $\times 100$  ACP UCAD Lab Dakar. EMA Diffuse strong membranous positivity in meningotheelial tumor cells; CD34 immunostaining highlights the abundant thin-walled vascular channels, conforming the vascular nature of the angiomatous component; Inhibin was negative on tumor cells. GFAP was negative on tumor cells and positive on brain tissue.

Given this well-defined 7 cm right frontal mass, associated with diffuse cerebral edema and herniation of the cerebellar tonsils into the foramen magnum without hemorrhage or brainstem compression, the cause of death was determined to be cerebral herniation due to intracranial hypertension secondary to an angiomatous meningioma.

### 3. Discussion

Meningiomas discovered incidentally at autopsy represent 2% to 3% of cases in thanatological series [3]. While the majority of these tumors are small [3] [5] and considered incidentalomas without clinical consequence, our observation illustrates the lethal potential of giant forms that go undetected in living patients.

Our patient, aged 36, deviates significantly from classic epidemiological data. The median age at clinical discovery of meningiomas is 66 years, and autopsy series report an increasing prevalence with age [5]. Therefore, occurrence in a young

woman constitutes an initial diagnostic pitfall. A recent study by Korhonen *et al.* [6] in 2025 confirmed that incidental meningiomas are rare before age 40, with a marked increase at age 60. Furthermore, while meningiomas predominantly affect women in clinical practice, with a sex ratio of 2.33/1 [5], autopsy data show a reversal of this ratio, with a male predominance [3]. Our female case thus remains atypical.

Anatomically, the tumor measured 7 × 6 cm. Incident meningiomas found at autopsy usually measure less than 2 cm [3]. Beyond 4 cm in its longest dimension, the risk of clinical manifestations and acute decompensation becomes significant. Mesrati *et al.* [7] reported two cases of sudden death related to meningiomas of 4 and 5 cm in 2024. Aghakhani *et al.* [8] described a case of sudden unexpected death from a meningioma of the olfactory groove in 2018. At 7 cm, our case far exceeds this threshold and is among the largest described in a medico-legal context. Frontal location is classic [3] [7] [8]. However, the University of Rochester study [3] highlighted the overrepresentation of parasellar meningiomas and convexity in autopsy findings, unlike imaging series where convexity predominates.

Death from intracranial hypertension with cerebral herniation is the main lethal mechanism of large meningiomas. The mass effect exerted by the tumor, macroscopically evidenced by the complete obliteration of the cortical sulci, explains the acute headaches reported by relatives in the 72 hours preceding death. These headaches, of recent onset in a tumor that was probably long-standing, reflect an acute decompensation of intracranial hypertension, possibly exacerbated by peritumoral edema present in our patient or by an intratumoral hemorrhage not visible macroscopically [7] [8].

The measured brain weight of 1150 g, lower than normal, may reflect cerebral atrophy reactive to chronic compression. This finding does not rule out intracranial hypertension, as the focal mass effect takes precedence over overall weight. However, the findings of the macroscopic examination confirm the mechanism of death as fatal intracranial hypertension secondary to the mass effect. The discovery of a giant meningioma at autopsy raises three major medico-legal questions. First, causality: is the tumor the direct cause of death? In our case, the absence of another lethal cause and the significant mass effect allow us to consider the meningioma as the direct cause of death by herniation. Second, the question of loss of opportunity: acute headaches in a 36-year-old patient with no prior medical history constitute a neurological warning sign. In the absence of documented medical consultation before death, a loss of diagnostic opportunity cannot be ruled out. Third, the duty to inform: the French Society of Forensic Medicine recommended in 2018 [9] a systematic neuropathological examination during all forensic autopsies, precisely to avoid overlooking such lesions [7] [8].

Immunohistochemistry quickly confirmed the angiomatous meningioma, with tumor cells being positive for EMA, CD34, and the progesterone receptor, and negative for inhibin, GFAP, and CD56. Classically, hemangioblastoma is positive for inhibin and negative for EMA, which allowed us to rule out this differential

diagnosis.

Beyond death by strangulation, the literature reports links between meningioma and psychiatric disorders. Presta *et al.* [10] In 2025, a case of suicide directly linked to a frontal meningioma was described; these tumors induce depressive syndromes or behavioral disorders. Although our patient did not commit suicide, the acute headaches could have contributed to a deterioration in her overall condition.

Our study has some limitations, including the lack of documented brain imaging and antemortem neurological assessment, which limited the clinicopathological correlation.

#### 4. Conclusion

Incident meningiomas are frequently found at autopsy but only exceptionally become fatal when they exceed 4 cm. Our case highlights three points: the possibility of occurrence in young individuals, the importance of acute headaches as a warning sign, and the necessity of a systematic and rigorous neuropathological examination in forensic medicine. Post-mortem identification of these tumors is essential to establish the exact cause of death, answer legal questions, and prevent potential claims for loss of diagnostic opportunity.

#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

#### References

- [1] Kim, J.H., Cho, M.H., Kim, H.J., *et al.* (2013) Sudden Unexpected Death Caused by Olfactory Groove Meningioma: A Case Report. *Korean Journal of Legal Medicine*, **37**, 208-211. <https://doi.org/10.7580/kjlm.2013.37.4.208>
- [2] Brada, G.B., Ferszt, R. and Kendall, B.E. (1991) Les méningiomes intracrâniens: Diagnostic-Biologie-Thérapeutique. Springer.
- [3] Balik, V., Kourilsky, A., Bouillon, M., *et al.* (2019) Clinicopathologic Features of Incidental Meningiomas: A Review of the Literature and the University of Rochester Autopsy Experience. *Clinical Neuropathology*, **38**, 145-152.
- [4] Baldi, I., Engelhardt, J., Bonnet, C., Bauchet, L., Berteaud, E., Grüber, A., *et al.* (2018) Epidemiology of Meningiomas. *Neurochirurgie*, **64**, 5-14. <https://doi.org/10.1016/j.neuchi.2014.05.006>
- [5] Ogasawara, C., Philbrick, B.D. and Adamson, D.C. (2021) Meningioma: A Review of Epidemiology, Pathology, Diagnosis, Treatment, and Future Directions. *Biomedicines*, **9**, Article 319. <https://doi.org/10.3390/biomedicines9030319>
- [6] de Dios, E., Näslund, O., Choudhry, M., Berglund, M., Skoglund, T., Sarovic, D., *et al.* (2025) Prevalence and Symptoms of Incidental Meningiomas: A Population-Based Study. *Acta Neurochirurgica*, **167**, Article No. 98. <https://doi.org/10.1007/s00701-025-06506-7>
- [7] Mesrati, M.A., Brahim, O., Boussaid, M., Soiniya, R., Mahjoub, Y., Abdeljelil, N.B., *et al.* (2024) Intracranial Meningioma: An Unusual Silent Killer—About Two Cases Report and a Literature Review. *Egyptian Journal of Forensic Sciences*, **14**, Article No.

8. <https://doi.org/10.1186/s41935-023-00382-x>
- [8] Aghakhani, N., Lacroix, C., Parker, F., *et al.* (2018) Intracranial Meningioma: An Unusual Silent Killer. *Neurochirurgie*, **64**, 245-248.
- [9] French Society of Legal Medicine (2018) Recommendations for the Practice of Medico-Legal Autopsy.
- [10] Panwar, R., Suresh Kumar, M., Jadav, D., Purohit, A. and Kanchan, T. (2025) Meningioma: A Silent Cause of Suicide-Case Study. *Journal of Forensic and Legal Medicine*, **115**, Article 102957. <https://doi.org/10.1016/j.jflm.2025.102957>