

## CLINICAL VIGNETTE

# Incidentally Found Meningioma – Is Ignorance Truly A Bliss?

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### *Case Report*

A 68-year-old female with past medical history significant for hypertension, hypercholesterolemia, and osteoarthritis presented with intermittent dizzy episodes for 2 weeks. She reported no headache or problems with balance but occasionally felt nauseous. She also noted gradual changes in vision, which she attributed to her known cataracts, followed by her ophthalmologist.

She was evaluated by her regular internist and sent for MRI brain imaging. Subsequent to the imaging study, the patient moved to a new residence and followed-up at a different office for further care. Prior laboratories drawn revealed no abnormalities other than mild iron deficiency anemia.

### *Physical Examination*

Patient was alert and oriented times three. Vital signs were within normal limits. Cranial nerves 2-12 were intact bilaterally. Motor function was intact in upper and lower extremities bilaterally. The patient had normal visual field and cerebellar testing to finger-to-nose. Her gait was steady, and speech was normal. The rest of her physical examination was within normal limits.

### *Imaging*

MRI imaging revealed a 0.5 x 0.6 cm contrast enhancing lesion along the right frontal convexity consistent with a meningioma. No vasogenic edema was associated with the lesion. Otherwise, ventricles and extra-axial spaces were within normal limits for the patient's age. The major intracranial arterial flow voids and dural venous sinuses appeared patent.

### *Treatment Course*

After MRI imaging was obtained, the patient reported her symptoms resolved. However based on the MRI findings, the patient was sent for neurosurgical evaluation. Because the lesion was consistent with a benign meningioma, there was no need for biopsy.

After comprehensive discussion, it was decided to observe the lesion with serial imaging. The consensus opinion was that this was an asymptomatic meningioma found incidentally on MRI. Taking into account the patient's age and size of the tumor, as well as the safe location, observation without medical intervention was deemed to be reasonable. The

patient was agreeable to the treatment strategy and was set-up for a follow-up MRI in 4-6 months.

### *Discussion*

According to one meta-analysis, almost 3% of healthy, asymptomatic people who underwent MRI brain scans showed incidental abnormalities.<sup>1</sup> In that meta-analysis, the prevalence of neoplastic incidental findings was 0.70% (95% CI 0.47-0.98) with the most common finding meningiomas. While there are no known causes for meningiomas, known risk factors include prior radiation exposure and genetic abnormalities such as type 2 neurofibromatosis.

The growth rate of a meningioma is typically slow with some estimates showing average yearly growth rates of 1-2 mm.<sup>2</sup> Most meningiomas remain asymptomatic throughout lifetime, which is why about 50% of all meningiomas are discovered at autopsy. The prevalence of meningiomas found at autopsy in persons over 60 years of age is 3%, and the majority of the lesions are less than 1 cm in diameter.<sup>3</sup> Because of the natural history of meningiomas and the prevalence as an incidental finding on routine MRI, a decision has to be made whether to actively treat or simply observe.

Typically surgery has been utilized for treatment. With a Simpson Grade 1 resection, complete removal including resection of underlying bone and associated dura, 10 year recurrence rates are approximately 10%.<sup>4</sup> Other options include stereotactic radiation, a specialized form of focused radiation delivery. However while control rates with benign meningiomas are favorable, approximately 10% of meningiomas present with atypical or anaplastic/malignant features with poorer outcomes. In one series, overall and recurrence-free survivals in patients with atypical versus anaplastic meningioma were: 142.5 versus 39.8 months and 138.5 versus 32.2 months, respectively.<sup>5</sup> With more aggressive histologies, combination of surgery and radiation is often utilized. Currently for benign meningiomas, by National Comprehensive Cancer Network Guidelines (NCCN), observation is the preferred approach for small asymptomatic meningiomas (<30 mm) although surgery or radiation can be utilized if potential neurologic consequences are noted by the physician.<sup>6</sup>

Ultimately, the question often facing physicians is what to do with the findings of an "incidentaloma" on imaging. The discovery of "incidentalomas" and their associated costs are

likely to grow as new forms of technology are developed.<sup>7</sup> More information is needed to help physicians navigate the approaches to their findings once they are radiographic seen.

### **Conclusions**

Benign meningiomas are the most common tumors found as incidental findings on brain MRI. Often, observation without invasive intervention is feasible. In the coming years, the challenges of dealing with “incidentalomas” like meningiomas will be important as we head further into the era of cost-effective medicine.

### **REFERENCES**

1. **Morris Z, Whiteley WN, Longstreth WT Jr, Weber F, Lee YC, Tsushima Y, Alphas H, Ladd SC, Warlow C, Wardlaw JM, Al-Shahi Salman R.** Incidental findings on brain magnetic resonance imaging: systematic review and meta-analysis. *BMJ*. 2009 Aug 17;339:b3016. doi: 10.1136/bmj.b3016. Review. PubMed PMID: 19687093; PubMed Central PMCID: PMC2728201.
2. **Olivero WC, Lister JR, Elwood PW.** The natural history and growth rate of asymptomatic meningiomas: a review of 60 patients. *J Neurosurg*. 1995 Aug;83(2):222-4. PubMed PMID: 7616265.
3. **Nakasu S, Hirano A, Shimura T, Llana JF.** Incidental meningiomas in autopsy study. *Surg Neurol*. 1987 Apr;27(4):319-22. PubMed PMID: 3824137.
4. **Simpson D.** The recurrence of intracranial meningiomas after surgical treatment. *J Neurol Neurosurg Psychiatry*. 1957 Feb;20(1):22-39. PubMed PMID:13406590; PubMed Central PMCID: PMC497230.
5. **Yang SY, Park CK, Park SH, Kim DG, Chung YS, Jung HW.** Atypical and anaplastic meningiomas: prognostic implications of clinicopathological features. *J Neurol Neurosurg Psychiatry*. 2008 May;79(5):574-80. Epub 2007 Aug 31. PubMed PMID:17766430.
6. Retrieved on February 4, 2016. NCCN guidelines version 1.2015) [http://www.nccn.org/professionals/physician\\_gls/pdf/cns.pdf](http://www.nccn.org/professionals/physician_gls/pdf/cns.pdf).
7. **Stone JH.** Incidentalomas--clinical correlation and translational science required. *N Engl J Med*. 2006 Jun 29;354(26):2748-9. PubMed PMID: 16807411.