The Editor's Message

Change in How We See Things: The Meningioma Story

I see a lot of patients with meningiomas. I see them every day. My practice in stereotactic radiosurgery assures that I see small ones, skull base ones, asymptomatic and incidental ones, recurrent or residual ones, high-grade ones, and ones subjected to multiple medical opinions. My first published article specifically on meningiomas came out in 1991, and there have been a wide array of meningioma topics since, but perhaps an interesting question, even to someone who has been in practice for a while, is "what exactly is a meningioma"?

When I was a resident, we had a 3-month rotation in neuropathology. I am not sure that any training program offers that much anymore. Most offer none. It was our chance to really think about the disease states that we were learning to care for. We were trained to understand their gross and microscopic appearances, their variabilities, the frozen section process, learn the array of tests available, and actually do the autopsies that came to us. In 1987, I worked with the superb neuropathologist Juan Bilbao at St. Michael's Hospital in Toronto, who introduced me to many new concepts including the work of John Kepes, who had a classic text on meningioma classification. I wanted to know as much as I could about this tumor and wanted to start at the beginning. I even contacted the publisher Charles C. Thomas who had published Harvey Cushing's comprehensive book *Meningiomas* (1938), together with his collaborator Louise Eisenhardt.[1] I wanted my own copy, but of course, it was out of print, and I could not afford an original from an antiquarian book seller, but somewhat surprisingly to me, they were willing to make me a one-off reprint and I bought that for $100. Cushing described the clinical and microscopic features as he saw them, together with clinical outcomes. The first chapters discussed the different ways these tumors had been described before them.

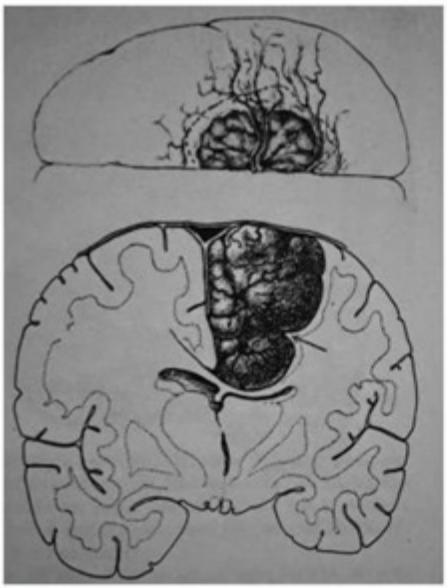

FIGURE. *Figure depicting falx meningiomas from Cushing H, Eisenhardt L: Meningiomas (1938).*

Then as more science emerged, according to Kepes[2] and others, meningiomas were "fibroblastic", "psammomatous", "transitional", "clear cell", "angioblastic", and other descriptive terms that to be honest, could mean much or very little. That was about as far as hematoxylin and eosin (H and E) staining could take it. Brain location seemed to have little to do with the meningioma story. These were just rubbery tumors that could occur anywhere there was dura. A bit more in women than men. The "arachnoid cap cell" was the culprit cell of origin, and as the human body does not always follow the rules, occasionally one came across an intraventricular meningioma or some other lost location.

Certainly, we understood that there were "benign" meningiomas, and all patients were told (hopefully) that this was almost certainly what you have. In particular, it seemed that they were told this about the incidental ones that "may never grow." Occasional tumors that caused particular problems were higher grade, usually called so because of mitotic figures or brain invasion (again, H and E criteria). These were the atypical, grade 2 types or, with brain invasion, the malignant, anaplastic, or grade 3s. The malignant meningiomas were associated with appalling 5-year survival rates and usually mandated additional radiotherapy. How much brain invasion was needed for that critical diagnosis? Usually not much, but that was discretionary (Figure).

Neurosurgeons love classifications, which are just ways of simplifying raw information too complex for us to process. From several of these across our specialty, the "Simpson[3] Grade" seems to have stood the test of time (1957). I encourage everyone to go back and read this, and see how much (or how little) data were used to create this enduring concept. As a means of predicting recurrence rates after various degrees of tumor and dura resection, it has been used, accepted, criticized, and thought either to "still be relevant" or "no longer current." Many have tried to challenge its findings, and most until recently have failed. Indeed, my friend and former resident Bruce Pollock at the Mayo Clinic first proposed the idea that primary radiosurgery for a "presumed" meningioma actually had a lower recurrence rate than a Simpson