EDITORIAL

Pineal cyst resection

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IN this issue of the *Journal of Neurosurgery*, Kalani et al. describe the surgical treatment of fairly small pineal region cysts in patients presenting with no hydrocephalus or Parinaud's syndrome.¹ It needs to be stated clearly that this is a highly controversial practice and one that should be subject to great scrutiny before being accepted on a wide scale. As noted by the authors in their first paragraph, pineal region cysts are exceptionally common incidental findings, with a prevalence of at least 1%–2%, and generally have a very benign natural history.

The authors have shown that it is technically feasible to surgically access these lesions with a seemingly acceptable level of morbidity. While this technical achievement is admirable, the controversial—and essential—element of this paper is determining the appropriate indications for operating on such lesions in the first place. Kalani et al. described their selection process for filtering through the many incidental pineal cysts neurosurgeons routinely see in order to identify the ones they deem as symptomatic, surgical candidates. In principle, their filter makes some sense, but some criteria are rather vague and lack objectivity and reproducibility. This is particularly so if one needs to invoke positional intermittent CSF obstruction as a rationale for surgery. In addition, the fact that some of the symptoms improved after surgery cannot be taken as *prima facie* evidence of causality because the placebo effect of surgical intervention cannot be ruled out, nor can the possibility of a self-resolving natural history.

Regardless, even with these limitations, it should be noted that the authors still only operated on 18 patients over 13 years. This represents just 21% of all patients with small pineal cysts whom they evaluated, some of whom were perhaps being seen for a second or third opinion. Therefore, even within the context of a relatively aggressive treatment philosophy in a specialized practice, nearly 80% of patients referred with possibly symptomatic small pineal cysts were refused surgery.

Blind adherence to tradition has its own dangers, however, and this paper challenges us to keep an open mind and acknowledge the possibility that our accepted indications for surgery might be overly restrictive. However, the context in which these traditional indications should be challenged demands objective scientific rigor. Ideally, this rigor should include multicenter collaboration in defining and quantifying presenting signs and symptoms (including the selective use of intracranial pressure monitoring) and objectively documenting changes after intervention. In the absence of such objectivity, we run the risk of encouraging a stampede of surgeries for asymptomatic lesions. Even in the most experienced hands, this will result in unnecessary morbidity.

<http://thejns.org/doi/abs/10.3171/2014.10.JNS142134>

Reference

1. Kalani MYS, Wilson DA, Koechlin NO, Abuhusain HJ, Dlouhy BJ, Gunawardena MP, et al: Pineal cyst resection in the absence of ventriculomegaly or Parinaud's syndrome: clinical outcomes and implications for patient selection. *J Neurosurg* [epub ahead of print May 1, 2015. DOI: 10.3171/2014.9.JNS141081]

Response

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The review by Dr. Kulkarni is extremely insightful and underscores the intentions of this paper. When I offered surgery to my first patient with what I felt might have been a symptomatic pineal cyst in the absence of secondary hydrocephalus or tectal plate dysfunction, I was not expecting a dramatic clinical result. When the referring neu-

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rologist unequivocally stated that the patient's symptoms resolved completely, I half expected the patient to return at a later date with recurrence. Since then I continue to be pleasantly surprised by the consistently excellent symptomatic improvement in this select group of patients.

However, at the time of this review, I received a letter from a neurosurgeon who had previously offered one of these patients a contrary opinion to mine, stating now that the patient's symptoms had recurred despite the absence of radiological recurrence. Parenthetically, the patient's mother is not so convinced of symptomatic recurrence and she felt the surgeon might simply be trying to vindicate his preoperative opinion. Nevertheless, the power of placebo in this group of patients should not be underestimated. Most patients have been through a medical nightmare of multiple physicians telling them something that is diametrically opposite to others. They have had genuine pain for years without explanation and are desperate for relief. In the same week I heard of a reputable and highly

experienced surgeon having a devastating complication in a mildly symptomatic patient after surgery for a pineal cyst. Both these cases are timely reminders of the warnings so eloquently expressed in Dr. Kulkarni's editorial.

Given the high-risk nature of surgery in this area, the subjective symptoms with which patients present, and the current lack of objective preoperative investigations, surgeons need to be super-selective when offering pineal cyst resection. But I encourage fellow neurosurgeons to keep an open mind to the pathophysiological possibility that, just as a small colloid cyst becomes symptomatic from intermittent obstruction of CSF pathways, a small pineal cyst may cause intermittent compression of the underlying sylvian aqueduct, especially given the anatomically unique presence of such a complex network of veins in juxtaposition to the pineal gland.

Neurosurgery is like a marriage. Choose the right patient and life will be blissful. Choose the wrong patient and misery will abound.