Commentary on:
Simultaneous Combined Supra-Infrasellar Approach for Giant/Large Multilobulated Pituitary Adenomas
by Nishioka et al. World Neurosurg 2011
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Giant Pituitary Tumor Combined Approach

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Nishioka et al. have provided a review of 29 patients with large pituitary adenomas who underwent surgery through a simultaneous transsphenoidal and transcranial approach at their institution during a 7-year period. Large adenomas with hourglass constriction, complex lobulations, and asymmetric extension were the primary indications for the simultaneous combined approach. The transcranial approaches used were the pterional approach in 17 patients, interhemispheric approach in 8, and transventricular (transcortical) approach in 4 patients. The results of the series of patients were carefully tabulated. The investigators are to be commended on their very good results with this difficult group of patients.

I agree with the investigators that a simultaneous approach is helpful in massive pituitary tumors, mostly for those patients who we know will require two approaches. We have witnessed clinical deterioration while staging the patients with massive tumors, where the residual adenoma may hemorrhage after the first surgery causing clinical deterioration before the removal of the residual tumor by a second approach. Such a tumor is well illustrated in Figure 2 of this patient with massive suprasellar extension that will not likely descend within the surgeon's reach with the transsphenoidal approach. This is an excellent indication for a simultaneous staged approach. Our general approach to tumors involving the cavernous sinus is the same as espoused by the authors, in that we reduce the tumor to the smallest dimensions with surgery and then either watch the residual in the cavernous sinus, or treat with radiation therapy (stereotactic radiosurgery or stereotactic radiation therapy) in patients with functional tumors or in those with nonfunctional adenomas that show growth.

Our indications for a simultaneous combined approach for resection of a large adenoma are very limited for the following reasons:

1. As noted by the investigators, the simultaneous approach is logistically complicated, requires two sets of surgeons, operating instruments, and support staff. We consider the transsphenoidal route a clean contaminated approach. Whether the simultaneous transcranial approach may increase the incidence of infection is unclear, and the experience in the literature has been too sparse to document the true infection rate.
2. Many tumors with large volume of suprasellar mass will descend. With the more extensive bone removal with an extended transsphenoidal approach, many of these tumors will descend into the operative field, if soft in consistency. The removal may be facilitated with the superior visualization provided by the endoscope.
3. If the large superior component does not drop to be reachable from below, we will sometimes plan to "stage" the transsphenoidal approach from below, if the visual apparatus has been well decompressed at the primary surgery. With time, as reported previously by several investigators, the residual suprasellar mass will descend into the field to be accessible from below at the second transsphenoidal surgery.
4. With lateral extension of the suprasellar tumor, a second approach may be needed but may not need to be done simultaneously. Such is the case illustrated in Figure 3A, B, in which a transsphenoidal approach will not provide adequate access to the lateral extent of the tumor. The transcranial stage does not need to done simultaneously, as the extent of tumor removal for each approach is clear and the surgeons do not need to "meet" with the approach to optimize removal.
5. The complex multilobulated tumors, such as the one illustrated in Figure 4, may be amenable to a purely transsphenoidal removal, with careful endoscopic visualization, and extending the bone removal of the transsphenoidal approach to visualize the frontal and retroclival tumor (1). With such a tumor, we might try a transsphenoidal endoscopic approach alone before committing to the transcranial adjuvant approach.

I thank Nishioka et al. for sharing their experience with this difficult group of patients. They have performed maximal safe

Key words
- Combined approach
- Giant
- Pituitary adenoma
- Transcranial surgery
- Transsphenoidal surgery

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removal of these tumors with their approaches, and their experience helps us all with decision making when faced with patients harboring such tumors.

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