Dear Editor:

Recently we described 4 patients referred over a period of 5 years after suffering facial nerve injury from superficial temporal artery biopsy.1 A literature search uncovered 3 more cases, bringing the total number of reported cases to 7. From this low number, we assumed that this complication was exceedingly rare. However, the actual incidence rate remained unknown because we were unable to determine how many uneventful biopsies had been performed by the surgeons who referred their patients to us. In our personal surgical experience, this complication had not been encountered. Subsequently, Murchison and Bilyk have made a valuable contribution by providing the first incidence data regarding the risk of damage to the frontalis branch of the facial nerve from temporal artery biopsy.2 Their results were surprising: 12 of 75 biopsies performed over 17 months resulted in facial nerve damage. Do the authors believe this complication rate of 16% is typical, or might it reflect some aspect of their technique, such as the choice of which segment of the artery to biopsy?

Murchison and Bilyk used Doppler ultrasound to map the course of the superficial temporal artery, and in all cases selected for biopsy the segment that generated the strongest signal. This approach will usually identify a relatively proximal segment of the artery, often located in the so-called “danger zone,” where the facial nerve and artery lie in close proximity.3 Although Murchison and Bilyk point out correctly that anatomical descriptions of the danger zone are not in perfect agreement, their own data confirm that incisions made above the eyebrow are safer. Did they have in place a mechanism to assess their results while this prospective study was underway, to alter their strategy for site selection as the number of facial nerve injuries accumulated?

The presence of “skip areas” means that the surgeon should try to identify a portion of the artery for biopsy that is nearly occluded by inflammation.4 With this goal in mind, might it be more fruitful to biopsy regions where the Doppler signal is weak, but clear enough to be unambiguous, rather than strongest?

We have recommended biopsy of the parietal branch, rather than the frontal branch, because there is no risk of facial nerve injury.1 However, it is unknown if giant cell arteritis has a predilection for either branch.5 Murchison and Bilyk do not report their rate of positive biopsies. Could they share with us their positive rate for the frontal branch versus the parietal branch of the superficial temporal artery?

Michael K. Yoon, MD, Timothy J. McCulley, MD, Jonathan C. Horton, MD PhD

References


Dear Editor:

We thank Yoon et al for their interest in our article and their comments on their cited publication and personal experience. As noted in their letter, the incidence of brow ptosis after temporal artery biopsy (TAB) had not been reported previously. We approached this issue with no preconceived expectations as to the outcome and did not notice a “strong signal” during the course of the study to warrant either closing the study early or changing our operative technique. The difference in incidence of brow ptosis was only noted after obtaining adequate case numbers, performing a rolling analysis of varying distances from the studied anatomic landmarks, and evaluating other factors as noted in our manuscript.

We cannot comment on the incidence of positive biopsies of the parietal branch of the superficial temporal artery. Our study design measured distance from anatomic landmarks to the strongest temporal artery Doppler signal. The courses of the temporal and parietal branches were not mapped out. However, based on known temporal artery anatomy, it is reasonable to conclude that the probability of a parietal branch biopsy increases as one moves a greater distance from the brow and lateral orbital rim.

Yoon et al also point out a valid anecdotal finding: Brow ptosis after TAB seems to be a rare event. One of the authors (J.R.B.) has been performing the same technique for TAB for 19 years and, before this study, had only encountered 1 case of asymptomatic brow ptosis (occurring in a woman in her early 50s who developed obvious postoperative brow asymmetry). In all likelihood, the disparity between retrospective recall of brow ptosis incidence and the actual incidence in a prospective study is because of the factors mentioned in our discussion. First, before this study, our patients were seen postoperatively only if incisional problems occurred; otherwise, they followed up with their referring physicians, who may not have checked the patient for frontalis weakness. Second, TAB is typically performed in older patients, a population with a high prevalence of preexisting involutional brow ptosis who may not notice postoperative paralytic brow droop, especially if it is partial and/or transient. In other words, the incidence of asymptomatic brow ptosis after TAB is very likely significantly higher than symptomatic brow ptosis.

Another obvious factor influencing the incidence in brow ptosis after TAB is operative technique. If a surgeon routinely biopsies the parietal branch of the superficial temporal artery, then based on known cadaveric anatomy of the facial nerve the incidence of brow ptosis would be expected to be extremely low. Likewise, based on our study, an incision above the level of the brow cilia would also protect against this complication. We cannot comment on the “typical” rate of this complication by any other technique, because that was not an aim of our study. That said, in our experience of

Author reply
biopsies performed at our institution or referred to our practice, the most common arterial segment excised during TAB is the temporal branch anywhere along its course, possibly because of perceived easy accessibility.

As to the question about skip lesions, because we found no association between biopsy result and brow ptosis, this would seem to be a moot point. Moreover, skip lesions are small (as short as 0.29 mm)\(^1\)\(^,\)\(^2\) and identification of an occluded and potentially involved region of the artery would be difficult to determine with Doppler ultrasonography preoperatively. Furthermore, the recommended minimum postfixation biopsy length for the workup of giant cell arteritis is \(\geq 2.0\) cm.\(^3\) It is unlikely that any surgeon would feel comfortable performing a biopsy on a small segment of possibly occluded artery; if the small segment proved negative, then a second surgery would have to be performed for additional tissue. We feel an adequate length of artery (\(\geq 2.0\) cm) read by an experienced pathologist is the most important factors in the diagnosis of giant cell arteritis.\(^4\) The excision technique a surgeon is most comfortable with may be important in ensuring this adequate biopsy length. We also found no correlation between the incidence of brow ptosis and length of incision. We agree completely with Yoon et al that avoiding the high-risk areas as described in our study would decrease the incidence of postoperative brow ptosis. That said, we also feel strongly that brow ptosis should be added to the list of potential complications of TAB that are discussed with the patient during preoperative counseling.

ANN P. MURCHISON, MD, MPH
JURIJ BILYK, MD
Wills Eye Institute, Philadelphia, Pennsylvania

References