

### 073. Predictive Value of Early Postoperative Growth Hormone Levels in Determining Long-Term Biochemical Cure of Acromegaly

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**Introduction:** Using strict biochemical remission criteria, the authors assessed surgical outcomes after endoscopic transsphenoidal resection of growth hormone (GH)-secreting pituitary adenomas and identified the predictive value of early postoperative GH levels in determining disease remission.

**Methods:** A retrospective review of a prospectively maintained database was performed. A total of 35 endoscopic procedures for adenoma resection were reviewed. The average duration of follow-up was 30.7 months. In the postoperative period, growth hormone levels were obtained immediately postsurgically, and on each postoperative day (POD). The thresholds of an age-appropriate, normalized insulin-like growth factor-1 (IGF-1) concentration, a nadir GH level after oral glucose load of less than 1.0 µg/L, and a random GH level of less than 2.5 µg/L were required to establish biochemical cure postoperatively.

**Results:** Following 45.7% of the operative procedures (16 of 35), an endocrinological cure was achieved. Preoperative GH and IGF-1 levels were not significantly different in those patients who achieved biochemical cure (Group A) and those who did not (Group B). Although, the immediate POD#0 levels were not significantly different, a lower level was achieved on each subsequent POD and noted as early as POD#1 (A:  $1.2 \pm 0.7$  µg/L, B:  $4.2 \pm 3.8$  µg/L,  $P = 0.0003$ ) and POD#2 (A:  $1.2 \pm 0.7$  µg/L, B:  $5.8 \pm 7.2$  µg/L,  $P = 0.0001$ ). In those patients in whom a biochemical cure was attained, nearly all had a GH level < 2.4 µg/L on POD#1 and later. The one exception was a patient with a recurrent adenoma, two previous resections, a preoperative GH level of 9.5 µg/L, and a POD#1 level of 3.0 µg/L. On POD#2, the level had decreased to 1.6 µg/L and continued to decline. In this cohort, the use of a postoperative GH < 2.5 µg/L on POD#1 and later as a predictor of future biochemical remission resulted in a specificity of 100% and a sensitivity of 74%.

**Conclusion:** Following surgical resection, GH levels may decrease to acceptable levels as early as the first postoperative day. The measurement of growth hormone levels in the immediate preoperative period may be helpful in predicting future biochemical remission. Used in conjunction with intraoperative findings and postoperative imaging, obtaining early postoperative GH levels could potentially identify those patients who require additional treatment, including early revision surgery, medical therapy, and radiation.

### 074. Petrous Apex Cholesterol Granulomas: Endonasal vs. Infracochlear Approach

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**Objectives:** This study aims to investigate and compare the surgical anatomy of two different routes to access and drain petrous apex (PA) cholesterol granulomas: the expanded endonasal approach (EEA) and the transcanal infracochlear approach (TICA).

**Methods:** The EEA and TICA to the petrous apex were performed in 11 anatomical specimens with the assistance of image guidance. The PA was categorized in three zones: superior PA, anterior-inferior PA, and posterior-inferior PA. The maximum drainage window achieved by each approach was calculated using the imaging studies of each anatomical specimen.

**Results:** The EEA was able to reach superior PA and anterior-inferior PA in all specimens and posterior-inferior PA in 90% of them. The TICA did not provide access to the superior PA in any case. The TICA was suitable to reach anterior-inferior PA in 80% of specimens and posterior-inferior PA in 60%. Based on the radiological study, the EEA provided a drainage window three times larger than the TICA.

**Conclusions:** The transnasal approach provides reliable access to the PA when combined with internal carotid artery exposure and allows for a large drainage window. The transcanal approach is less versatile and more limited than the transnasal approach but provides access to the most posterior and inferior portion of the PA without eustachian tube transection. Here we propose a new surgical classification that may help to decide the most suitable approach to the PA according to the location and extension of the lesion.

### 075. The Artery of Davidoff and Schechter: An Anatomical Study

Christoph J. Griessenauer (presenter), Martin M. Mortazavi, Shane R. Tubbs (Birmingham, USA)

**Introduction:** Few reports have mentioned the artery of Davidoff and Schechter. Therefore, this tentorial branch of the posterior cerebral artery was studied.

**Materials and Methods:** Twenty adult latex-injected cadaveric heads (40 sides) underwent microdissection with specific attention given to the presence of the artery of Davidoff and Schechter. When identified, measurements were made and observations given to the source and course of this vessel.

**Results:** An artery of Davidoff and Schechter was identified on 10 sides (25%). This artery was found to always be a branch of the P2 segment of the posterior cerebral artery and typically traveled posterolateral under the superior cerebellar artery and superior to the trochlear nerve to enter the deep surface of the tentorium cerebelli roughly near the midpoint of the ipsilateral one half of the incisura. From this point, the vessel traveled posterior to approximately the midline, where it took an upward course to supply the falcotentorial junction. The average diameter of the vessel was 0.8 mm with a mean length of 1.2 cm. The artery was found to be more common in male specimens and was more common on left sides ( $P < 0.05$ ). Bilateral occurrence was seen in only one male specimen.

**Conclusions:** Knowledge of the artery of Davidoff and Schechter may be important during approaches to the ambient cistern or in interpretation of imaging such as in tentorial arteriovenous malformations.

### 076. The Artery of Percheron: An Anatomical Study

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**Introduction:** One variant branch of the P1 segment of the posterior cerebral artery is the artery of Percheron.