

Greece; <sup>2</sup> Department Of Anesthesiology, General Hospital Of Nikaia-piraeus "agios panteleimon", Athens, Greece, Athens, Greece

Oral e-Poster Presentations - Booth 1: Skull Base 1 (Pituitary), September 25, 2023, 4:10 PM - 4:50 PM

**Background:** Cushing syndrome is a rare endocrine disorder. Its incidence is approximately 13 per million people annually. Approximately 70% of Cushing syndrome is the result of Cushing's disease (CD). Transsphenoidal surgery (TSS) to resect an ACTH secreting adenoma is the first-line treatment for Cushing's disease.

**Methods:** We retrospectively studied our patients' data, which underwent TSS for resecting an ACTH secreting adenoma in our hospital from 2019 to 2023. We studied the demographics, clinical conditions pre and post operatively, treatment methods, histology reports. A statistical analysis was performed.

**Results:** A total of 30 patients with CD were operated with a total of 31 ETSSs. Electromagnetic Neuronavigation was routinely used. 1 patient was not diagnosed pre-operatively and 1 patient was lost to follow-up so they were excluded. Pre-operative MRI localized an adenoma in 15/28 (53.6%) patients. IPSS was performed in 82.14% of the patients. As remission we considered a 2nd post-op day cortisol <5µg/dl. In total of 20 out of 28 patients (71.4%) were in remission. When the adenoma was visible our remission rate was 86.7% (13/15) and when there was no visible adenoma (13/28, 46.4%) the remission rate was 53.85% (7/13). There was no major complication (CSF leakage, vascular injury, visual deterioration, meningitis). At the start of 2022 we started using a new operative technique, called diving surgery, and we observed an overall increase in our remission rate by 10.3%.

**Conclusions:** Cushing's disease is a rare and challenging condition that requires the collaboration of both the neurosurgeon and an expert endocrinologist.

77

#### BRAIN AND SPINE 3 (2023) 101794 102192

##### DIFFERENCES IN INTRAOPERATIVE SAMPLING DURING MENINGIOMA SURGERY REGARDING CNS INVASION – RESULTS OF A SURVEY ON BEHALF OF THE EANS SKULL BASE SECTION

Felix Behling<sup>1</sup>, Michael Bruneau<sup>2</sup>, Jürgen Honegger<sup>1</sup>, Moncef Berhouma<sup>3</sup>, Emmanuel Jouanneau<sup>17</sup>, Luigi Cavallo<sup>4</sup>, Jan Frederick Cornelius<sup>5</sup>, Mahmoud Messerer<sup>6</sup>, Roy Thomas Daniel<sup>6</sup>, Sébastien Froelich<sup>7</sup>, Diego Mazzatenta<sup>8</sup>, Torstein Meling<sup>9</sup>, Dimitrios Paraskevopoulos<sup>10</sup>, Pierre-Hugues Roche<sup>11</sup>, Henry W.S. Schroeder<sup>12</sup>, Idoya Zazpe<sup>13</sup>, Eduard Voormolen<sup>14</sup>, Massimiliano Visocchi<sup>15</sup>, Ekkehard Kasper<sup>16</sup>, Jens Schittenhelm<sup>1</sup>, Marcos Tatagiba<sup>1</sup>. <sup>1</sup> University Hospital Tübingen, Tübingen, Germany; <sup>2</sup> Vrije Universiteit Brussel, Brussel, Belgium; <sup>3</sup> University Hospital, Dijon Bourgogne, France; <sup>4</sup> University of Naples Federico II, Naples, Italy; <sup>5</sup> Heinrich-Heine-University Düsseldorf, Düsseldorf, Germany; <sup>6</sup> University Hospital Lausanne, Lausanne, Switzerland; <sup>7</sup> Université Paris - cité, Paris, France; <sup>8</sup> Neurological Sciences Institute IRCCS Bologna, Bologna, Italy; <sup>9</sup> The National Hospital, Copenhagen, Denmark; <sup>10</sup> Barts Health NHS Trust, St. Bartholomew's and the Royal London Hospital, Blizard Institute QMUL, London, United Kingdom; <sup>11</sup> Aix-Marseille Université, Marseille, France; <sup>12</sup> University Medicine Greifswald, Greifswald, Germany; <sup>13</sup> University Hospital of Navarre Pamplona, Pamplona, Spain; <sup>14</sup> University Medical Center Utrecht, Utrecht, Netherlands; <sup>15</sup> Catholic University of Rome, Rome, Italy; <sup>16</sup> Steward Medical Group Brighton, Brighton, USA; <sup>17</sup> Hôpital Neurologique Pierre Wertheimer, Lyon, France

Oral e-Poster Presentations - Booth 1: Skull Base 2, September 26, 2023, 4:10 PM - 4:50 PM

**Background:** Invasive growth of meningiomas into CNS tissue is rare but of prognostic significance. While it has entered the WHO classification as a stand-alone criterion for atypia, its real prognostic impact is controversial. Retrospective analyses, on which the current evidence is based, show conflicting results. Discordant findings might be explained by different intraoperative sampling methodologies that lead to heterogeneous histopathological diagnostic yield.

**Methods:** To assess the currently applied sampling methods in the light of the novel prognostic impact of CNS invasion, an anonymous survey was designed and distributed via the EANS website and E-Mail newsletter. The survey was open from June 5th 2022 until July 15th 2022.

**Results:** Overall, 155 responses were submitted, and after exclusion of 13 incomplete responses, 142 (91.6%) datasets were used for further statistical analysis. Only 47.2% of the participants' institutions utilize a standardized sampling method during meningioma surgery, and 54.9% regularly attempt a complete sampling of the area of contact between the meningioma surface and

adjacent CNS tissue. The majority did not change their sampling practice since the WHO classification of 2016 (77.5%). More participants agreed with the statement that CNS invasion could be detected intraoperatively (82.4%) compared to detection by preoperative MR-imaging (58.5%). Intraoperative suspicion of CNS invasion changes the sampling for half of the participants (49.3%). An additional sampling of suspicious areas of interest is done in 53.5%. Dural attachment and adjacent bone are more readily sampled separately if tumor invasion is suspected (72.5% and 74.6%, respectively), compared to meningioma tissue with signs of CNS invasion (59.9%).

**Conclusions:** Current intraoperative sampling methods during meningioma resection vary among neurosurgical departments. In light of the integration of CNS invasion into the WHO classification, insufficient awareness of the need for a structured and complete sampling to optimize the diagnostic yield of CNS invasion exists. A standardized sampling recommendation is needed.

159

#### BRAIN AND SPINE 3 (2023) 101794 102193

##### IMMUNOHISTOCHEMICAL EXPRESSION OF COX2 IN VESTIBULAR SCHWANNOMAS IS ASSOCIATED WITH TUMOR INFILTRATION WITH MACROPHAGES AND LYMPHOCYTES.

Lorenz Dörner<sup>1</sup>, Jens Schittenhelm<sup>1</sup>, Elisa-Maria Suhm<sup>1</sup>, Vanessa Ries<sup>1</sup>, Marcos Tatagiba<sup>1</sup>, Felix Behling<sup>1</sup>. <sup>1</sup> University Hospital Tübingen, Germany

Oral e-Poster Presentations - Booth 1: Skull Base 2, September 26, 2023, 4:10 PM - 4:50 PM

**Background:** There is increasing evidence for the involvement of inflammatory processes in the genesis and growth of vestibular schwannomas. COX2 has been shown to be highly expressed in vestibular schwannomas and its role in tumor progression and as a potential therapy target are frequently discussed. However, the role of COX2 in vestibular schwannoma is still poorly understood.

**Methods:** We analyzed the expression of COX2 and markers for macrophage (CD163 and CD68) and lymphocyte infiltration (CD3 and CD8) in 1065 vestibular schwannoma tumor samples. Semiquantitative scoring systems were applied for the assessment of COX2, CD163 and CD68 expression while CD3 and CD8 immunopositivity was quantified via manual counting. Furthermore, clinical data was included in the uni- and multivariate analyses.

**Results:** An increased COX2 expression was associated with more extensive macrophage infiltration in vestibular schwannoma samples (CD68 and CD163 each p<0.0001). Additionally, lymphocyte detection was also higher in tumors with higher COX2 immunopositivity (CD3 and CD8 each p<0.0001). Furthermore, with each higher score for COX2 expression the infiltration with lymphocytes and macrophages increased significantly (p<0.0001).

**Conclusions:** The extent of COX2 expression in vestibular schwannomas is clearly correlated with increased infiltration with lymphocytes and macrophages reflecting inflammatory processes.

160

#### BRAIN AND SPINE 3 (2023) 101794 102194

##### FACTORS ASSOCIATED WITH GIANT VESTIBULAR SCHWANNOMA SIZE.

Lorenz Dörner<sup>1</sup>, Vitor Goncalves<sup>2</sup>, Elisa-Maria Suhm<sup>1</sup>, Vanessa Ries<sup>1</sup>, Jens Schittenhelm<sup>1</sup>, Marcos Tatagiba<sup>1</sup>, Felix Behling<sup>1</sup>. <sup>1</sup> University Hospital Tübingen, Germany; <sup>2</sup> University of Porto, Portugal

Oral e-Poster Presentations - Booth 1: Skull Base 2, September 26, 2023, 4:10 PM - 4:50 PM

**Background:** The size of vestibular schwannomas shows marked variations, ranging from small intrameatal lesions to giant tumors that compress multiple structures of the cerebellopontine angle (CPA). Giant vestibular schwannomas are defined by a CPA diameter of at least 40 mm and factors that are associated with giant size at clinical presentation are still poorly understood.

**Methods:** A retrospective analysis of 907 sporadic vestibular schwannomas that were treated at our center were analyzed for clinical and immunohistochemical factors that are associated with giant tumor size. Age, gender, tumor status (primary vs. recurrent tumor), prior radiotherapy, volumetric tumor size, and immunohistochemical markers of proliferation (MIB1), lymphocyte infiltration (CD3 and CD8) and macrophage infiltration (CD68 and CD163) were analyzed.

**Results:** Overall, 36 of 907 tumors (4.0%) were giant vestibular schwannomas and were associated with cyst formation (p<0.0001) and higher expression scores for macrophage marker CD163 (p<0.0001). There were no differences in age, gender, prior radiotherapy, recurrent tumor status, MIB1 expression, CD68,