

geons that approach surgically this region. Our purpose is to review the microsurgical anatomy (microscopy and endoscopy) of the region and discuss the surgical nuances regarding this topic based on anatomical concepts. **Material and Methods:** Ten sellar regions were dissected by one of the author's at the Microsurgical laboratory of University of Arkansas for Medical Sciences. Patients with pituitary tumors operated at the Hospital de Clínicas de Porto Alegre illustrates this anatomy. **Results:** The transsphenoidal approach has the following anatomic limits: (1) superiorly, the posterior cribiform region; (2), laterally, the cavernous sinus and carotid arteries; and (3) inferiorly, the basis of the inferior mobility of the retractor and extent of visualization of the clivus (commonly the region of the cervicoclival junction. When a lateral extension is needed, a transmaxillary route may be used. Also, endoscopy may maximize the exposure in all directions (44-47). With the lateral extension, the carotid grooves are unroofed, and there is an exposure of the C3 portion of the internal carotid – the entrance to the cavernous sinus being made by opening the dura just medial to the carotid artery. **Conclusions:** The microsurgical knowledge regarding sellar region is paramount to safe resection of pituitary adenomas and others sellar tumors.

#### THE PREOPERATIVE MEASUREMENTS OF THE POSTEROMEDIAL MIDDLE FOSSA TRIANGLE IN THE TEMPORAL BONE CT AS A TOOL TO PERFORM ANTERIOR PETROSECTOMY: ANATOMICAL AND RADIOLOGICAL STUDY

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**OBJECTIVE:** The anterior transpetrosal approach, known as anterior petrosectomy, is a very useful armamentary in the skull base surgery to reach lesions at the clivus. In this approach the region called posteromedial middle fossa triangle is drilled out to provide a surgical corridor to the clivus via the middle fossa. The limits of this triangle, known as Kawase's Triangle, is defined by the lateral margin of the greater petrosal nerve (medial border), the lateral edge of the trigeminal nerve behind the point where the greater petrosal nerve passes below its lateral surface to the crest of the petrous apex (lateral border), and a line along the connection of the posterior border of the mandibular division of the trigeminal nerve and ganglion gasserian (the crest of petrous apex) to the center of the geniculate ganglion (base). The preoperative study of the temporal bone and the measurements of this osseous space can be useful for the neurosurgeon in the surgical planning to resect skull base tumors. **MATERIAL AND METHODS:** This results are the first of two parts. The measurements of the Kawase's triangle were performed in eighteen middle fossa anatomical specimens. Multidetector computed

tomography scan of the temporal bone is being performed in 100 temporal bones computadorized tomography. **RESULTS:** The measurements achieved in the anatomical dissections are the following: medial border -  $14,04 \pm 0,79$  mm, lateral border -  $14,82 \pm 0,59$  mm, base  $17,18 \pm 1,92$  mm, and area -  $97,69 \pm 8,13$  mm<sup>2</sup>. The CT measurements is the second part of this work and is being processed. **CONCLUSION:** The preoperative measurement of the posteromedial middle fossa triangle is a useful tool in the armamentarium of skull base surgeons to perform anterior petrosectomy.

#### SKULL BASE APPROACHES TO TREAT PITUITARY ADENOMAS WITH CAVERNOUS SINUS EXTENSION ; A MICROSURGICAL ANATOMY STUDY

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The cavernous sinus invasion by pituitary adenomas represents one of the biggest challenges to skull base surgeons. To achieve total tumor resection, conventional approaches, such as transsphenoidal and pterional are often inadequate. Skull base approaches such as extended transsphenoidal/transmaxillary and cranio-orbital-zygomatic approach provides anatomical corridors to the cavernous sinus from below and above, respectively. The purpose of this poster is to present the microsurgical anatomy of these approaches and discuss its technical nuances and indications. **Material and Methods:** Eighteen of nine cadaveric heads fixed in formalin were dissected using 3X to 40X magnification of the surgical microscope. The heads were injected with colored silicone and the combined transmaxillary/extended transsphenoidal approach and a cranio-orbital-zygomatic approach were performed to access the middle and lateral wall of the cavernous sinus respectively. Each cadaveric head was placed in a Sugita head-holder, turned 30 to 40 degrees and extended slightly to simulate the surgical position. In the heads, a cranio-orbitozygomatic approach was made. **Results:** The surgical perspectives of each approach are presented as well as the indications of each one. **Conclusions:** for pituitary tumor invading the cavernous sinus but medial to the intracavernous segment of the internal carotid artery the combined transmaxillary/extended transsphenoidal approach is indicated. This approach is better also when there is tumor extension in the upper clivus. On the other hand, when the tumor is lateral to this artery, inside the cavernous sinus, a cranio-orbital-zygomatic is more suitable.

#### A ABORDAGEM ENDOSCÓPICA TRANSFENOIDAL ESTENDIDA ; UM NOVO PARADIGMA PARA RESSECÇÃO DE CASOS SELECIONADOS DE TUMORES DA BASE DO CRÂNIO.

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A endoscopia para a base do crânio é uma modalidade do armamentarium neurocirúrgico minimamente invasiva e altamente eficaz para casos selecionados de pacientes portadores de tumores da base do crânio localizados ao nível do clivus ou fossa anterior da base do crânio. O objetivo dos autores é apresentar uma série inicial de casos de endoscopia para a base do crânio (10 casos), sendo em dois destes utilizadas a abordagem transesfenoidal endoscópica estendida. Este estudo faz parte da linha de pesquisa do programa de pós-graduação em cirurgia intitulada "Anatomia microcirúrgica do cérebro e da base do crânio no manejo dos tumores do sistema nervoso central". Material e métodos: dentro da série inicial de 10 casos de adenomas pituitários ressecados por endoscopia e ou abordagem transesfenoidal tradicional associada a endoscopia, em dois dos casos foi utilizada a abordagem transesfenoidal estendida: um meningioma do tubérculo da sela e um cordoma de clivus. Resultados: Obteve-se ressecção tumoral total em ambos os casos sem acidentes transoperatórios. A reconstrução da base foi feita com retalho pediculado de mucosa do septo nasal. Discussão: a endoscopia para a base do crânio é uma modalidade terapêutica minimamente invasiva, mas que deve ser usada com parcimônia na seleção dos casos a serem operados. Volumosos tumores da base do crânio com envolvimento de vasos intracerebrais em seu interior são uma contra-indicação para estas abordagens. Conclusão: a endoscopia para a base do crânio é uma técnica segura para o manejo de pequenas lesões tumorais da base do crânio. O manejo deve ser multidisciplinar com otorrinolaringologista e neurocirurgião.

**A MICRODISSECÇÃO DAS FIBRAS CEREBRAIS ATRAVÉS DA TÉCNICA DE KLINGER E SUA CORRELAÇÃO COM OS ACHADOS DA TRACTOGRAFIA POR RESSONÂNCIA NUCLEAR MAGNÉTICA.**

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A dissecação de fibras brancas cerebrais é uma modalidade de estudo anatômico que permite a individualização de tratos e fascículos cerebrais e a aquisição de uma perspectiva anatômica que não pode ser adquirida com técnicas convencionais de dissecação macroscópica ou mesmo com técnicas de microscopia. A importância deste novo conhecimento, além de fornecer uma visão tridimensional do cérebro para neurocirurgias em treinamento, é correlacionar estas estruturas anatômi-

cas com os achados dos exames de tractografia por ressonância nuclear magnética cerebral. Material e métodos – trinta hemisférios cerebrais foram dissecados no laboratório de microcirurgia do Hospital Beneficência portuguesa de São Paulo e no laboratório de microcirurgia da universidade do Arkansas, EUA. Vinte exames de tractografia por ressonância nuclear magnética foram realizados nos Hospitais Mãe de Deus e Moinhos de Vento, em Porto Alegre. Os achados foram comparados e os autores discutem a aplicação e as perspectivas futuras do emprego da tractografia na avaliação de pacientes portadores de patologias neurológicas. Resultados. Os fascículos longitudinal superior, as radiações ópticas, as fibras em "U", o fascículo uniforme e os tractos corticospinal e spinotalâmico foram identificados tanto nas disseções anatômicas quanto na tractografia, apresentando excelente correlação topográfica. Conclusões: Os resultados deste estudo são o primeiro passo para definir as futuras indicações e vantagens da tractografia por Ressonância Nuclear Magnética do sistema nervoso central.

**O PARADIGMA DAS ABORDAGENS PETROSAS PARA RESSECÇÃO DE TUMORES DA BASE DO CRÂNIO ; TÉCNICA CIRÚRGICA, INDICAÇÕES E SÉRIE INICIAL DE CASOS.**

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The petrosal approaches are complex procedures in skull base surgery. Its purpose is basically avoid brain retraction, a common complication in conventional neurosurgical approaches. Our purpose here present the surgical technique, indications and our initial series with petrosal approaches. Surgical technique: The head is rotated 50° away from the side of the approach and flexed slightly. A reversion question-mark-shaped incision is made beginning anterior to the tragus, encircling the ear 3 cm above and posterior and descending 1 cm medial to the mastoid process. The temporoparietal fascia is dissected and reflect inferiorly and the temporalis muscle anteriorly. Four burr holes are made two on each side of the transverse sinus in order as follow. A temporoparietal and lateral occipital craniotomy are performed without connect the holes trough the sinus. This step is performed without foot-plate drill. The corticotomy of the mastoid is done for later reconstruction follow by complete mastoidectomy. The posterior fossa dura just anterior to the sigmoid sinus is opened. The superior petrosal sinus is cutting and the tentorium incision is performed parallel to the pyramid toward the incisura and posterior to the IV nerve insertion at the tentorial edge. The petrosal approach was performed in 15 patients to resect skull base tumors. Nine with petroclival or sphenopetroclival meningiomas and six with petrosal or tentorial meningiomas. Discussion: The advantages of the petrosal