Sellar, Parasellar and Suprasellar Region: Anatomical considerations and Surgical Approaches

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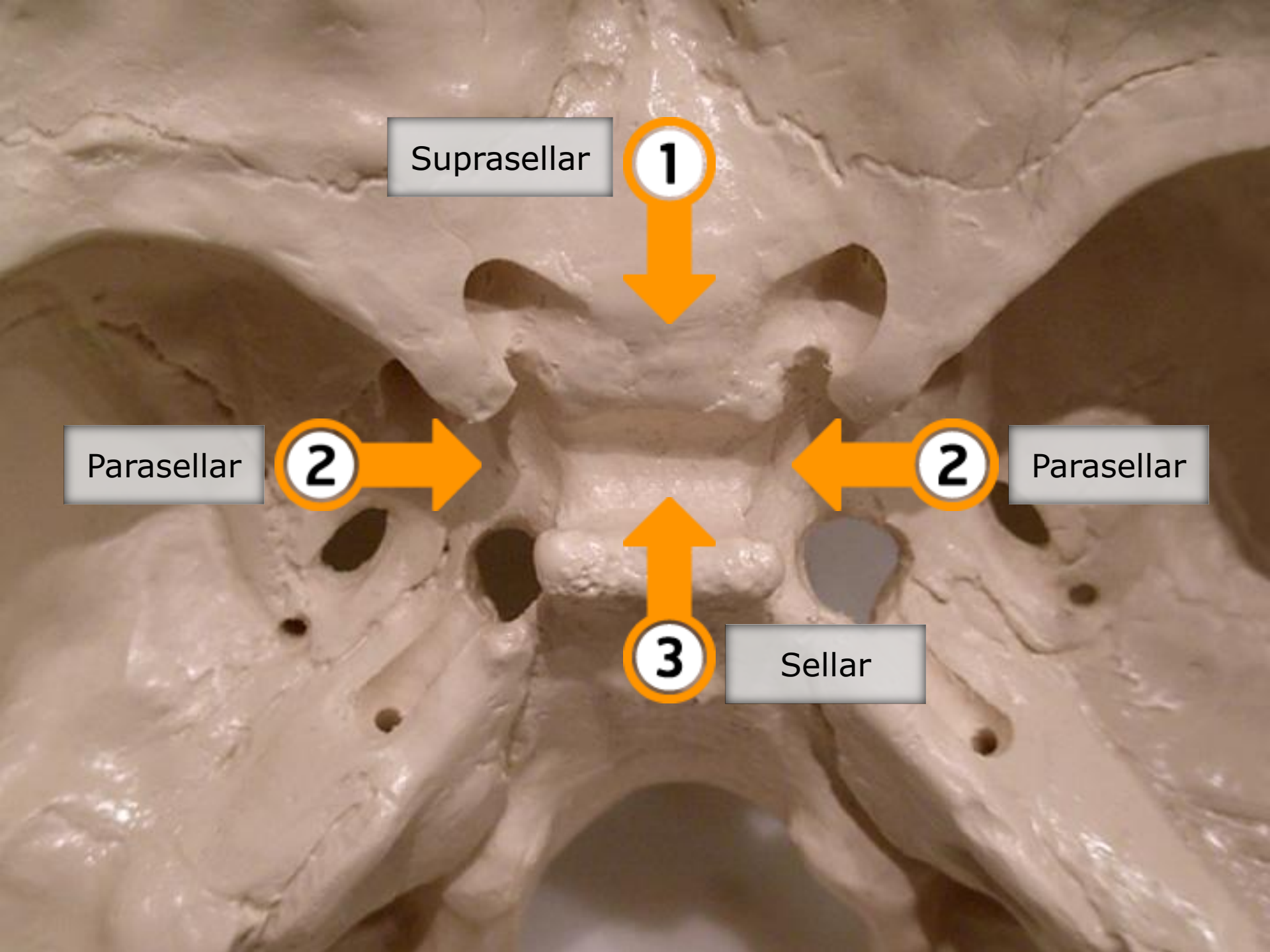
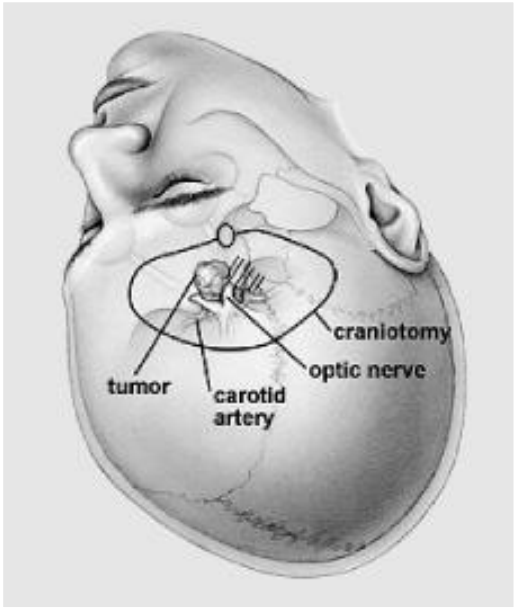
M.K.Fratzoglou


Suprasellar
1
Parasellar
2
2
Parasellar
3
Sellar

SELLAR REGION

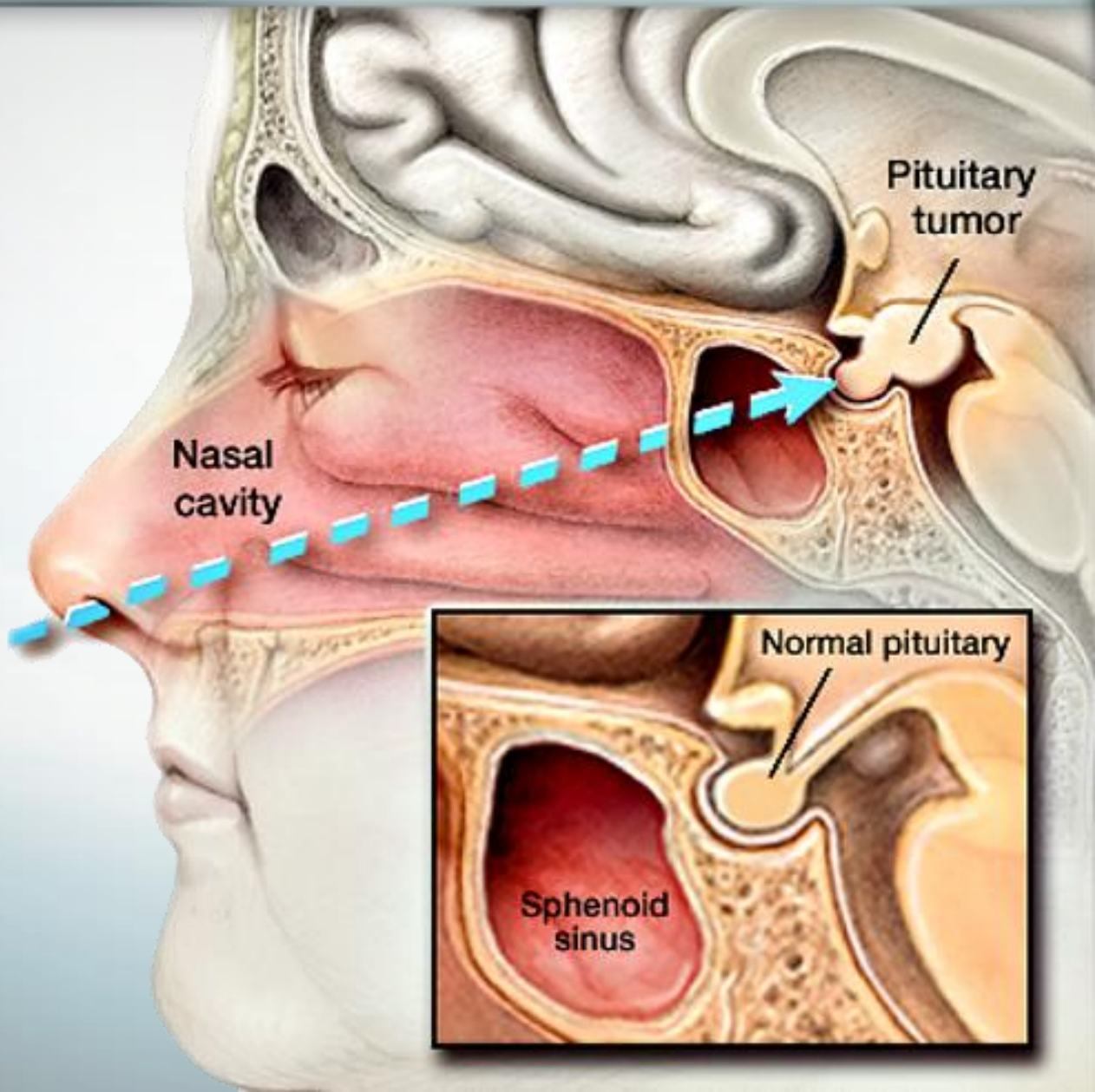
SELLAR REGION

Transcranial

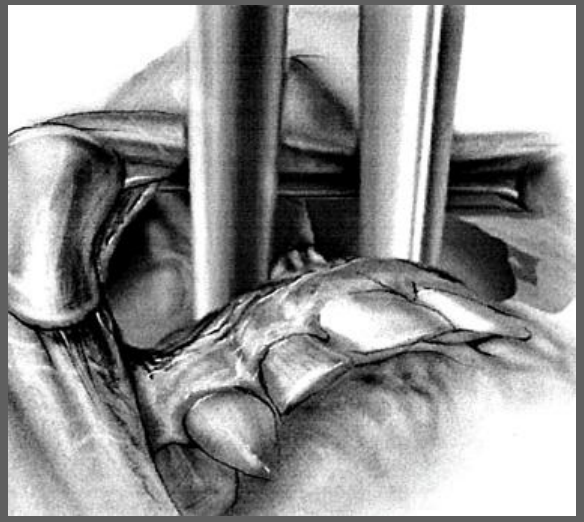
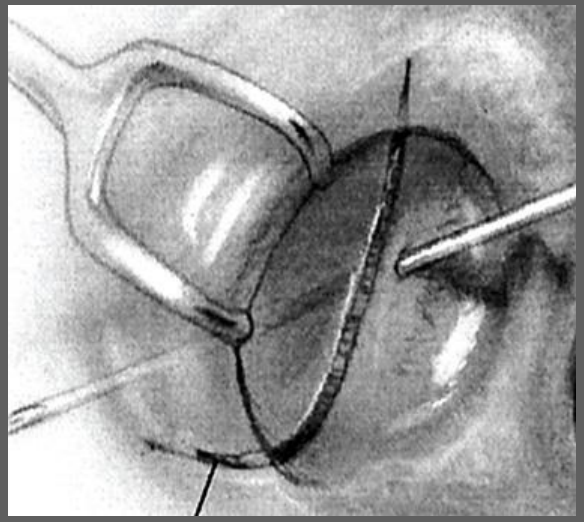
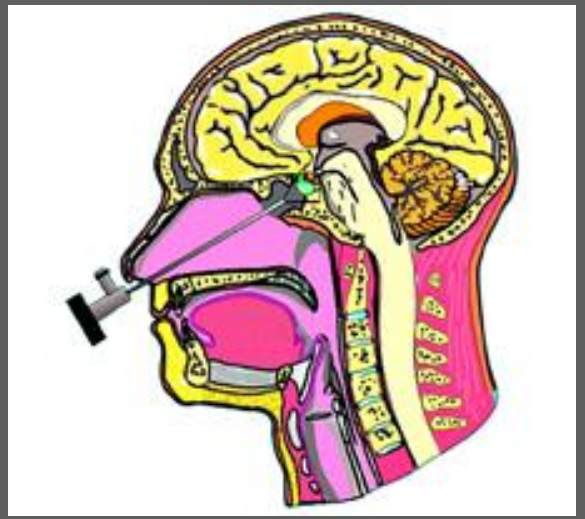


SELLAR REGION

Transsphenoidal



SELLAR REGION

Sublabial	Transnasal	Endoscopical
		

SELLAR REGION

TABLE 3.1. Sellar and parasellar lesions

Tumors	Infection/Inflammation	Cysts	Vascular
Adenoma	Bacterial abscess	Rathke's cyst	Aneurysm
Craniopharyngioma	Fungal abscess	Pituitary cyst	Carotid cavernous fistula
Meningioma	Sarcoidosis	Arachnoid cyst	Pituitary apoplexy
Chordoma	Tuberculosis	Empty sella	
Epidermoid	Hypophysitis	Sinus mucocele	
Dermoid	Histiocytosis X	Cystic adenoma	
Germinoma	Orbital pseudotumor	Cystic craniopharyngioma	
Neuroma			
Hemangioma			
Nasopharyngeal carcinoma			
Optic nerve glioma			
Choristoma			
Hypothalamic glioma			
Astrocytoma			
Lymphoma			
Angiolipoma			
Metastatic cancer			

SELLAR REGION

pituitary adenomas constitute 8.4% of brain and central nervous system tumors.[1]

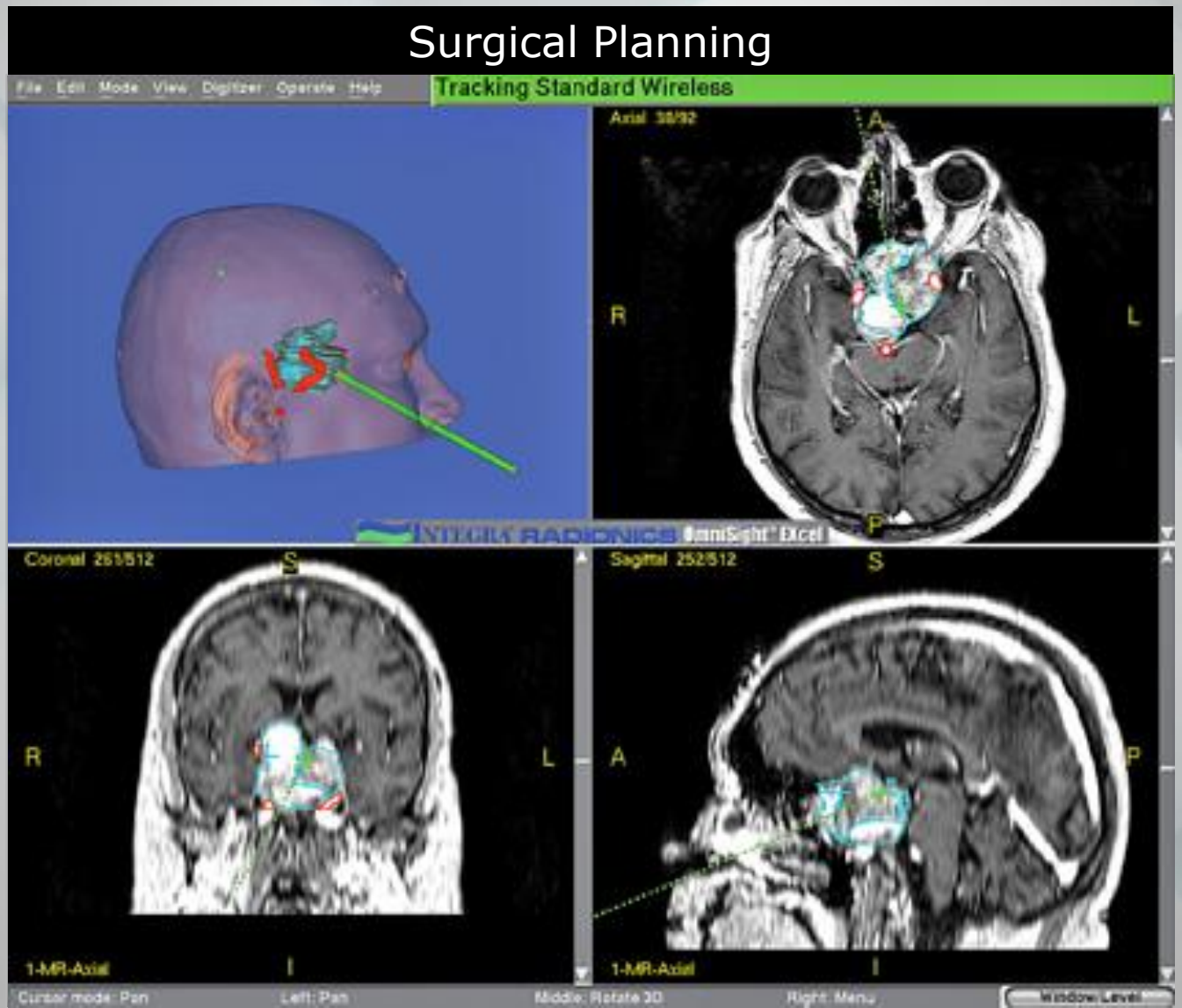
They are the most common tumor in patients of ages 20 to 34 years and the second most common tumor in the 34- to 44-year age group. They are 30% more common in the black population.

Central Brain Tumor Registry

OBSERVATION NR.1.

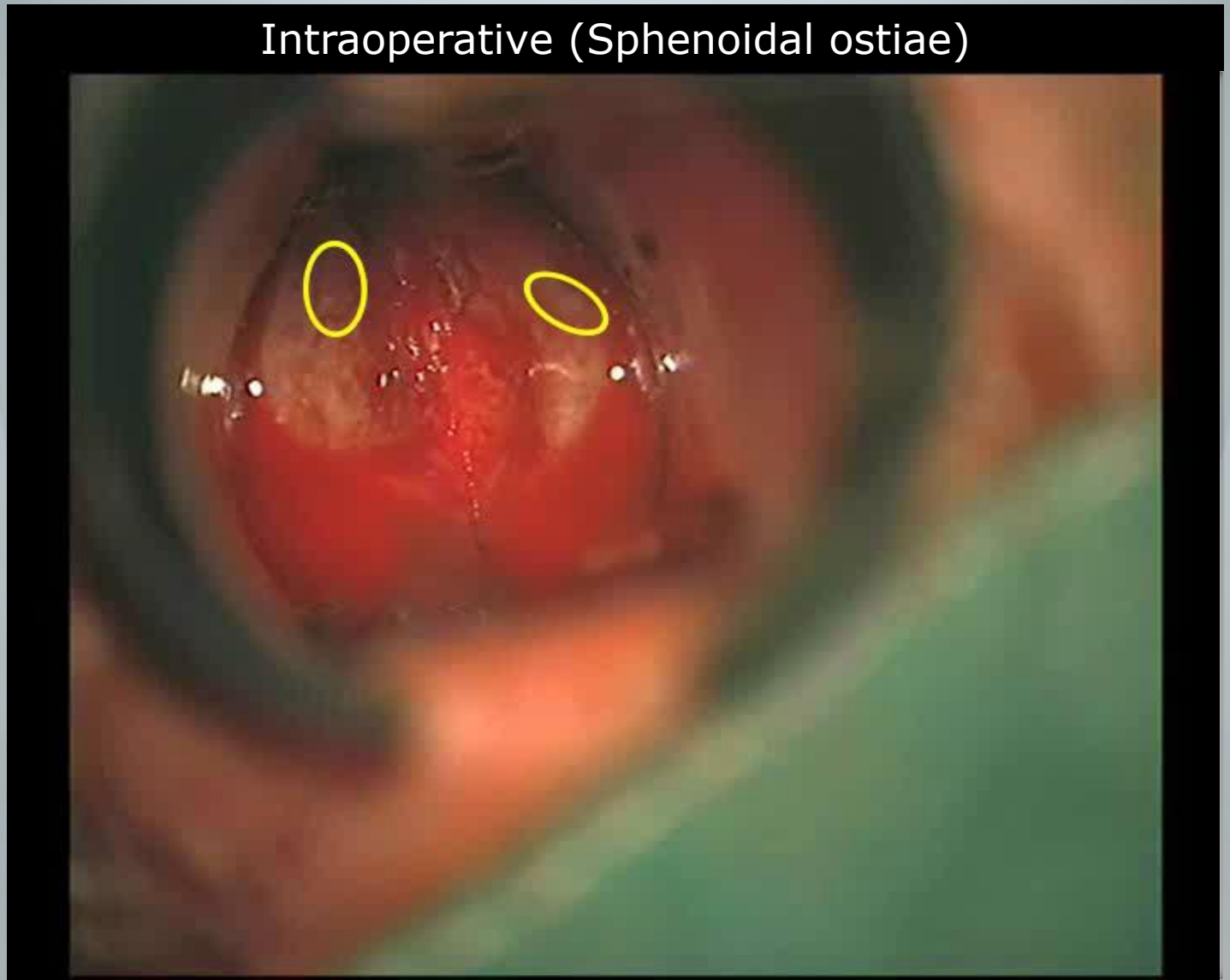
STAY IN THE MIDLINE

SELLAR REGION



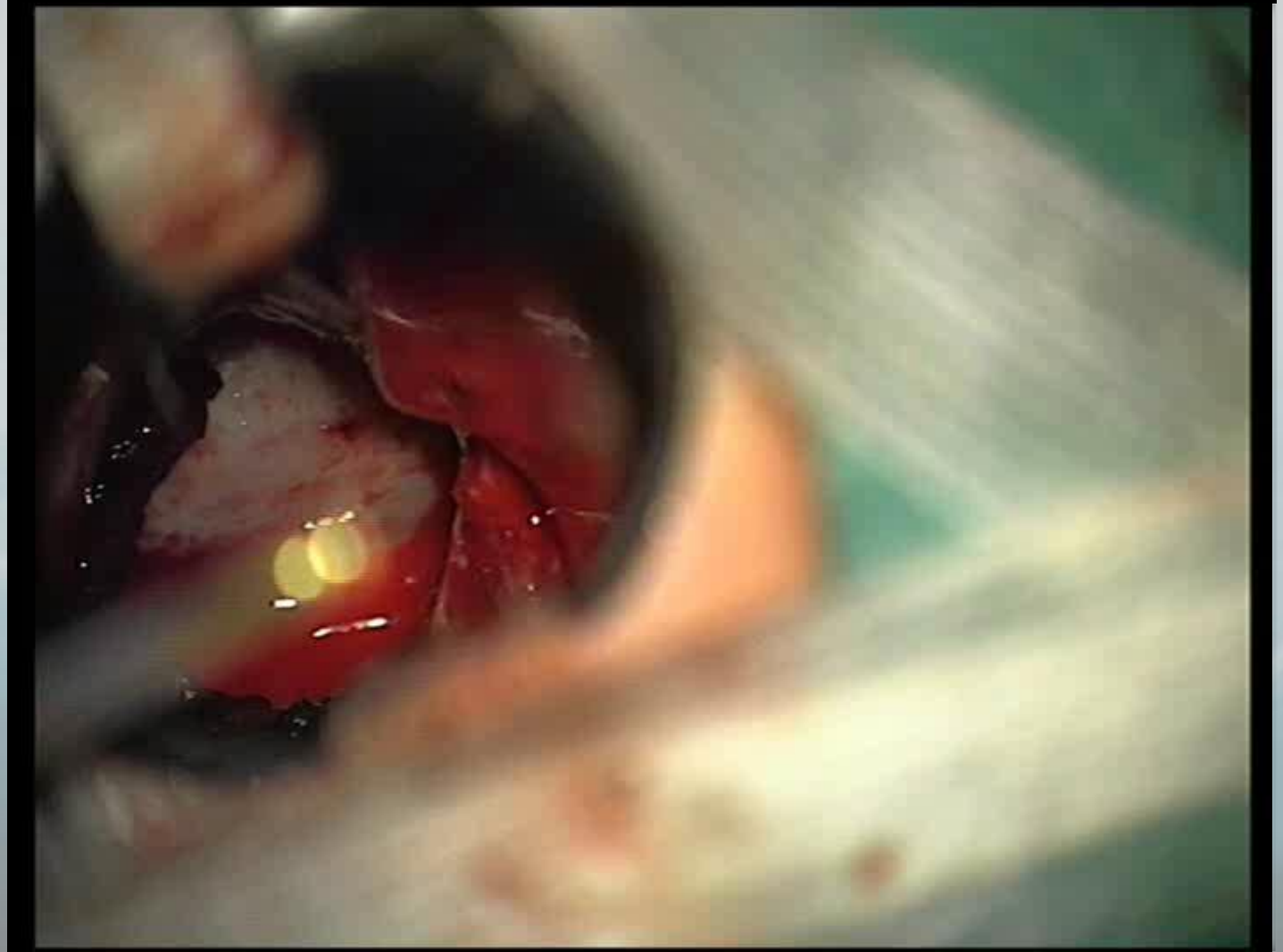
SELLAR REGION

Intraoperative (Sphenoidal ostiae)



SELLAR REGION

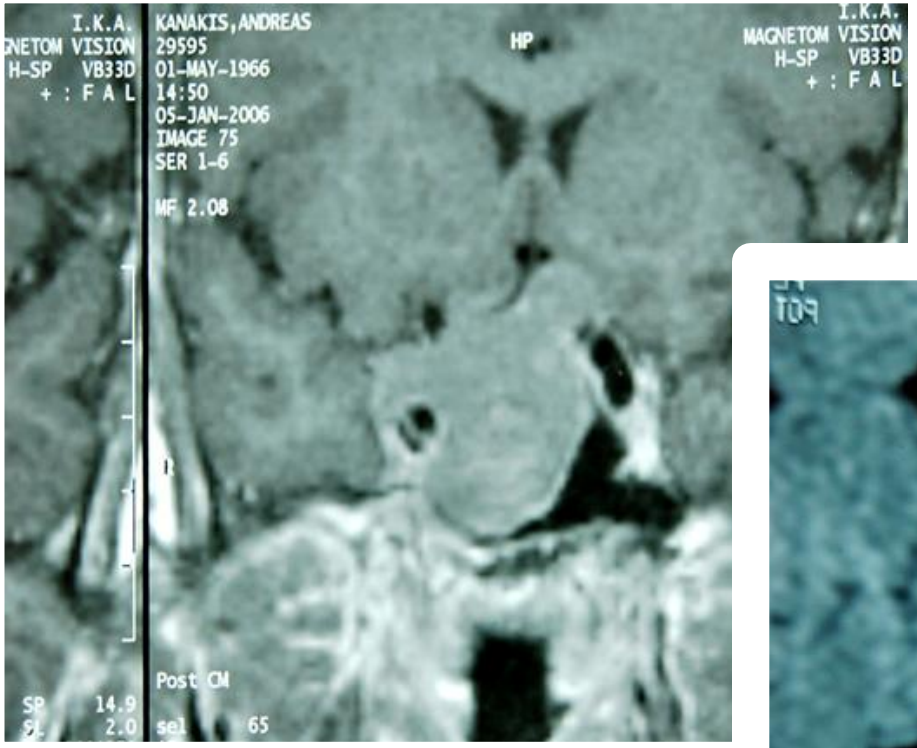
Carotid Prominence

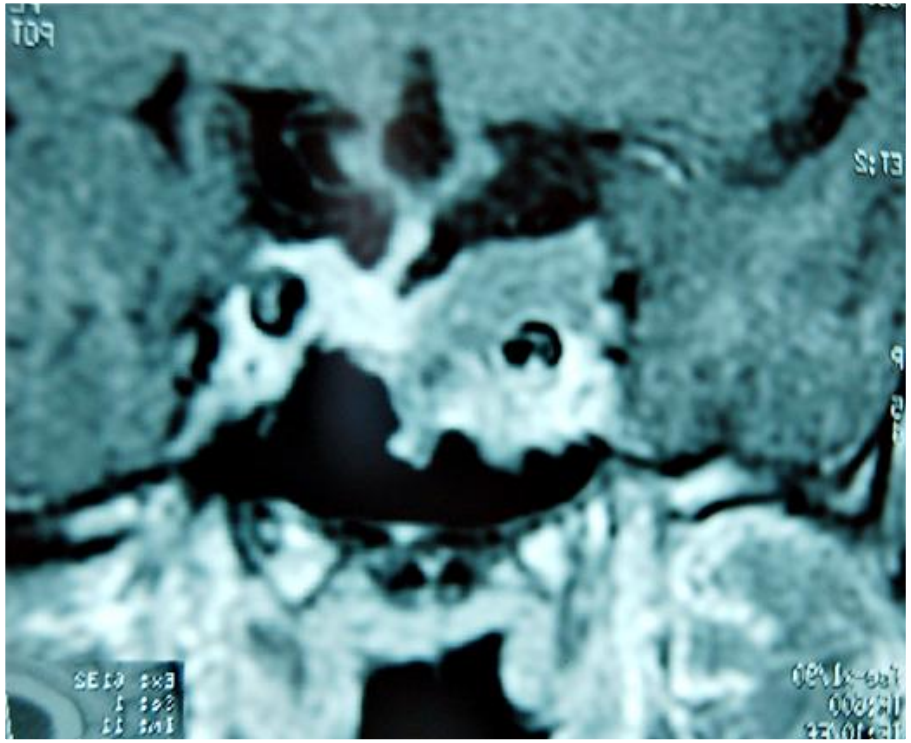


OBSERVATION NR.2.

PROTECT THE GLAND

SELLAR REGION

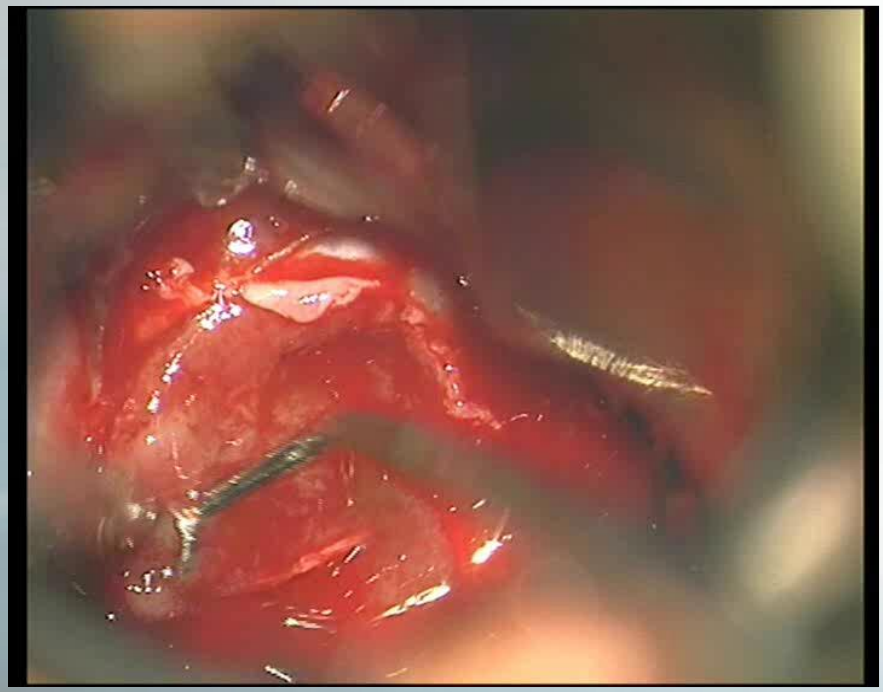
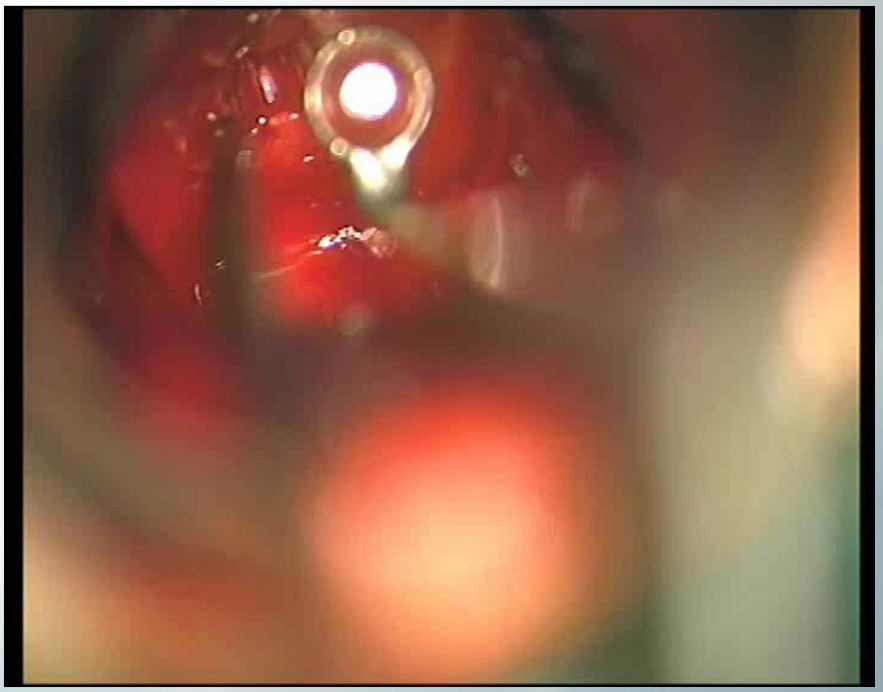




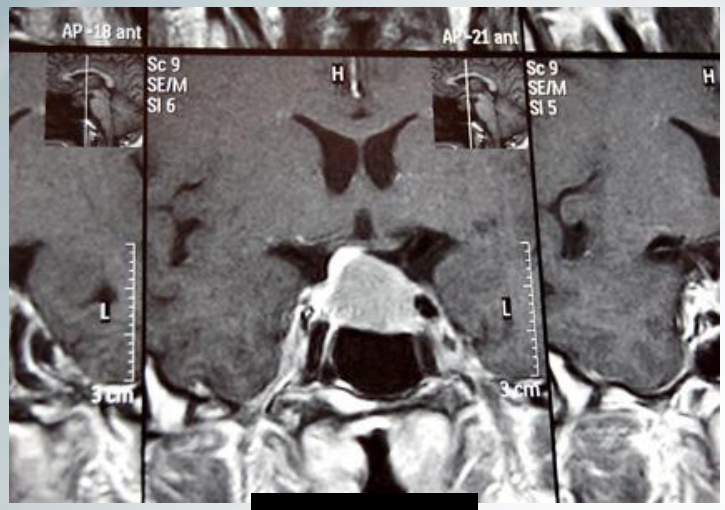
OBSERVATION NR.3.

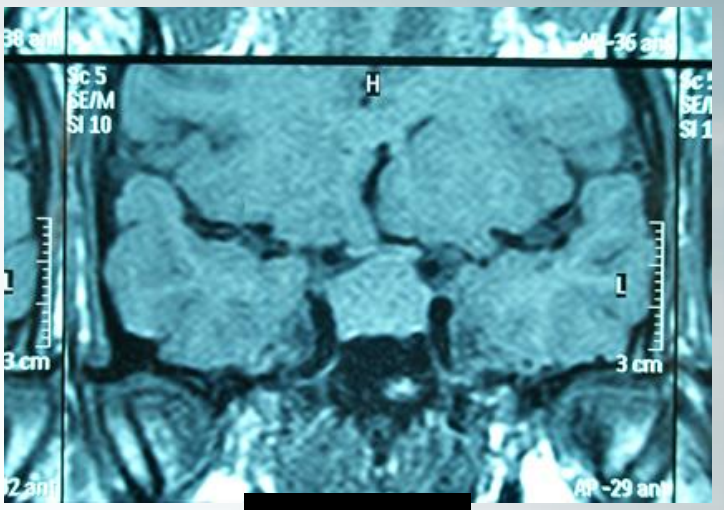
THE CONSISTENCY,
NOT THE SIZE
IS THE PROBLEM

SELLAR REGION

SOFT	HARD
	

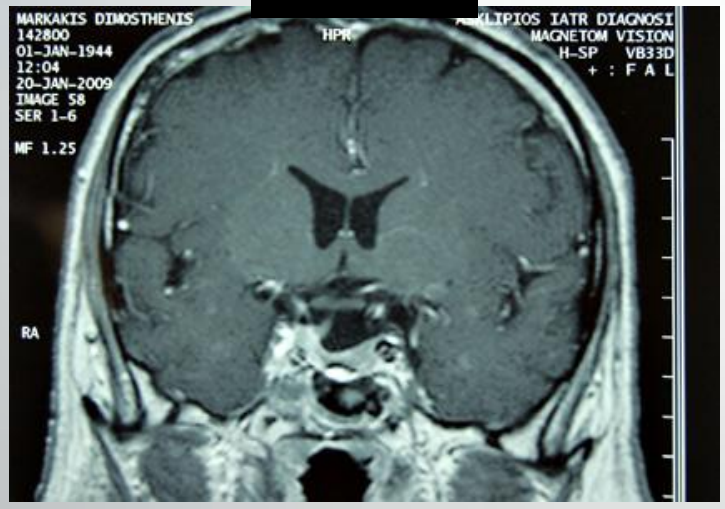
SELLAR REGION



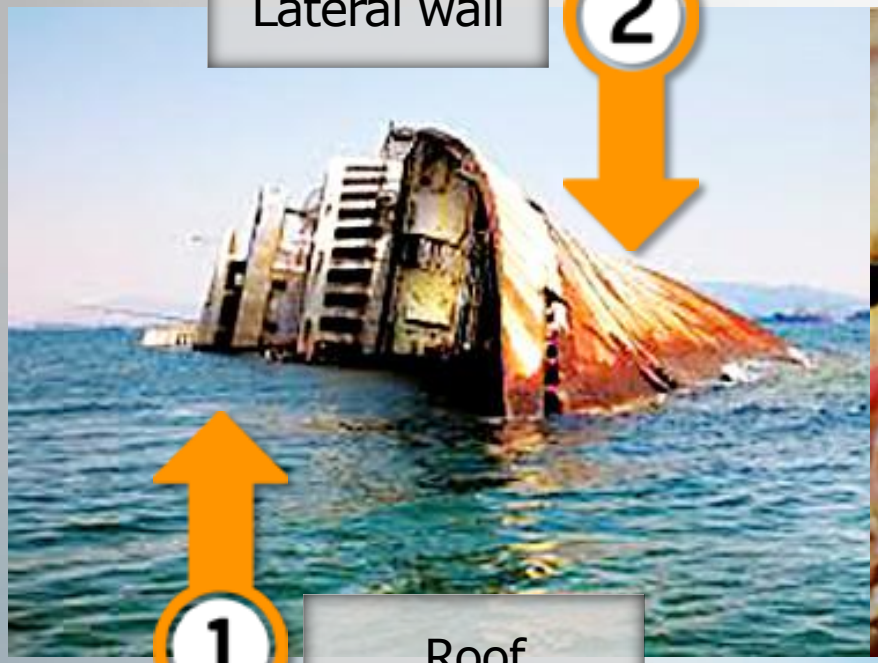


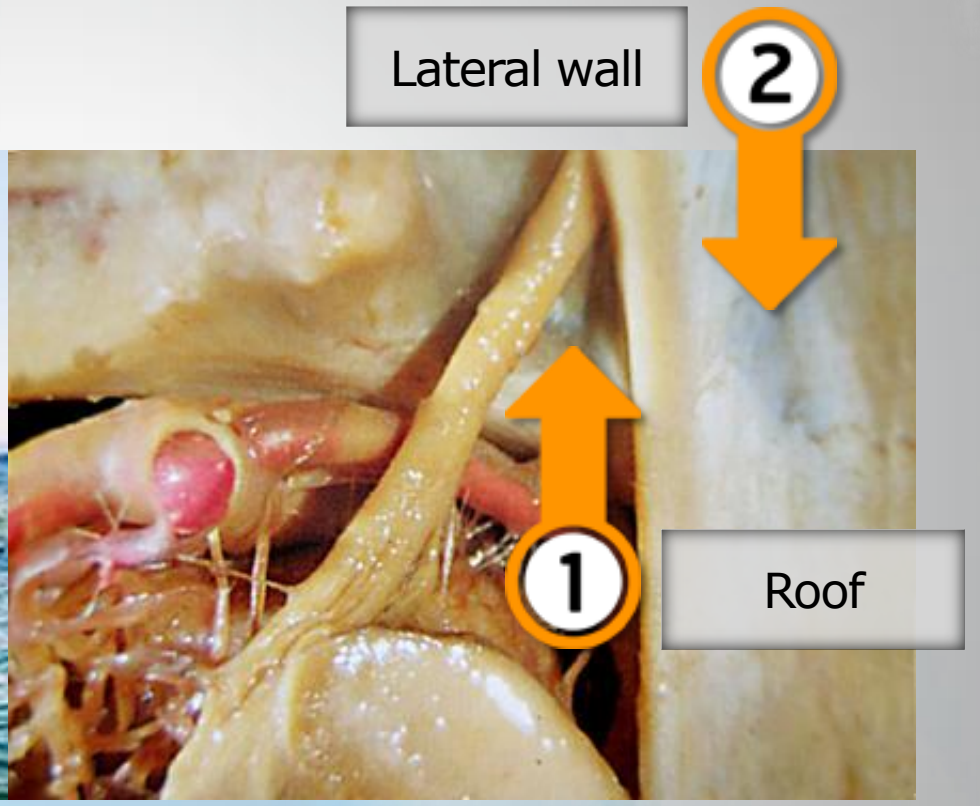
SOFT

HARD



PARASELLAR REGION





PARASELLAR REGION

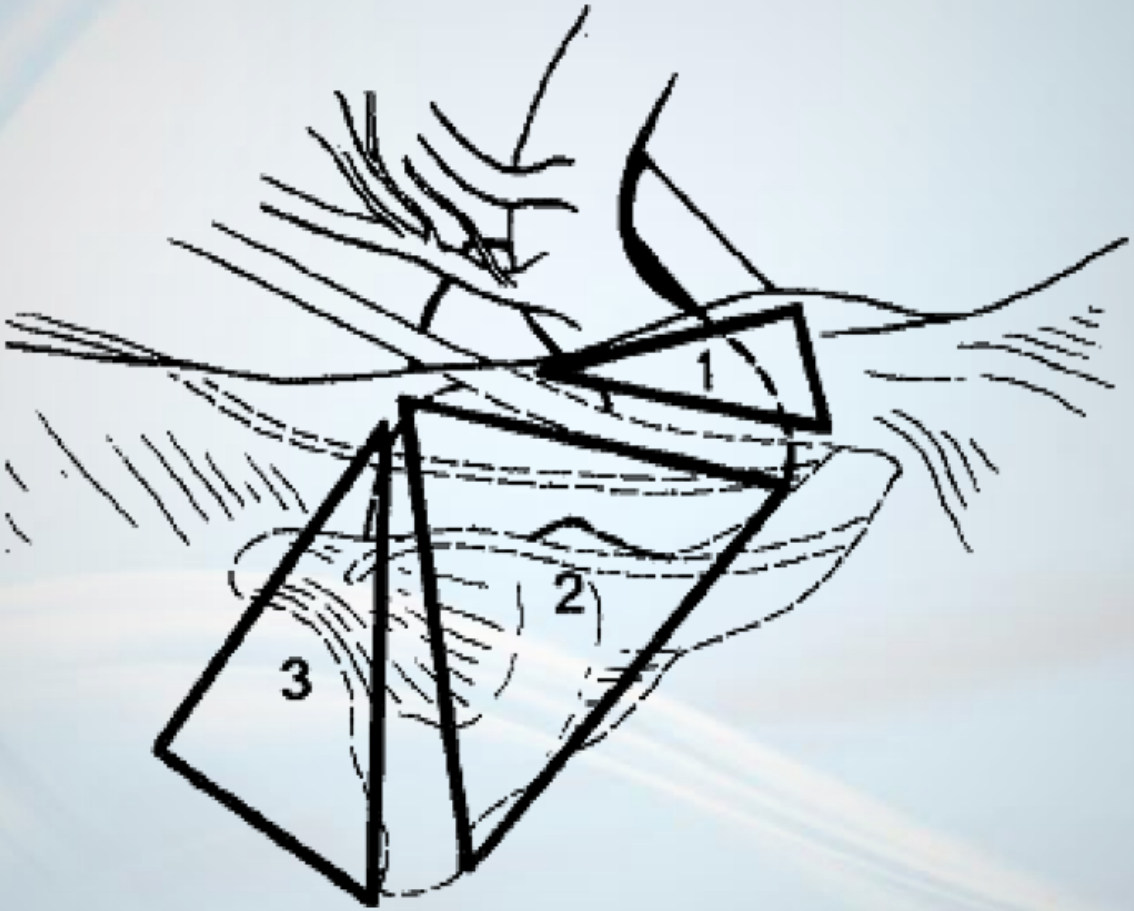
PARASELLAR REGION

Parkinson D: A surgical approach to the cavernous portion of the carotid artery. Anatomical studies and case report. **J Neurosurg 23:474-483, 1965.**

Taptas JN: The so-called cavernous sinus: Areview of the controversy and its implications for neurosurgeons. **Neurosurgery 11:712-717, 1982.**

DolencVV: Direct microsurgical repair of intracavernous vascular lesions. **J Neurosurg 58:824-831, 1983.**

PARASELLAR REGION

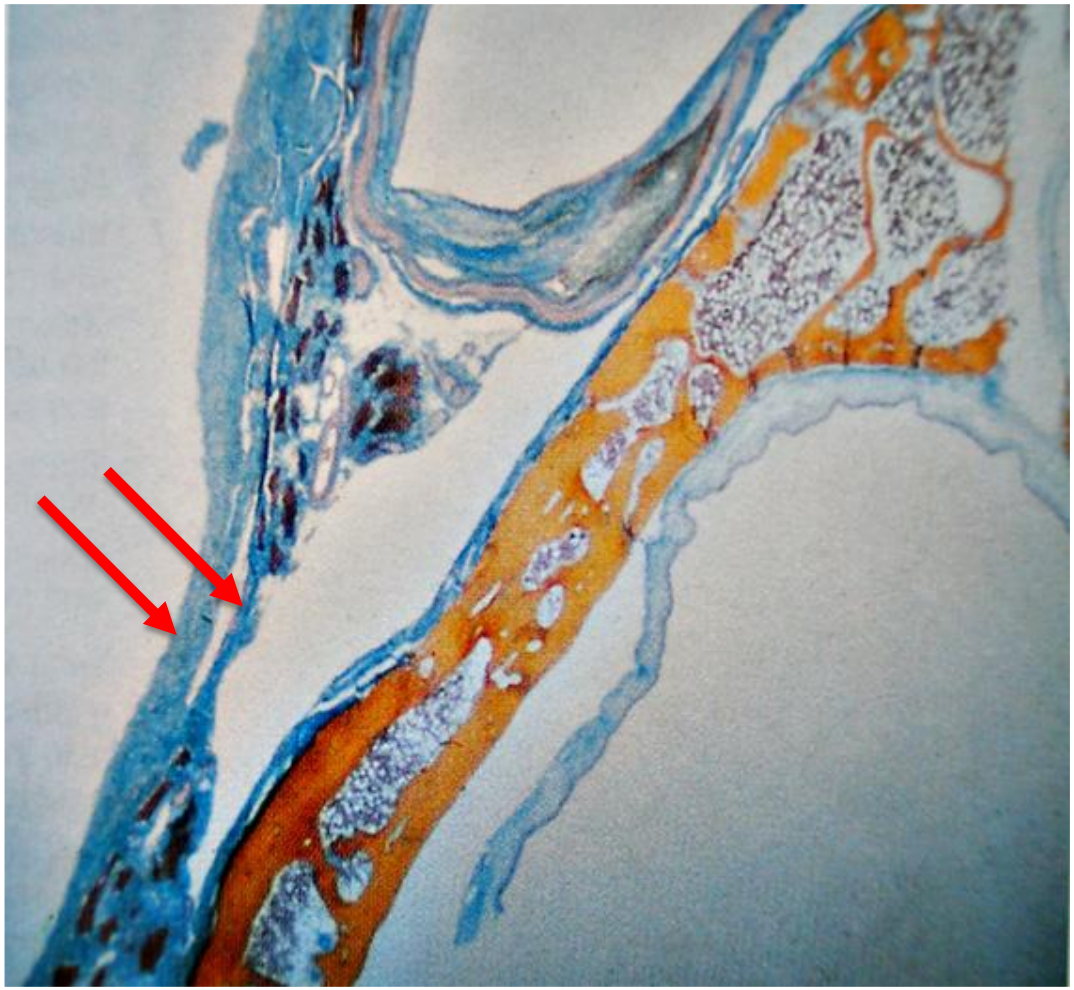


Cavernous sinus surgery. Approach through the lateral wall. Perneczky A, Knosp E, Matula C. Acta Neurochir. (Wien). 1988;92(1-4):76-82

OBSERVATION NR.1.

DOUBLE LAYER

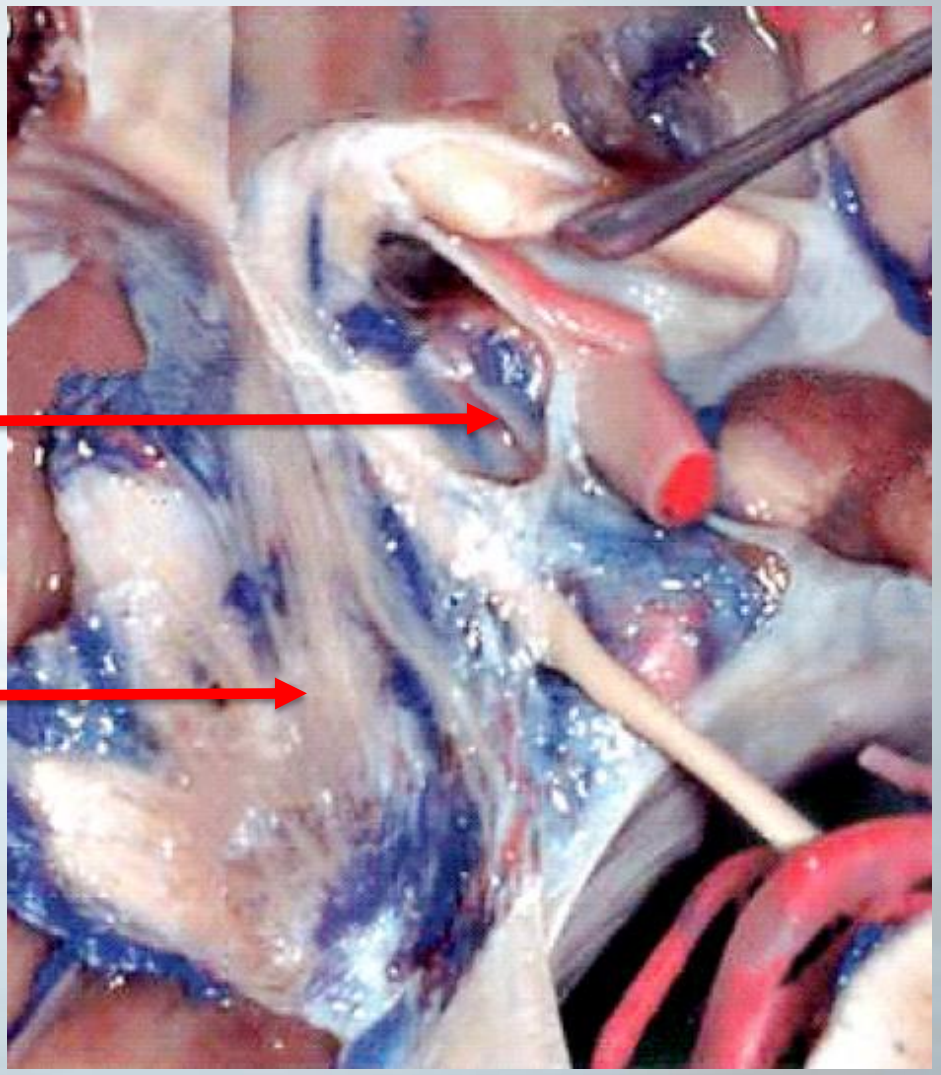
PARASELLAR REGION



PARASELLAR REGION

CS Approaches

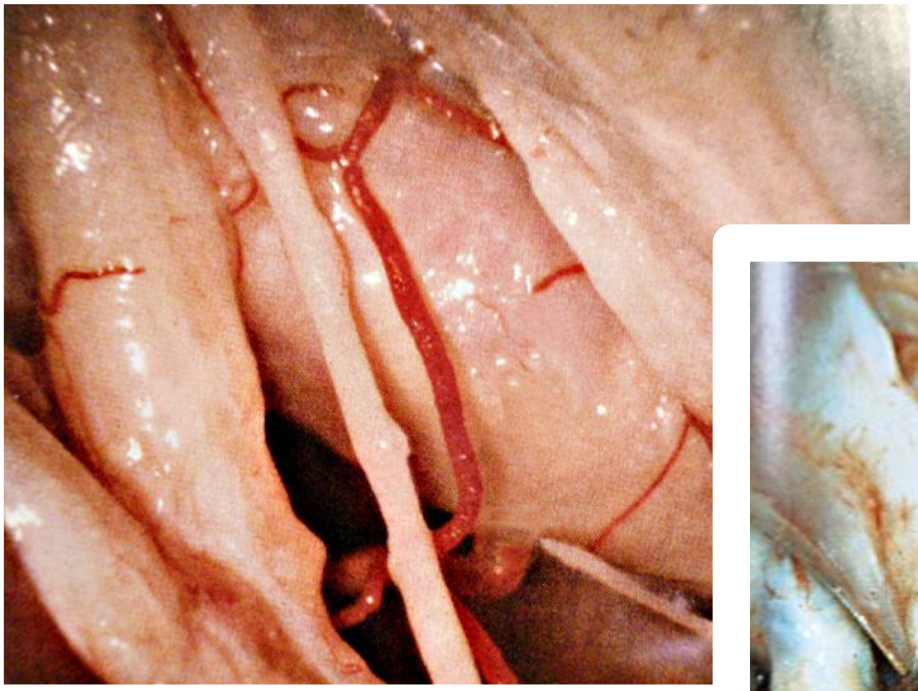
1. The roof
2. The lateral wall



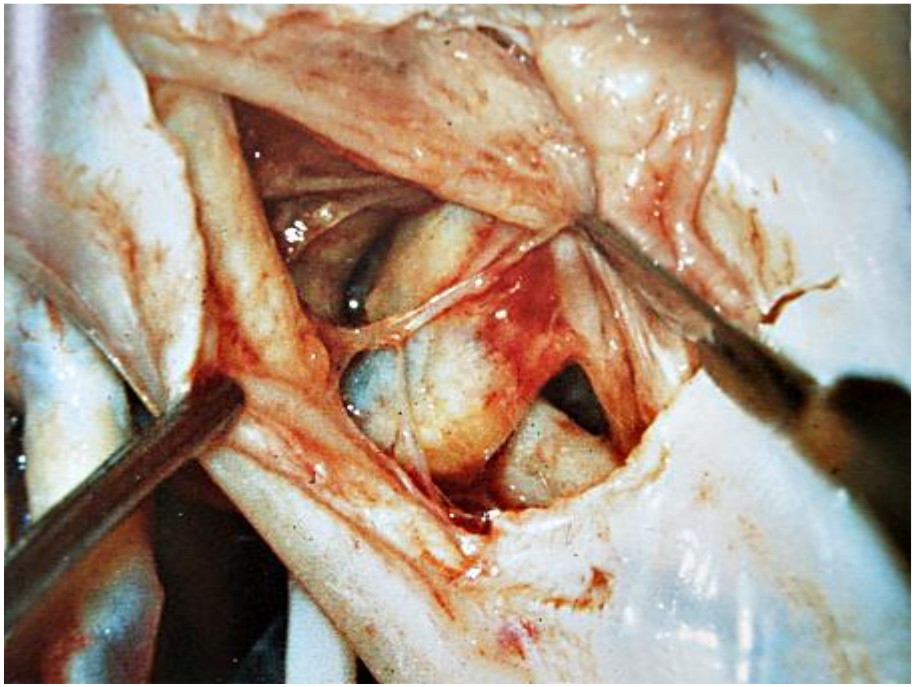
OBSERVATION NR.2.

PARKINSON TRIANGLE

PARASELLAR REGION



Intradural aproach



PARASELLAR REGION

Conclusions

Although usually chordomas and chondrosarcomas are histologically benign, occasionally they behave as highly malignant lesions. All of these tumors are fairly easy to treat surgically, but they are probably incurable. Although additional follow-up is needed, it appears that the combination of gross-total tumor resection and postoperative PRT amounts to highly effective treatment for chordomas and chondrosarcomas.

Table 22. Tumor type, resectability, complementary treatment employed, and outcome

N° and type of tumor		Operation		Preoperative deficits		Extent of resectin				Postoperative deficits after six months		
		1st	2nd	Cranial nerve(s)	Other	Gross-total	Sub-total	PRT	GK or fracionated irradiation	Cranial nerve(s)	Other	Deaths
Chordoma	29	20	9	29	2	27	2	1	15	11	2	1
Chondrosarcoma	19	17	2	19	1	4	15	8	–	9	1	1
Chondroma	2	2	–	1	–	–	2	–	–	–	–	–
Total	50	39	11	49	3	31	19	9	15	20	3	2

Cavernous sinus chondroma.
Case report and review of the literature

Ann. Ital. Chir., 2008;

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Cavernous sinus chondroma. Case report and review of the literature

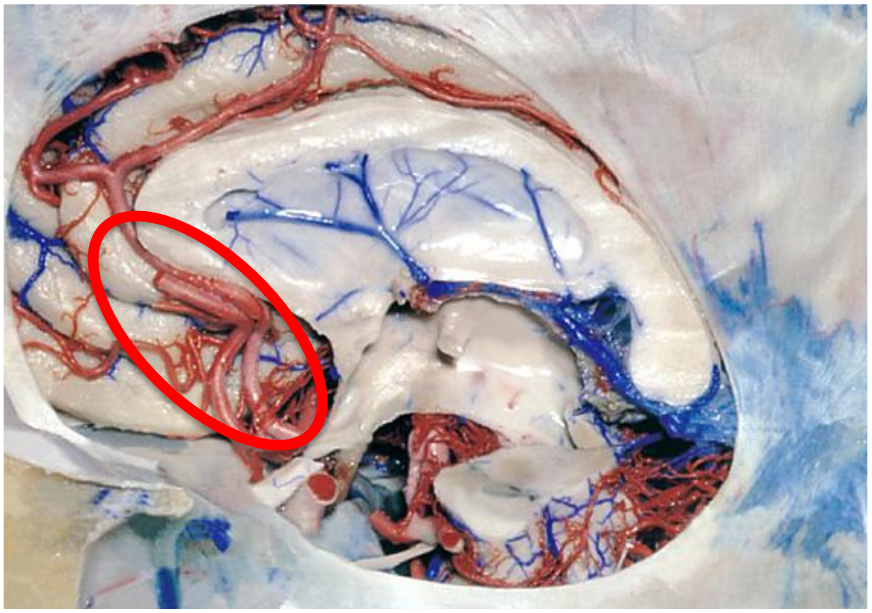
Chondromas of the base of the skull are most commonly found in the parasellar and sellar regions, and pr
ing degrees of involvment of the cavernous sinus.However,those confined mainly to the cavernous sinus are rar
a few cases have been reported.
A 50 year old man experienced left hemifacial pain followed by left abducens nerve palsy.
Computerized tomography and magnetic resonance image depicted a well circumscribed mass in the left caver
A pterional craniotomy was performed to approach this lesion intradurally. The tumour was subtotall
Histologically the mass was diagnosed as a mature chondroma.
Postoperatively, the left hemifacial pain disappeared and the diplopia improved from the first postoperative a
Successfull removal of lesions in the cavernous sinus requires individualisation of the case as well as choosing surgical approach for the certain patient.

KEY WORDS: Cavernous sinus, Chondroma, Skull base.

PARASELLAR REGION

SUPRASELLAR REGION

Suprasellar region and/or anterior incisural space



SUPRASELLAR REGION

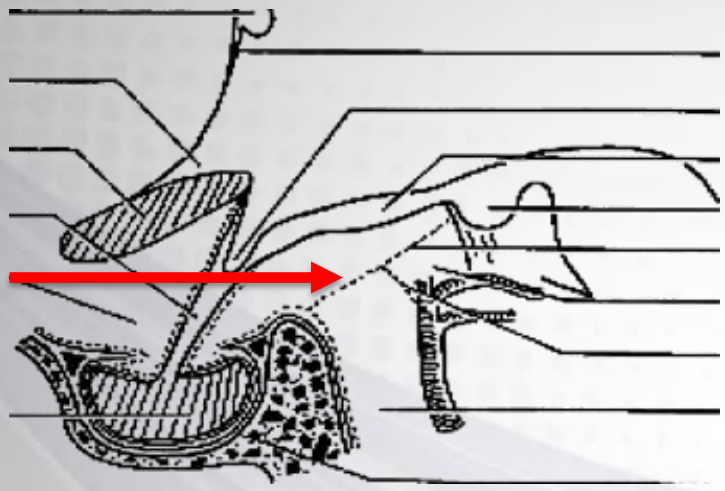
Anterior incisural space

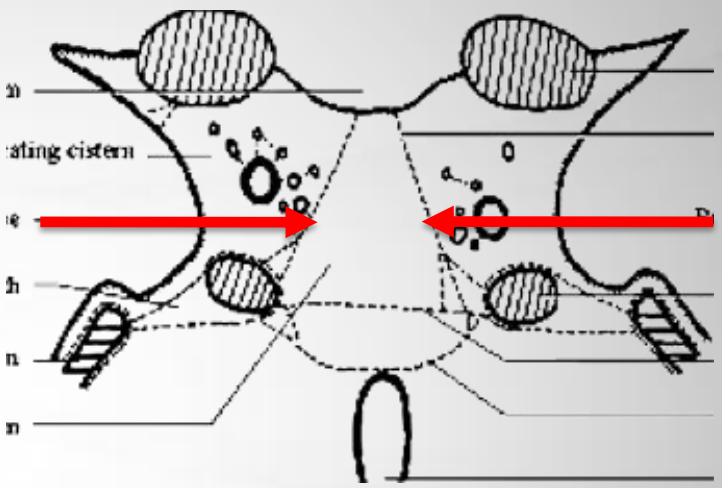
- Neural relationships → Optic Chiasm, Oculomotor Nerve, Infudibulum, Brain Stem
- Arterial relationship → All of components of the circle of Willi
- Cisternal relationship → The interpeduncular cistern, The Chiasmatic cistern
- Ventricular relationship → Anterior part of the third ventricle
- Arachnoidal relationship → Liliequist’s membrane

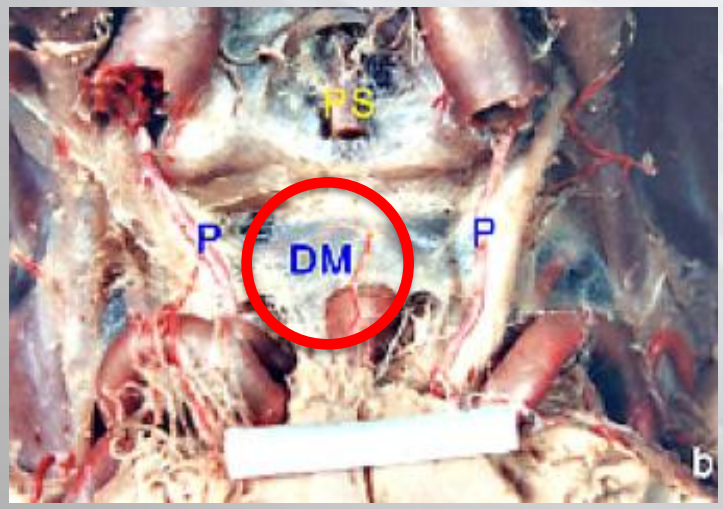
OBSERVATION NR.1.

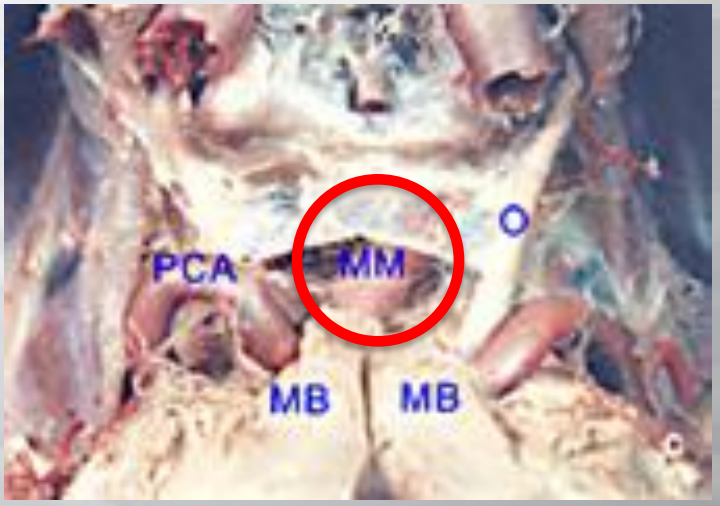
LILIEQUIST MEMBRANE

SUPRASELLAR REGION



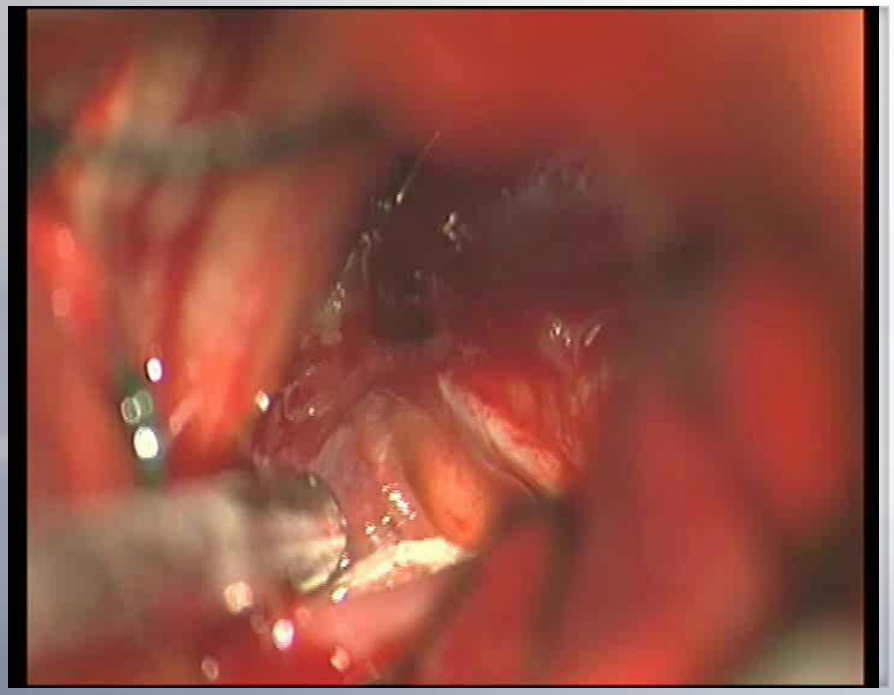




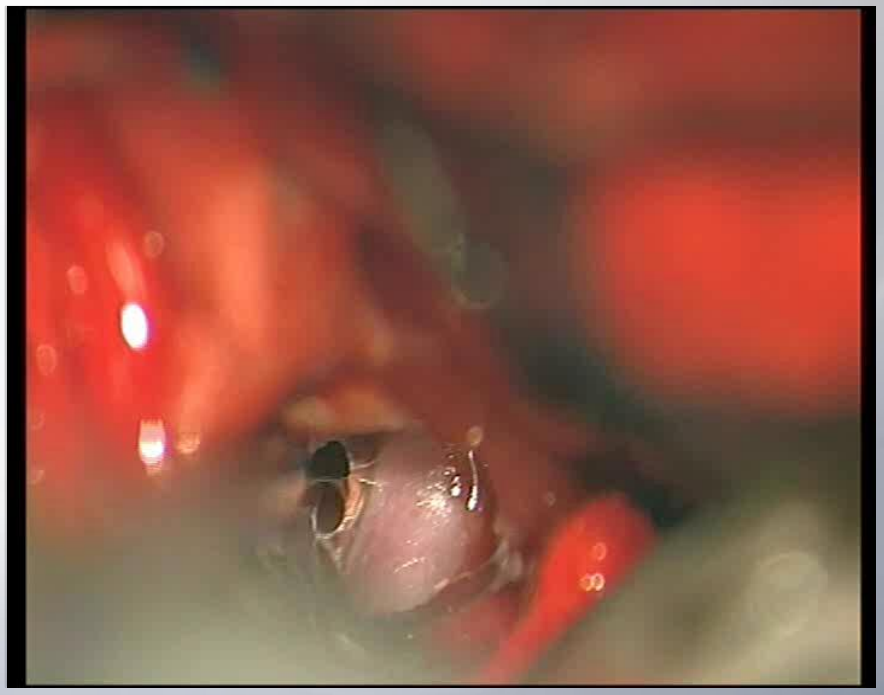


SUPRASELLAR REGION

DIENCEPHALIC MEMBRANE



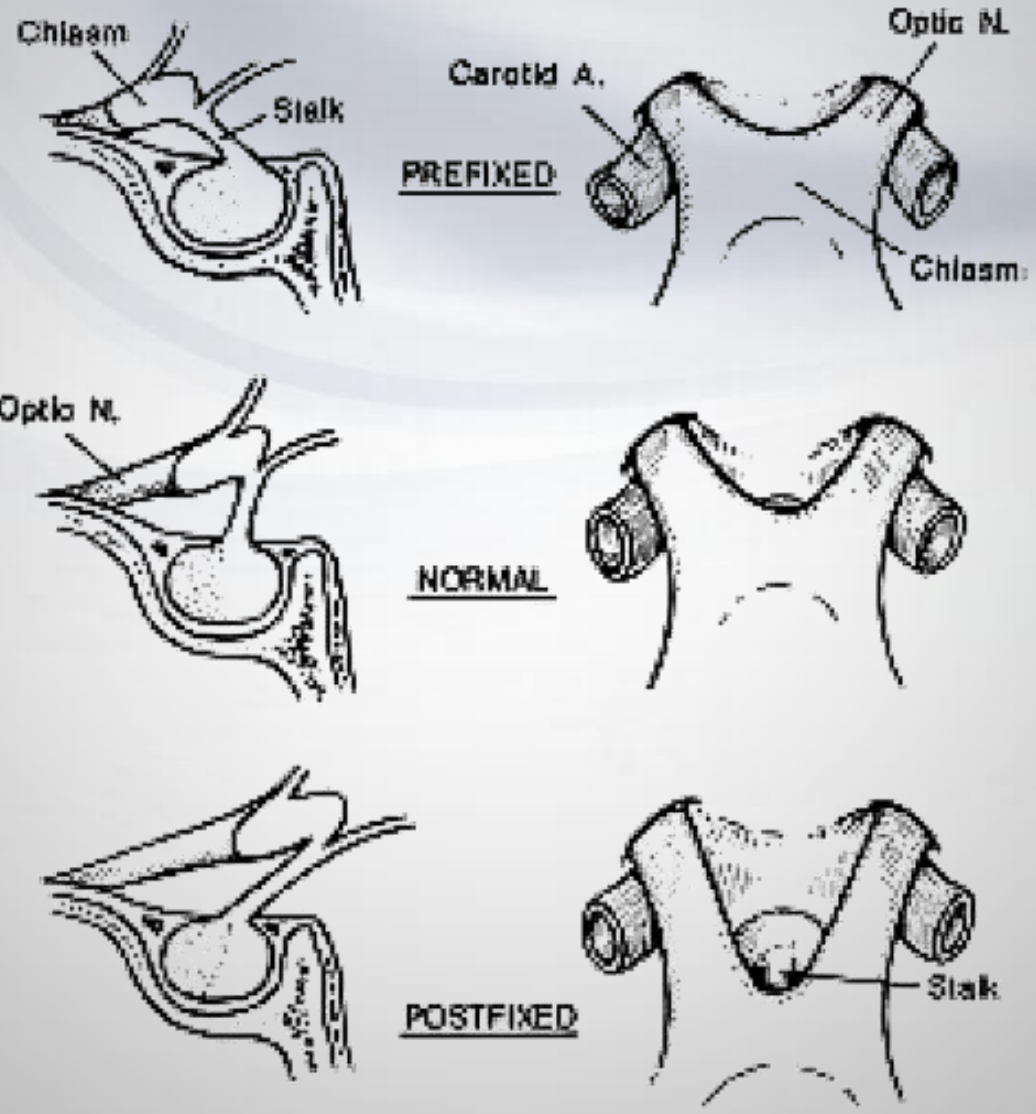
MESENCEPHALIC MEMBPANE



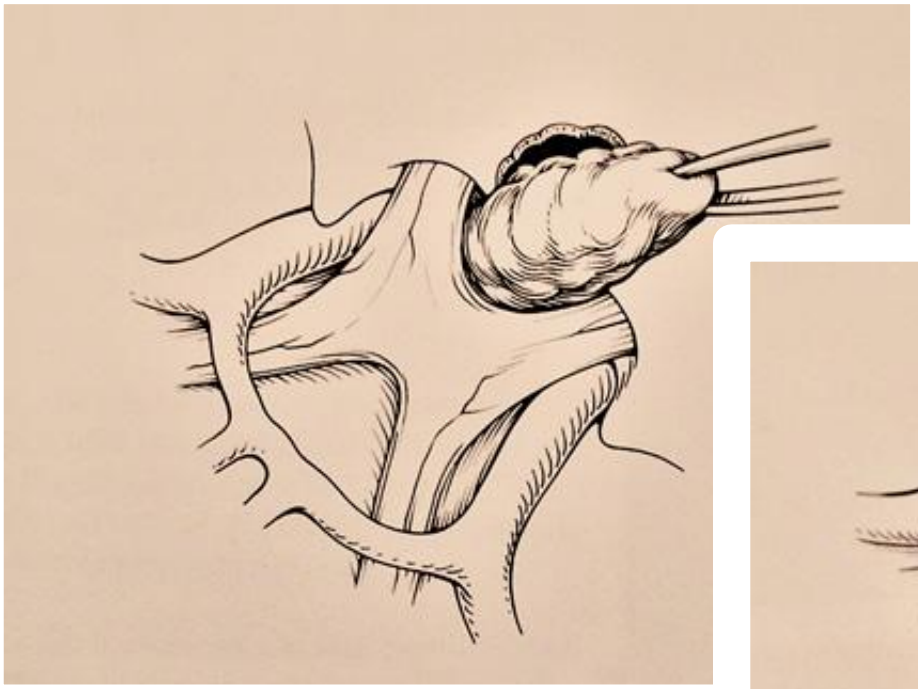
OBSERVATION NR.2.

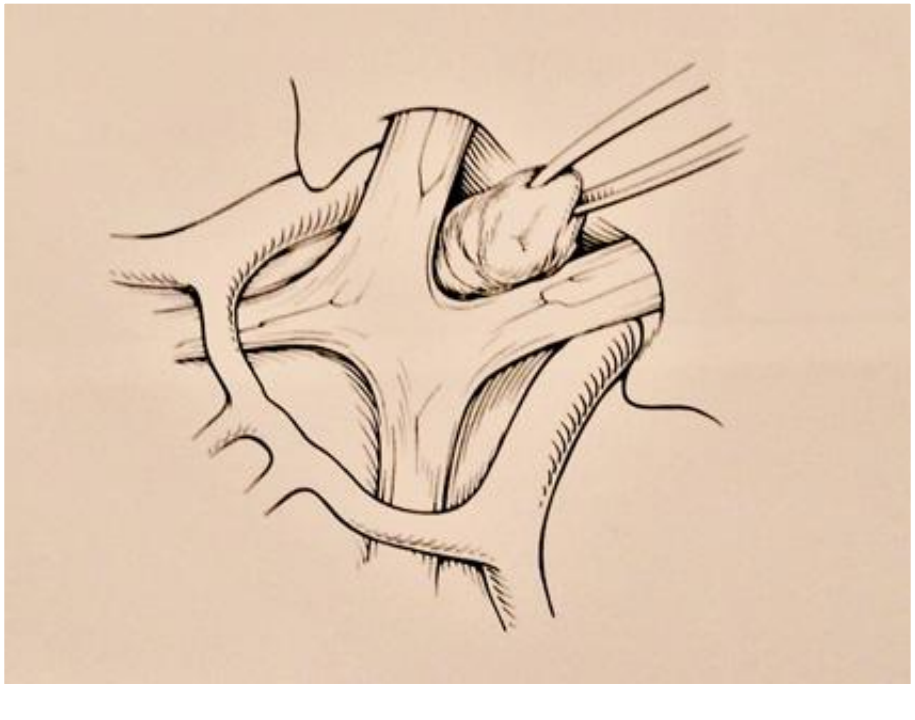
PREFIXED, POSTFIXED, CHIASM

SUPRASELLAR REGION



SUPRASELLAR REGION

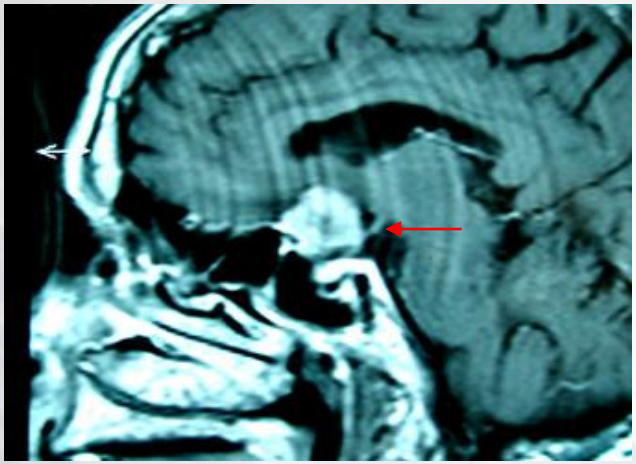




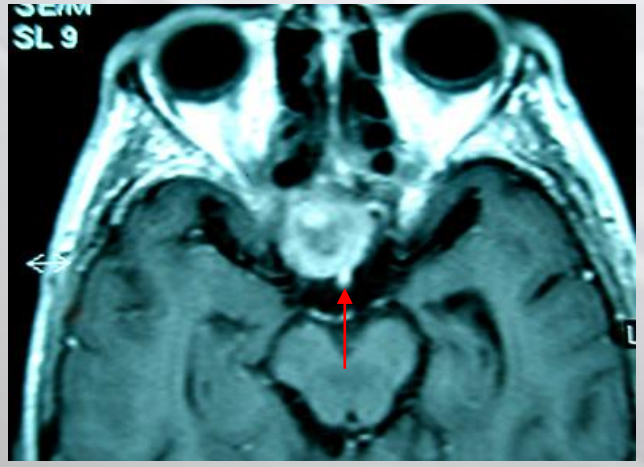
SUPRASELLAR REGION

POST FIXED CHIASM

PREOP MRI



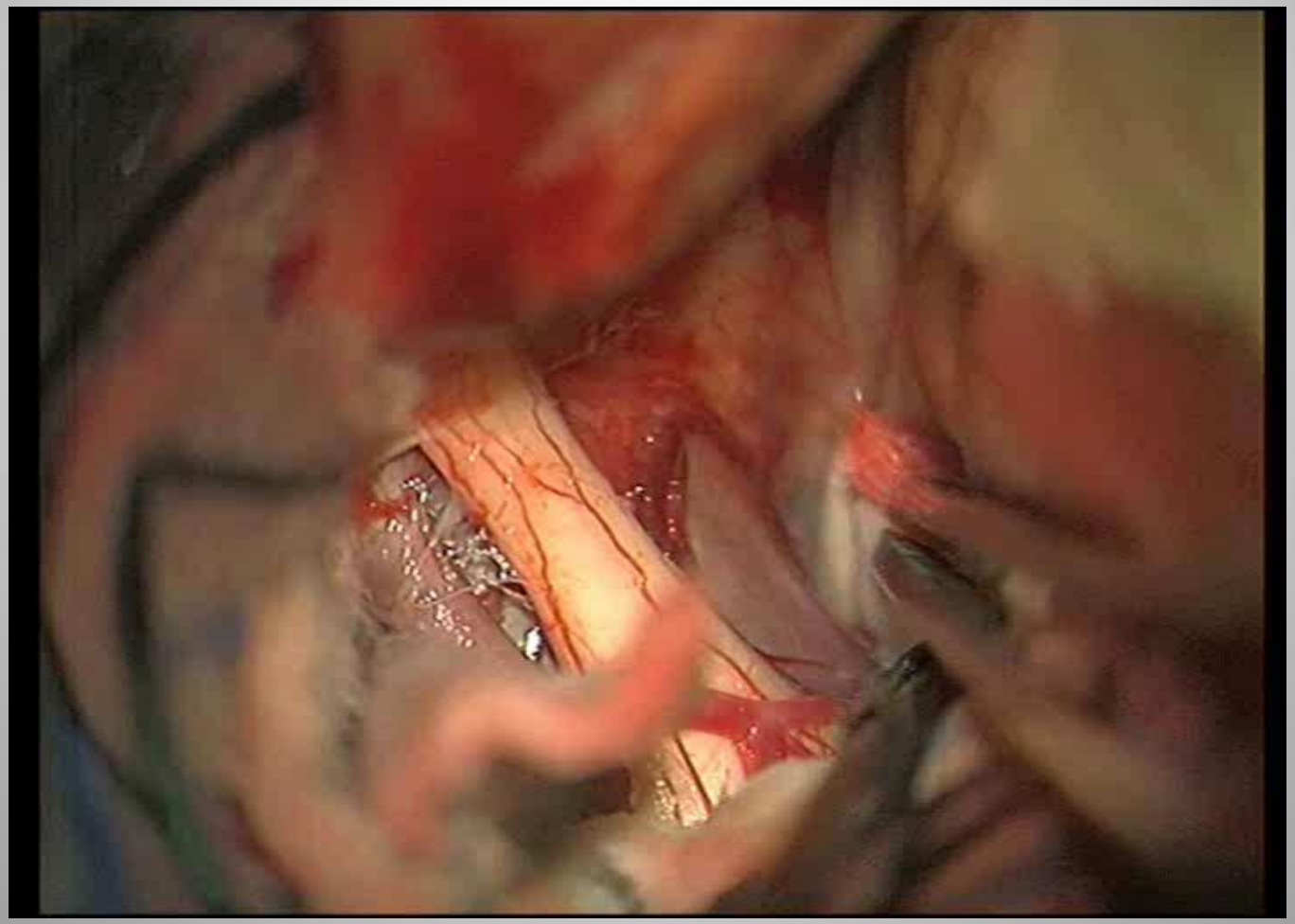
POSTOP MRI



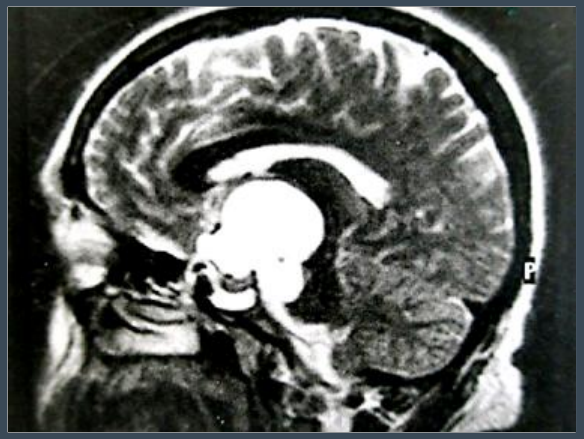
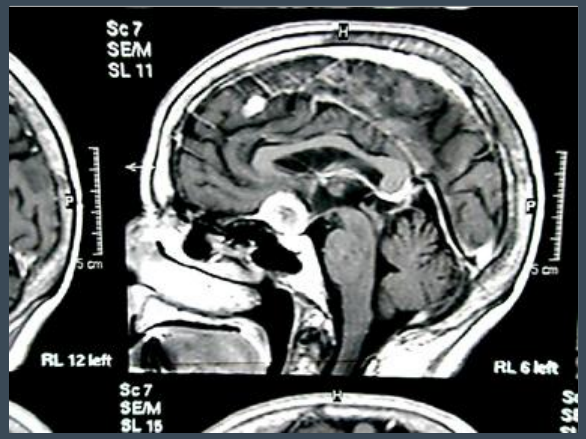
SUPRASELLAR REGION

POST FIXED CHIASM

Suprasellar adenoma



SUPRASELLAR REGION

Adenoma	Craniopharyngioma	Meningioma
		

SUPRASELLAR REGION

Surgical Approaches

1. Median Subfrontal	2. Pterional	3. Supraorbital Keyhole
		

SUPRA- PARA- SELLAR REGION

Conclusion

A. Benign Lesion → Malignant Area

B. Maximal Approaches → Minimal Approaches

C. Conventional Anatomy → Microsurgical Anatomy