



The State Institution
Romodanov Neurosurgery Institute
National Academy of Medical Sciences of Ukraine



Malignant craniofacial tumors. Surgery

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*Department of endoscopic and craniofacial neurosurgery
with a group of adjuvant treatment methods*

Our
department

ВІДДІЛЕННЯ
ЕНДОСКОПІЧНОЇ ТА КРАНІОФАЦІАЛЬНОЇ
НЕЙРОХІРУРГІЇ
З ГРУПОЮ
АД'ЮВАНТНИХ МЕТОДІВ ЛІКУВАННЯ

Department
of Endoscopic & Craniofacial
Neurosurgery
With the Group of Adjuvant Therapy

11 ВІДДІЛЕННЯ



Our wards

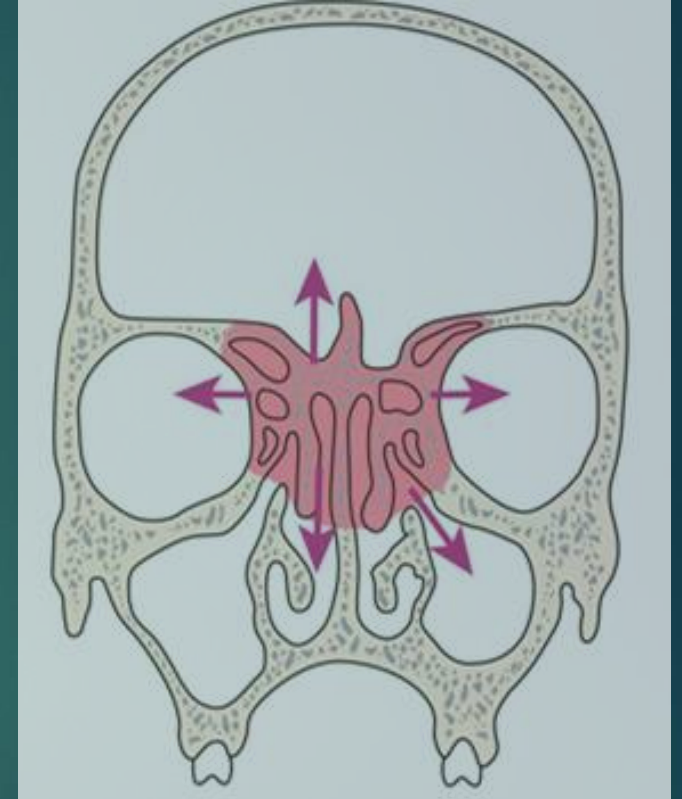


Our operating room



Craniofacial tumors spread

- Intracranially
- Extracranially
- Intraorbital (often)

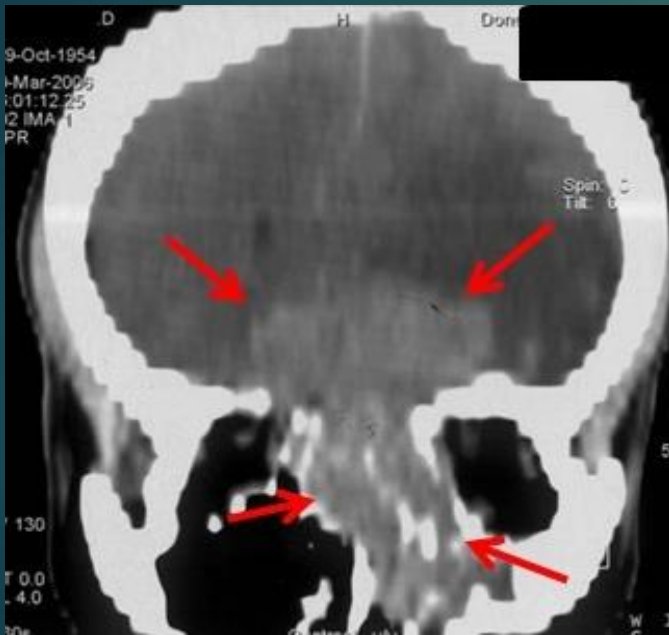


Malignant craniofacial tumors:

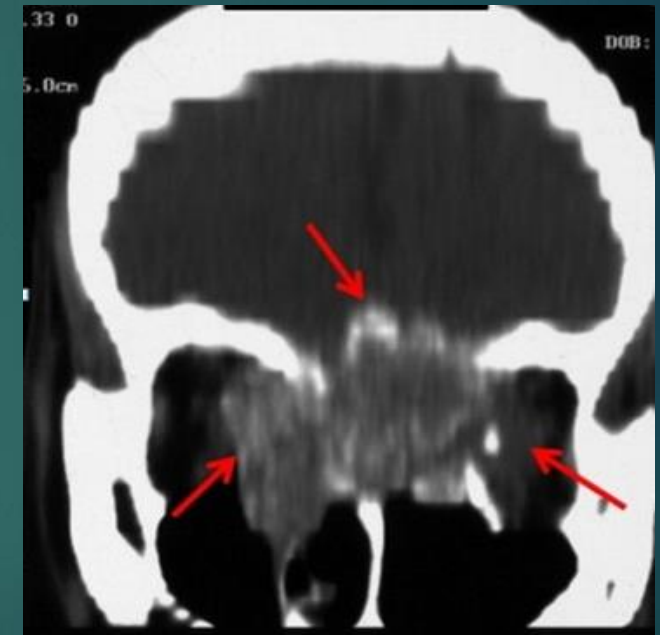
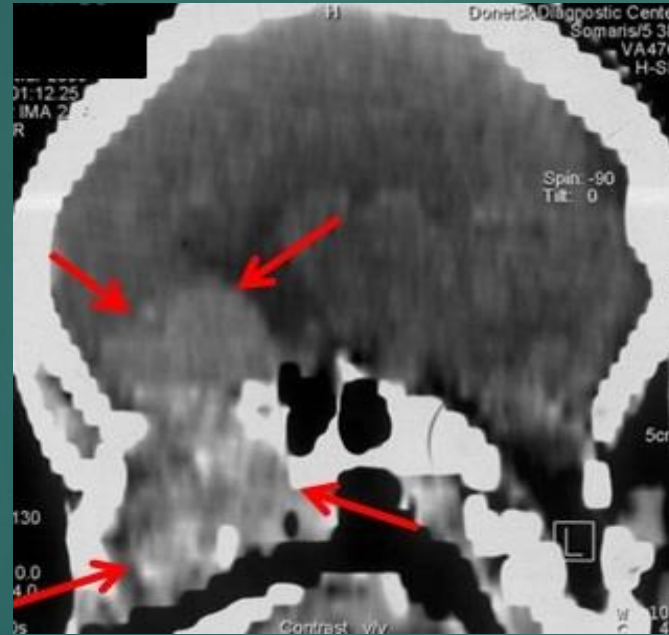
- Cancers
- Adenocarcinomas
- Estesioneuroblastomas
- Sarcomas
- Neuroblastomas

Cancers

- Dura invasion – 50%
- Intracerebral – 30%
- Metastasis – 10 %



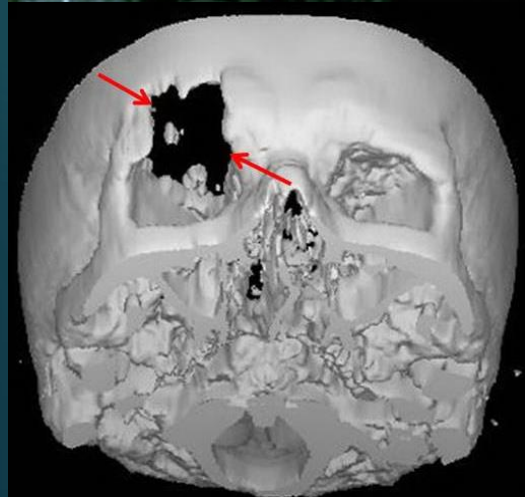
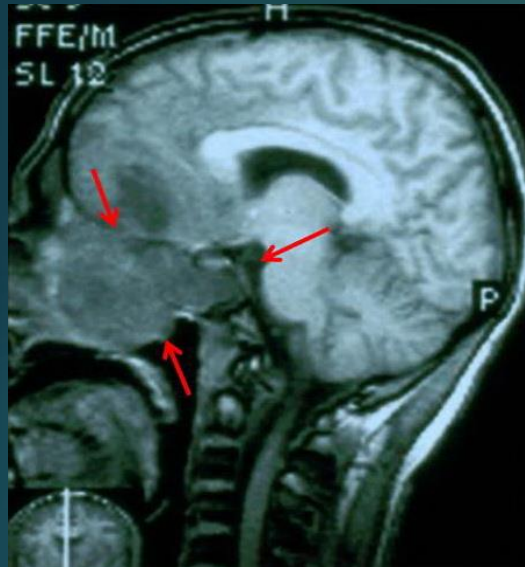
Squamous cell cancer



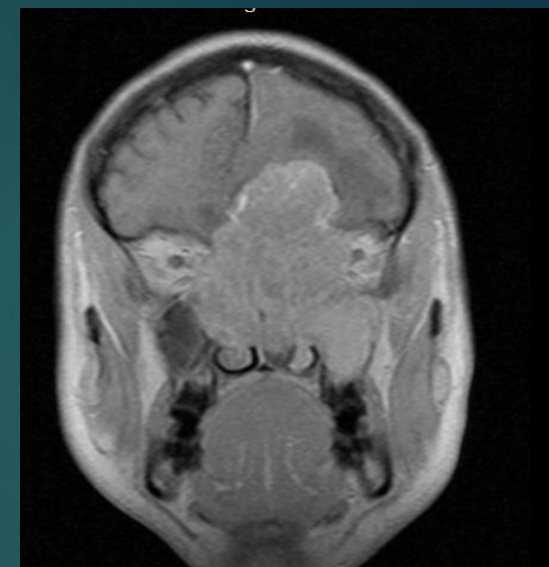
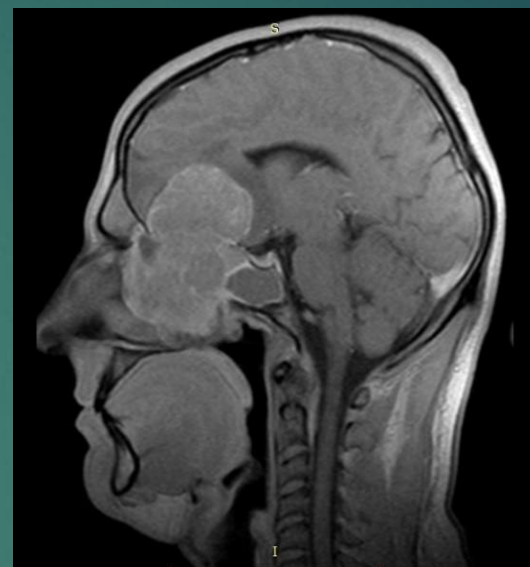
Transitional cell cancer

Adenocarcinoma

- Frequent intracerebral spread
- Aggressive course of disease



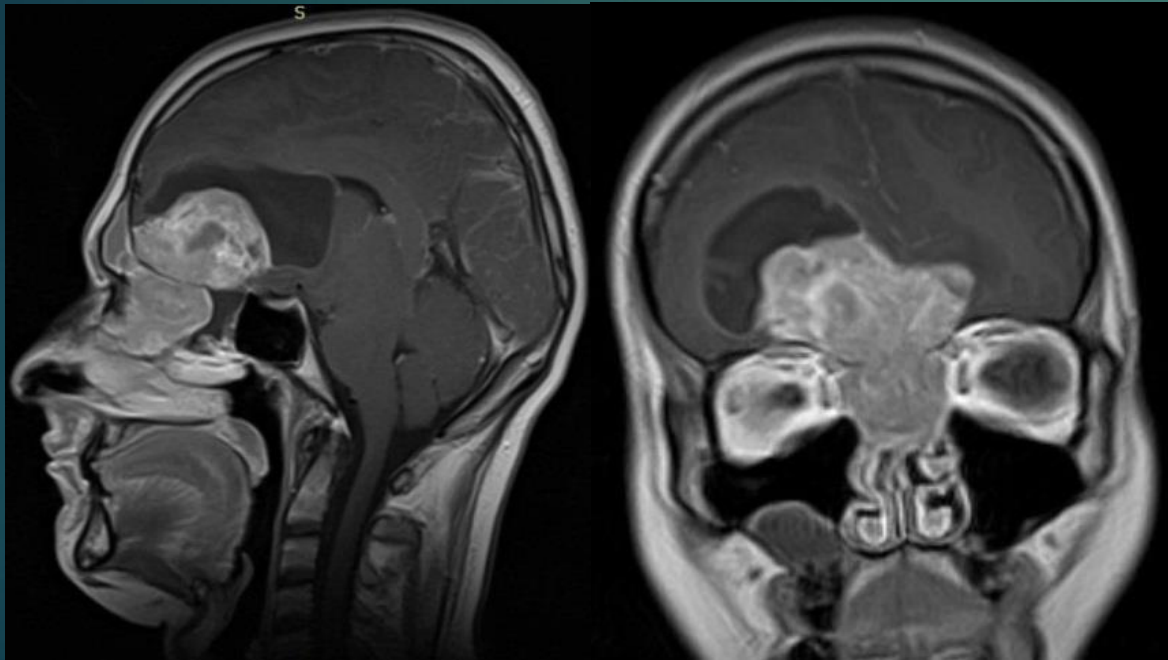
Adenocarcinoma



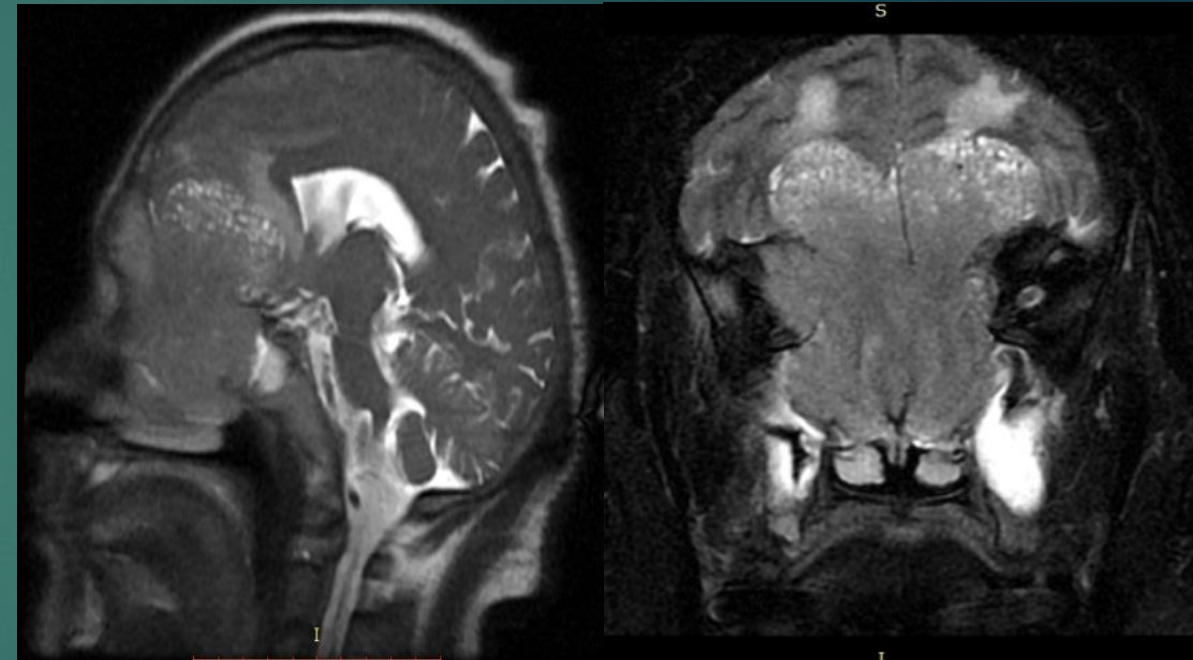
Low-differentiated
adenocarcinoma

Estesioneuroblastoma

- malignant tumor of the olfactory epithelium
- pronounced intracranial component



Estesioneuroblastoma



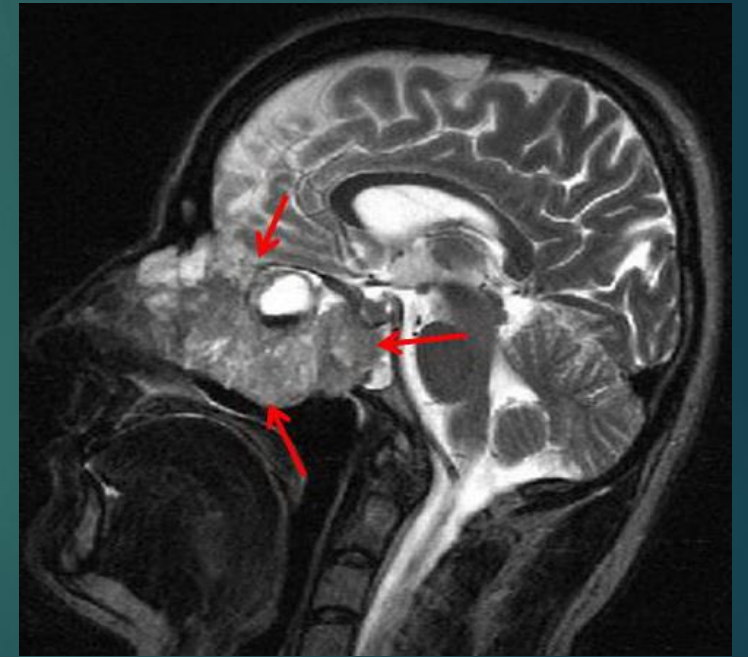
Estesioneuroblastoma

Sarcomas

- Invasive spread
- Extracranial spread predominates

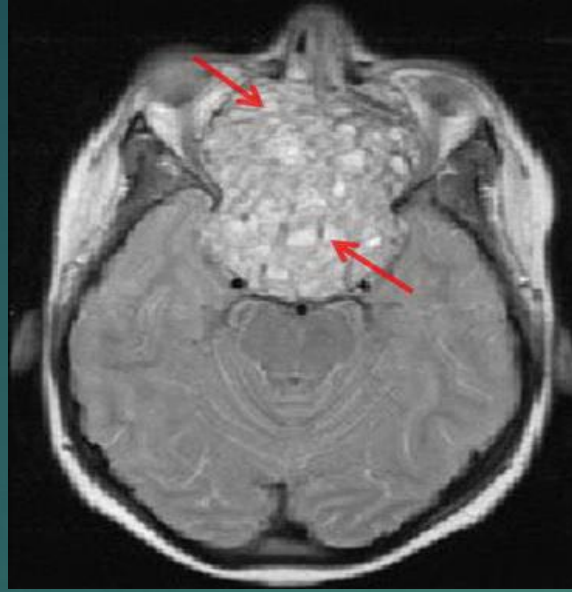
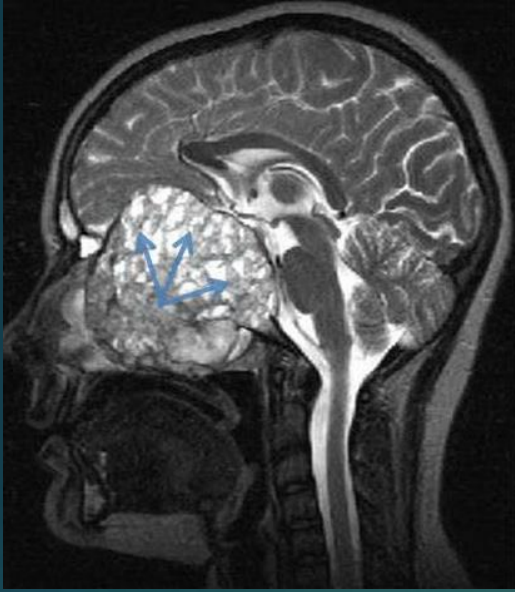


Osteogenic sarcoma

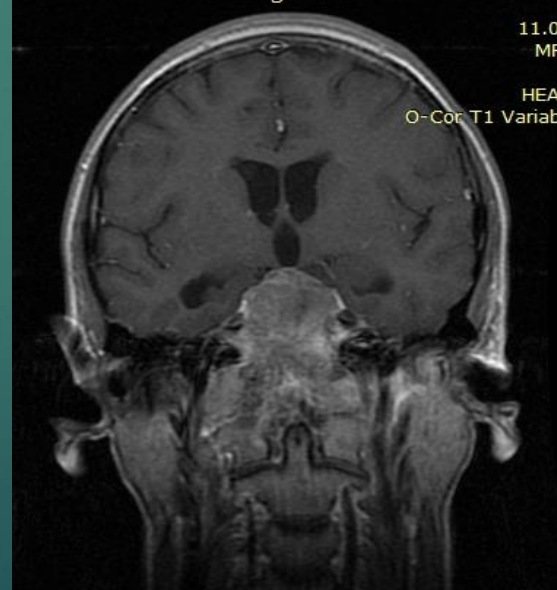


Chondrosarcoma

Primary bone tumors



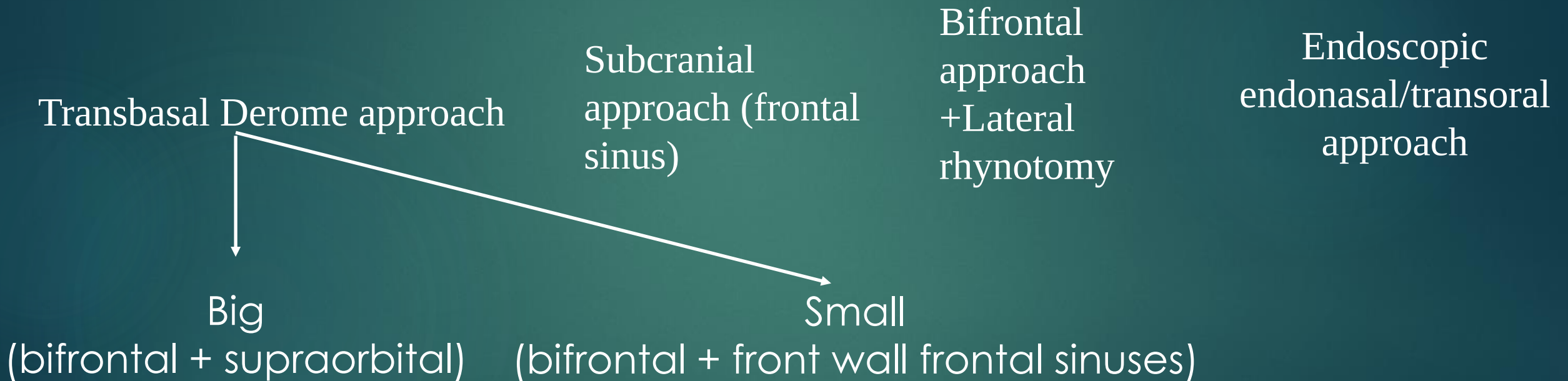
Osteoblastoclastoma



Chordoma

SURGICAL TREATMENT OF CRANIOACIAL TUMORS

- Intracranial tumor component
- Tumor component in the skull base
- Extracranial tumor component



252 patients with craniofacial tumors

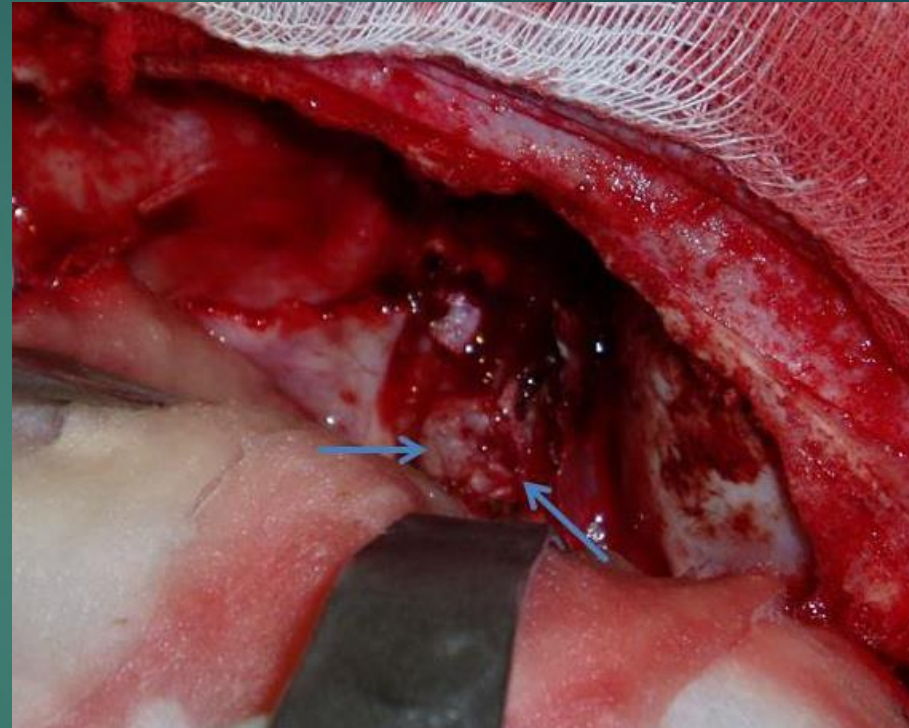
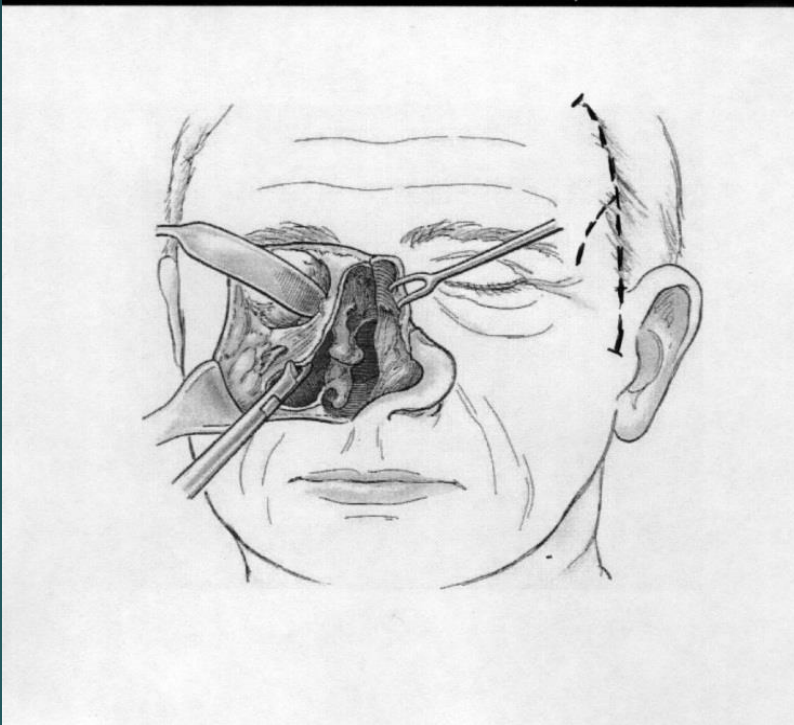


Bifrontal approach	45
Transbasal Derome approach	57
Subcranial approach	37
Lateral craniofacial resection	48
Endoscopic endonasal/transoral approach	65

Combined transcranial and transfacial approaches first used by Smith RR., 1954; Ketcham AS, 1963; Van Buren JM, 1968. Postop mortality 3% to 5%.

Complication rate 30% - 50%.

5 year survival 17-56%



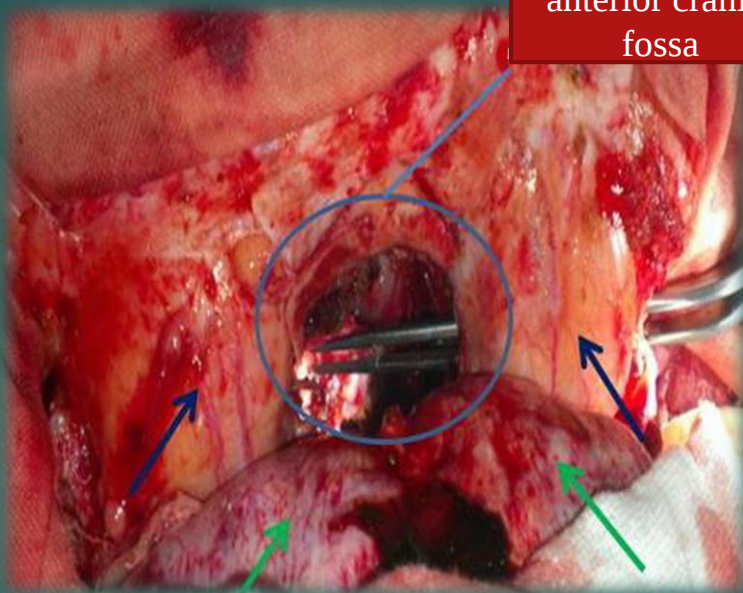
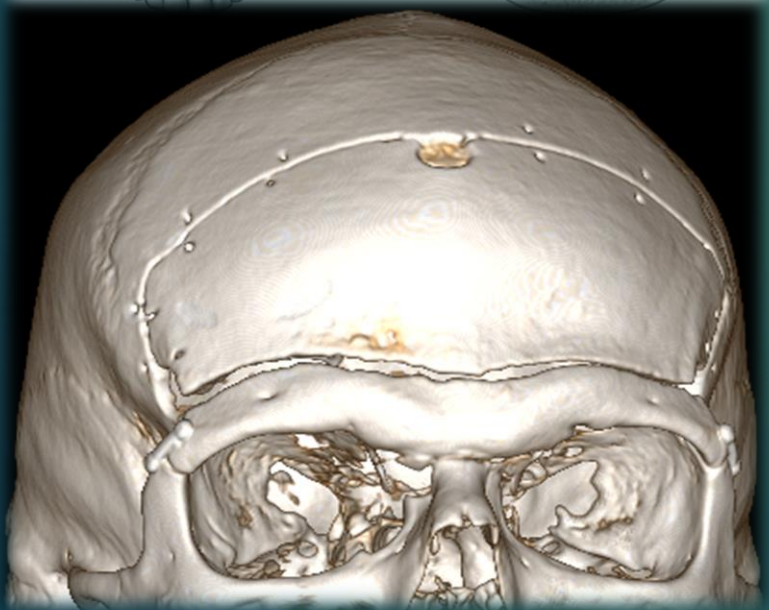
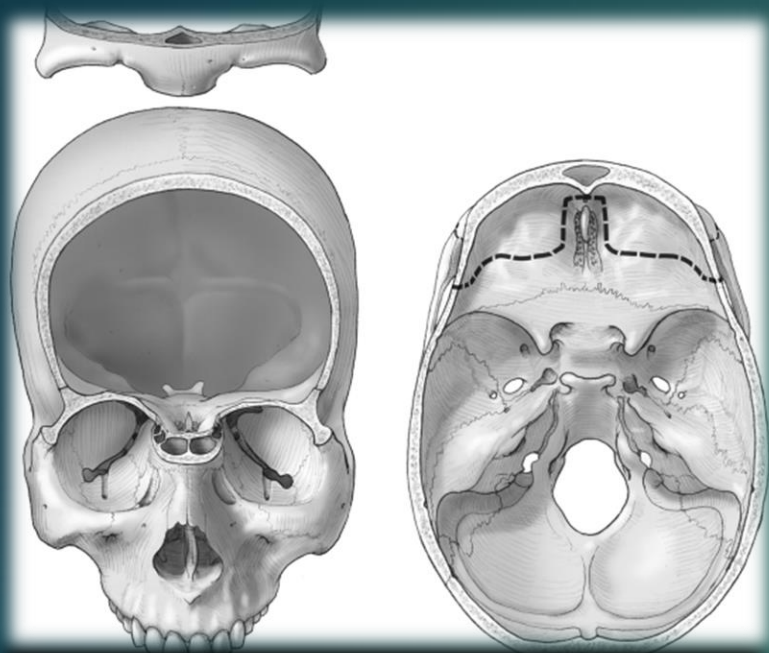
Anterior skull base view after craniofacial resection (Ketcham)

Craniofacial resection for malignant paranasal sinus tumors: Report of an International Collaborative Study. 2012 p.

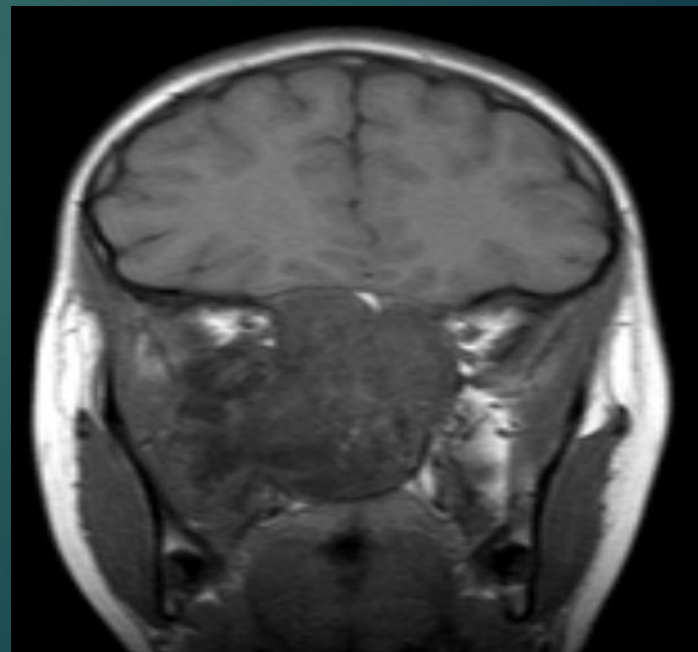
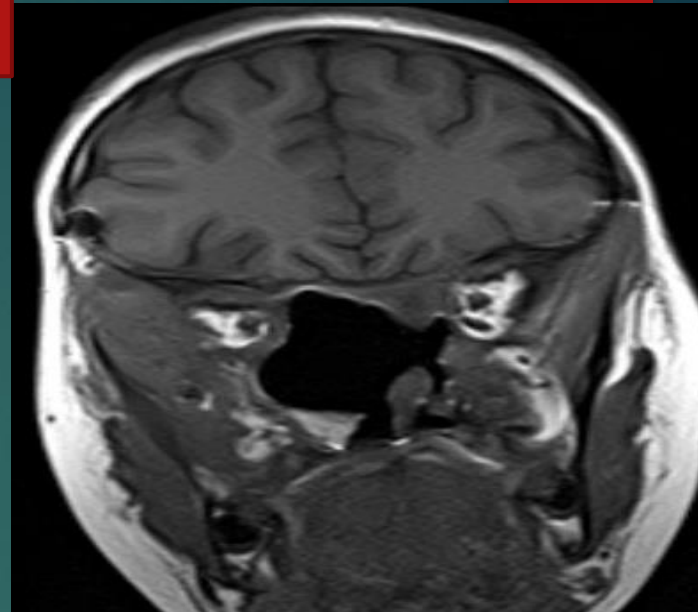
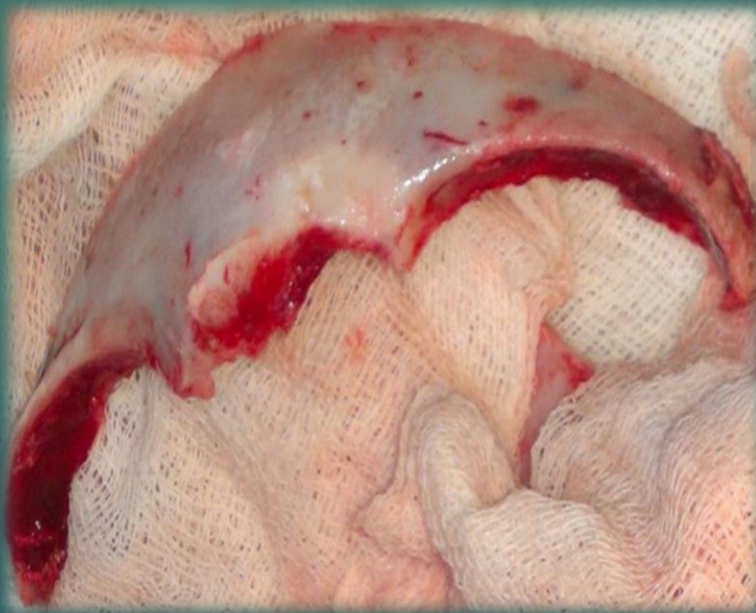
[Ganly J¹](#), [Patel SG](#), [Singh B](#), [Kraus DH](#), [Bridger PG](#), [Cantu G](#), [Cheesman A](#), [De Sa G](#), [Donald P](#), [Fliss DM](#), [Gullane P](#), [Janecka J](#), [Kamata SE](#), [Kowalski LP](#), [Levine PA](#), [Medina Dos Santos LR](#), [Pradhan S](#), [Schramm V](#), [Snyderman C](#), [Wei WJ](#), [Shah JP](#).

CONCLUSIONS: CFR for malignant paranasal sinus tumors is a safe surgical treatment with an overall mortality of 4.5% and complication rate of 33%. The status of surgical margins, histologic findings of the primary tumor, and intracranial extent are independent predictors of outcome. **1193 patients**

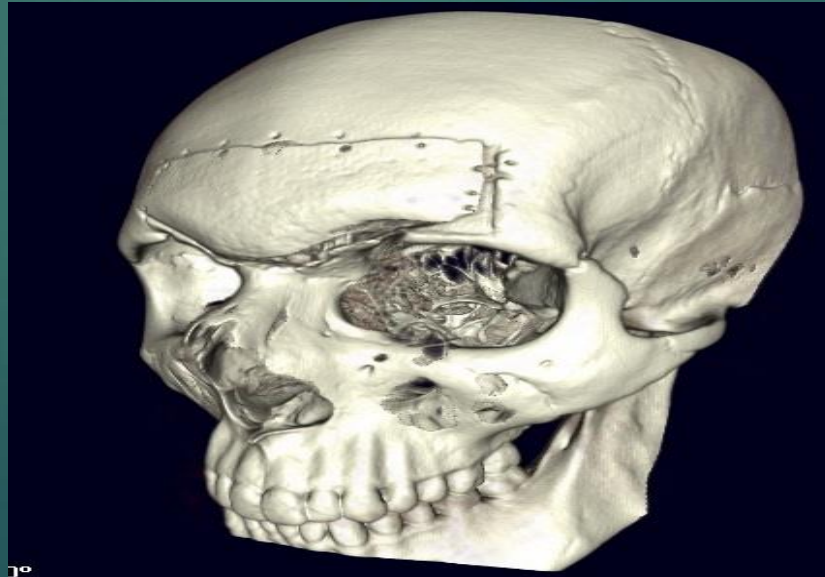
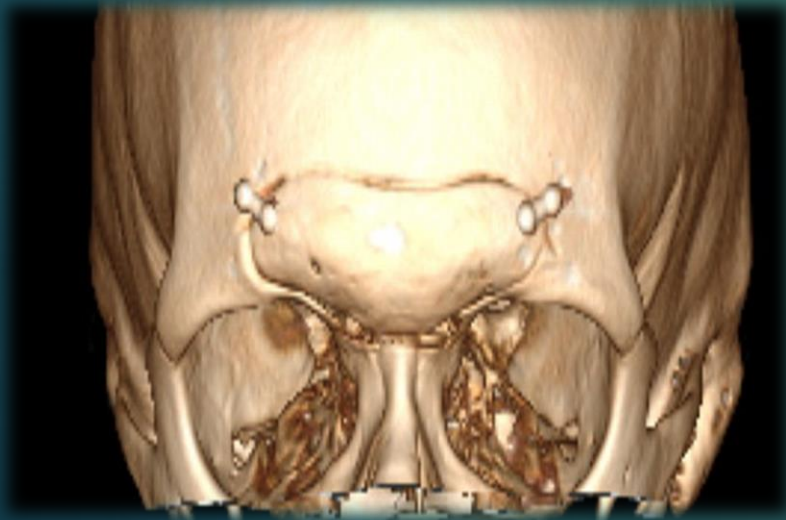
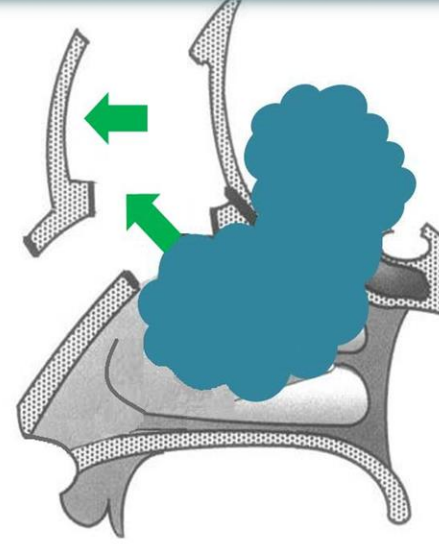
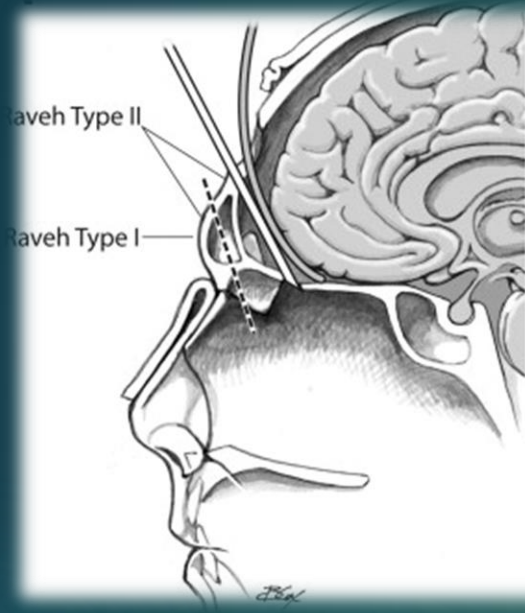
Transbasal approach Derome



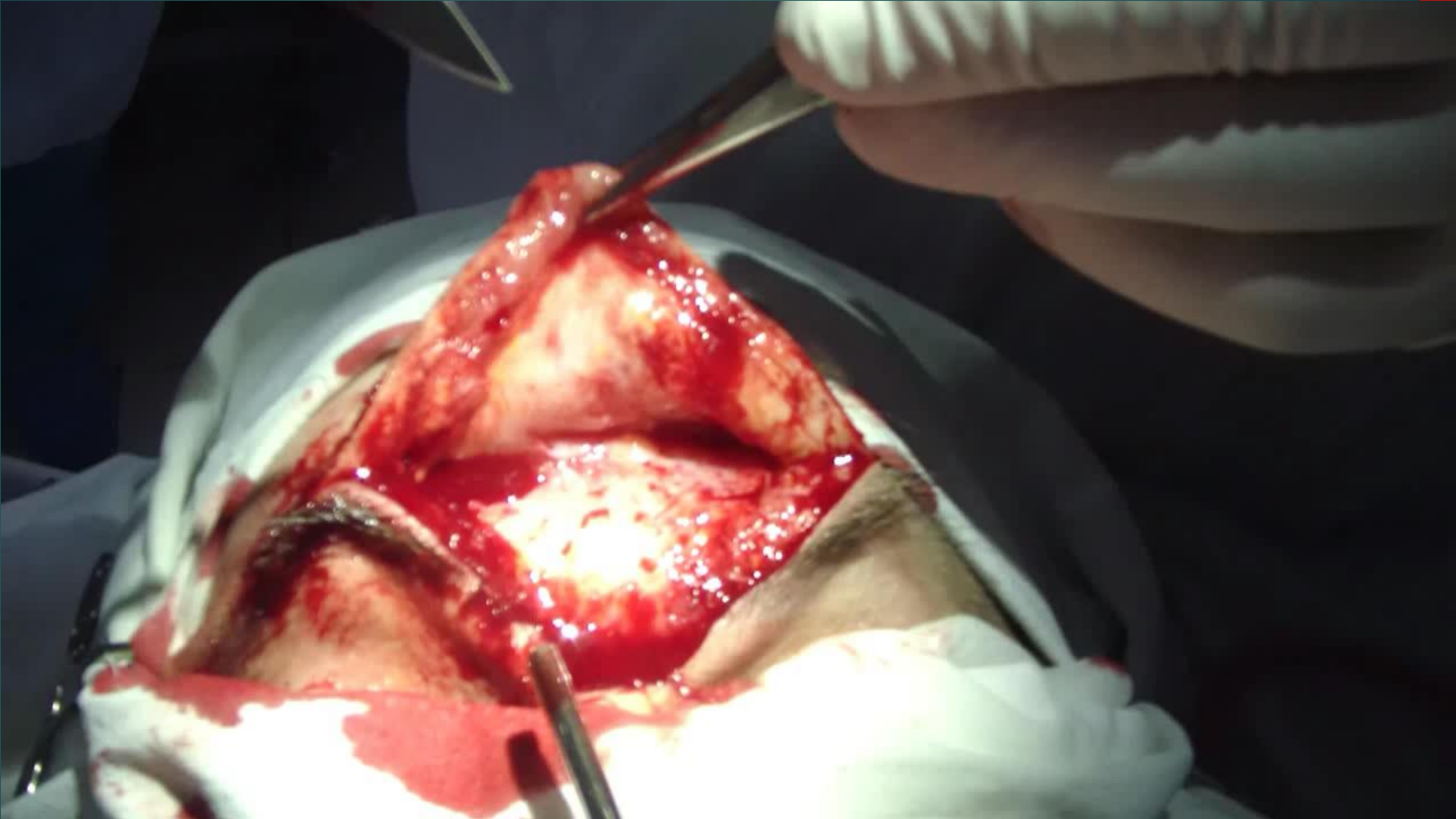
Floor of the
anterior cranial
fossa



Subcranial approach

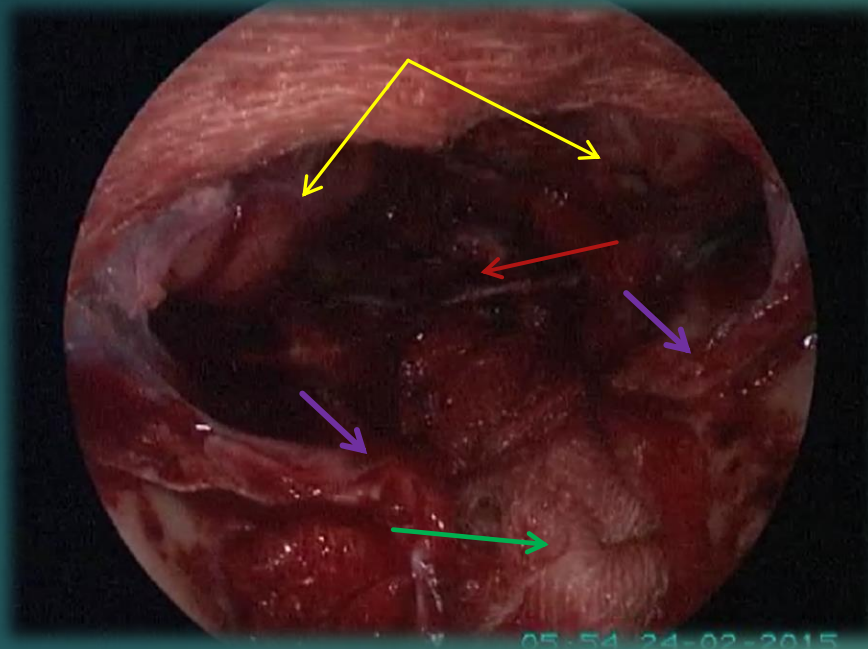


Subcranial approach: stages of resection of the anterior wall of the frontal sinus



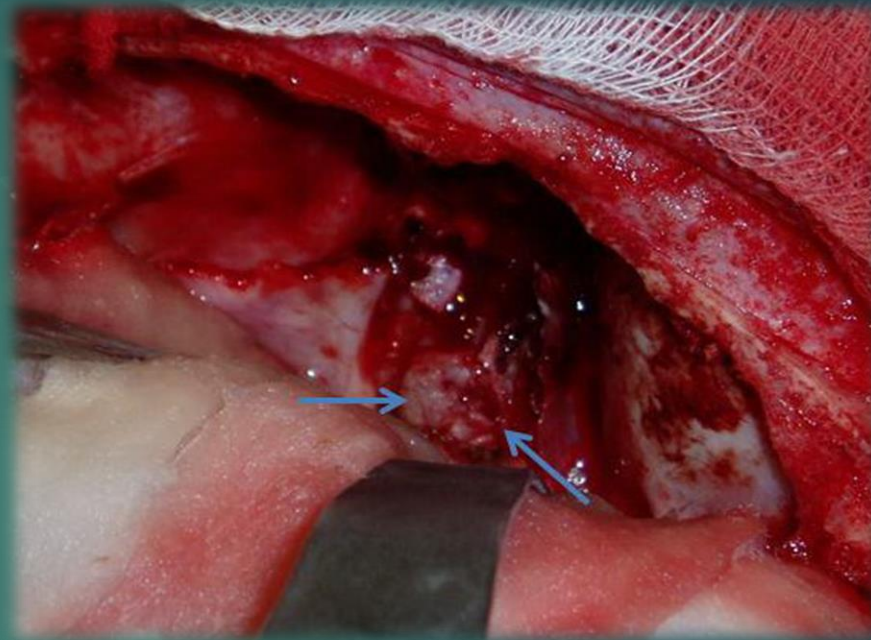
Intraoperative view of the wound with subcranial and bifrontal approaches

Subcranial approach



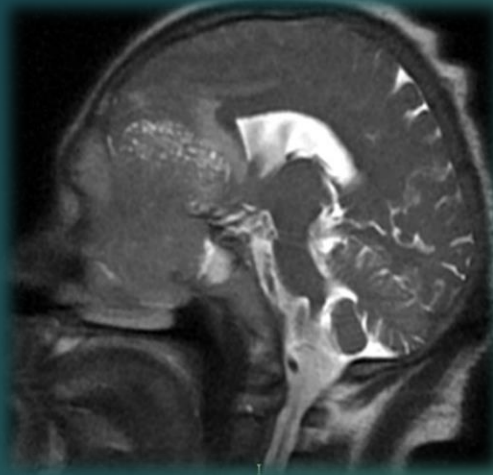
Floor of the anterior cranial fossa
Squamous cell cancer

Bifrontal approach

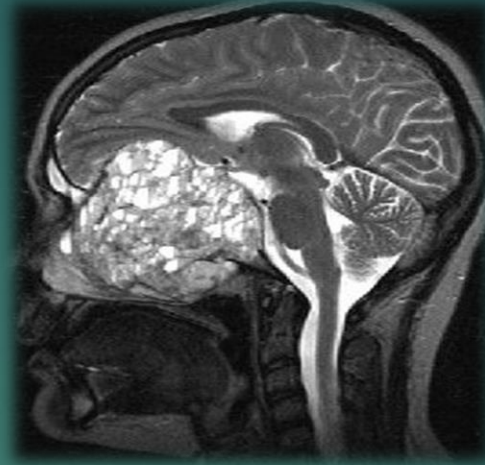


Floor of the anterior cranial fossa
Chondroma of ethmoidal labyrinth

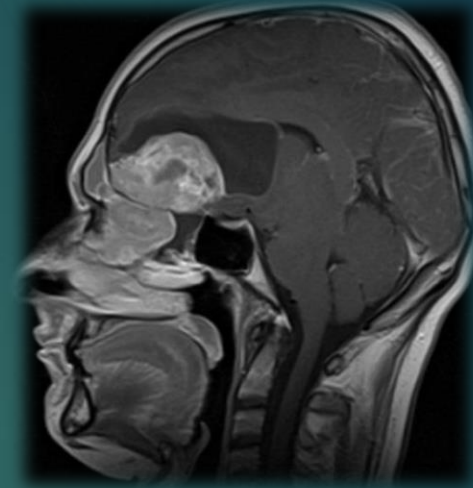
Estesioneuroblastoma
Transbasal approach Derome



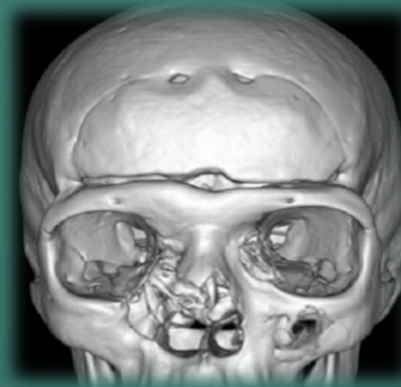
Osteoblastoclastoma
Bifrontal approach



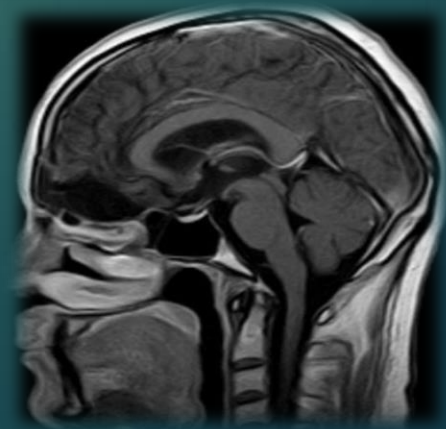
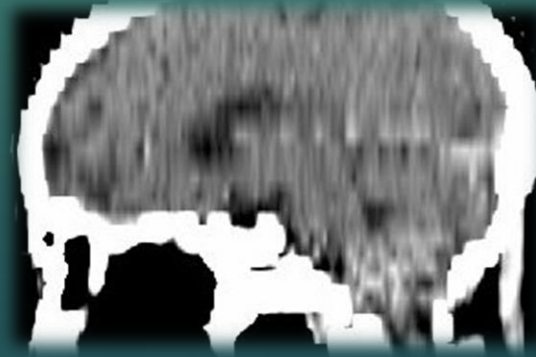
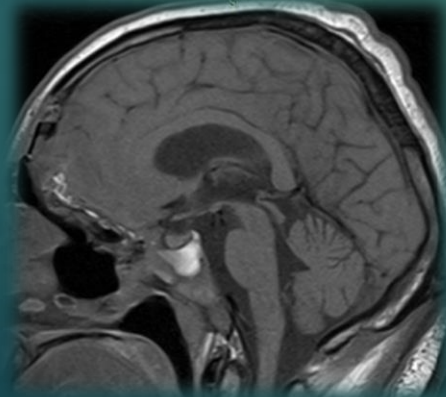
Estesioneuroblastoma
Subcranial approach



before the
operation



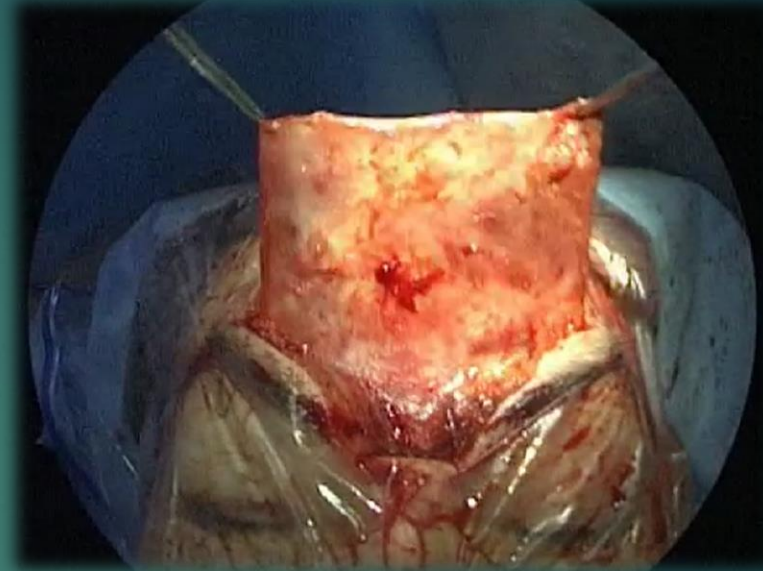
after the operation



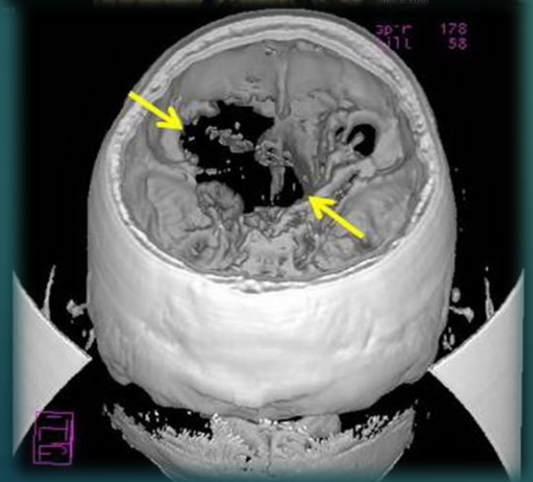
Anterior cranial fossa defects and its plastic closure



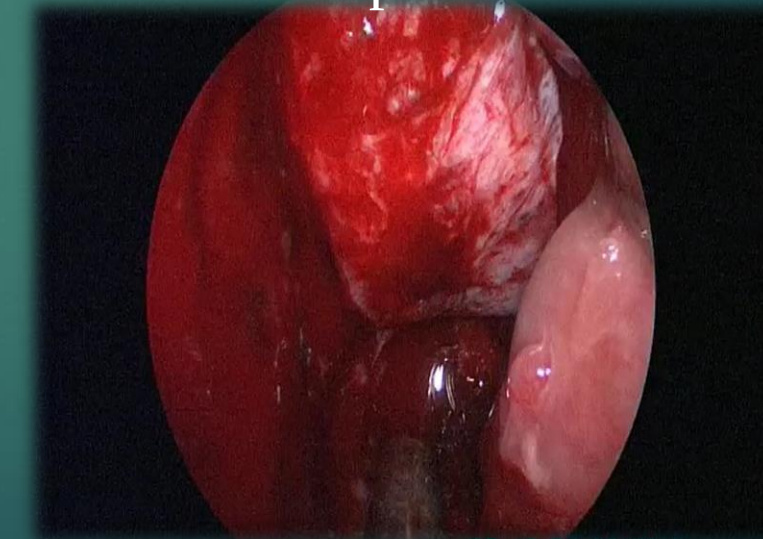
Medline



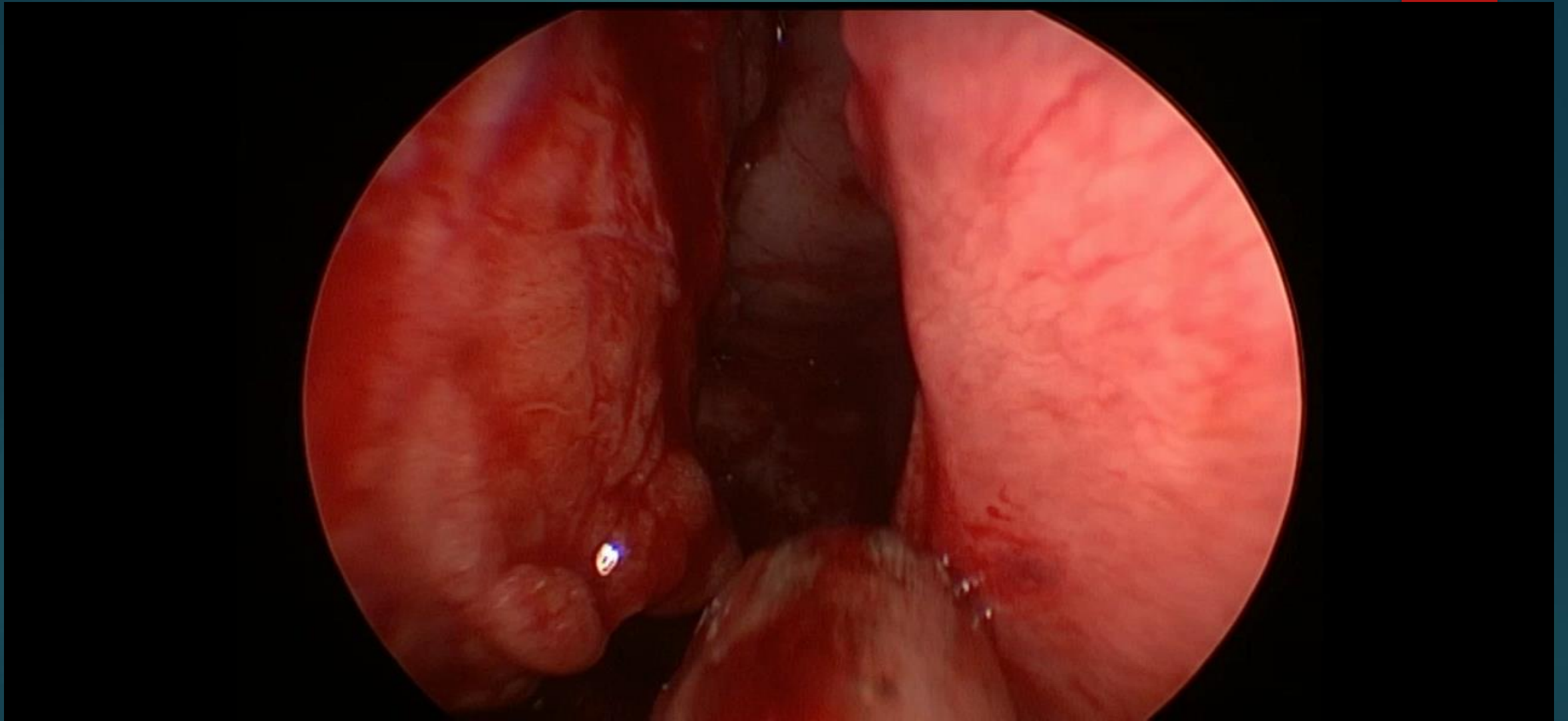
Medline-expanded Periosteal flap from the frontal area



Medline to lateral



View from the nasal cavity

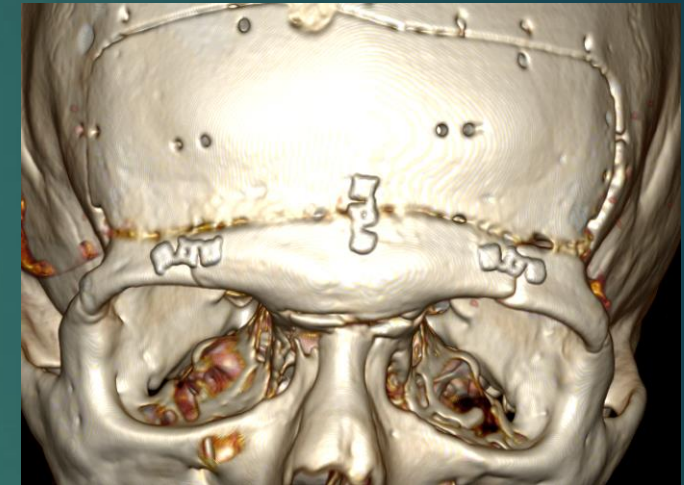
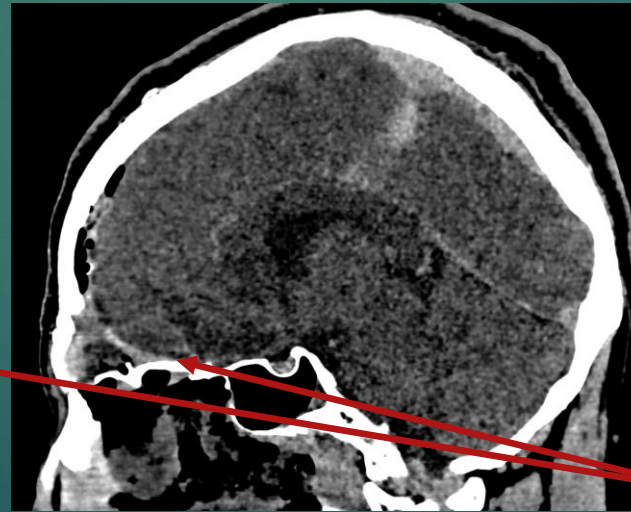
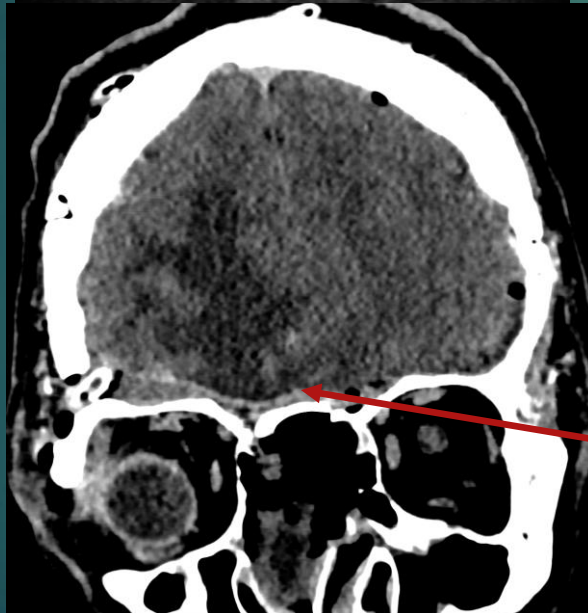
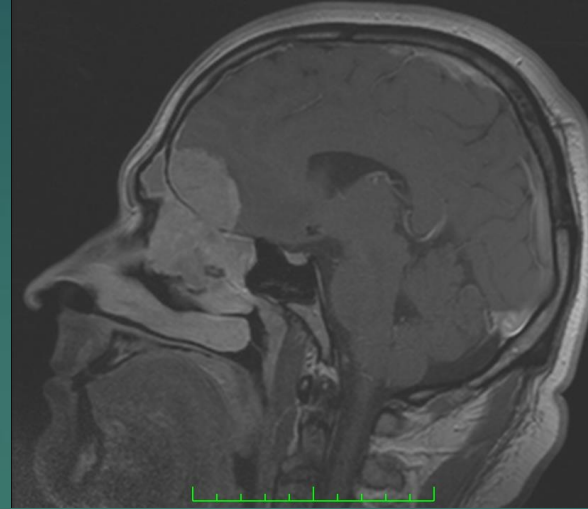
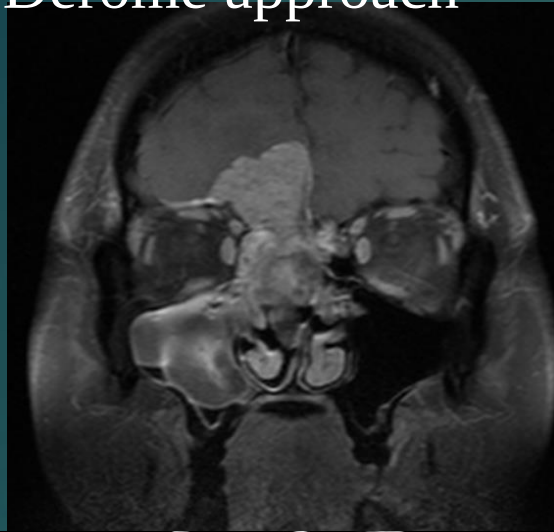


Periosteal flap from the frontal area
View from the nasal cavity

Clinical case

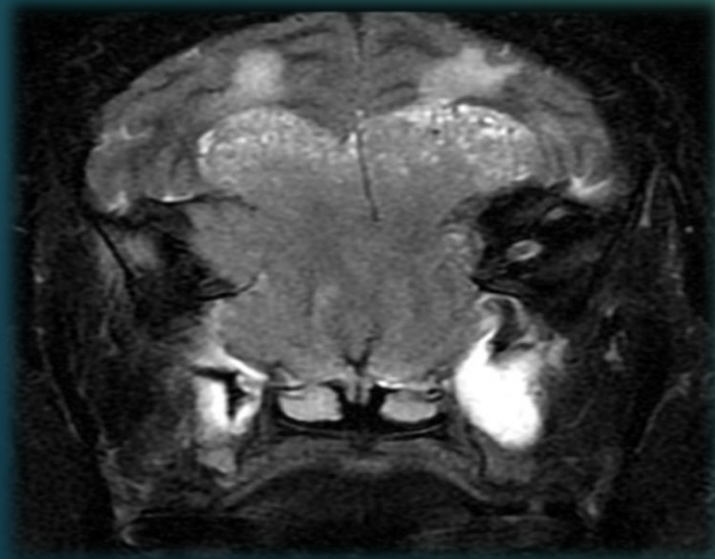
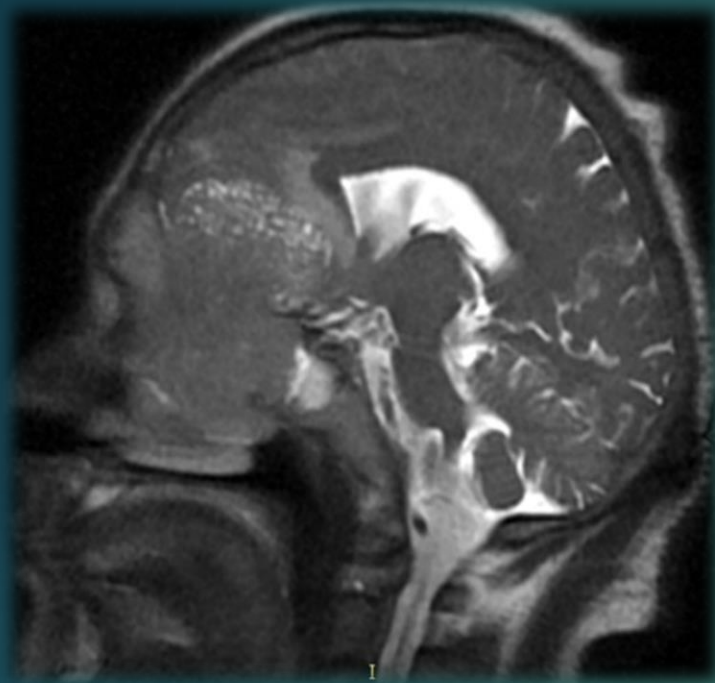
Transbasal Derome approach

Adenocystic
carcinoma



anterior cranial fossa
closure with bone fragment
(frontal sinus back wall)

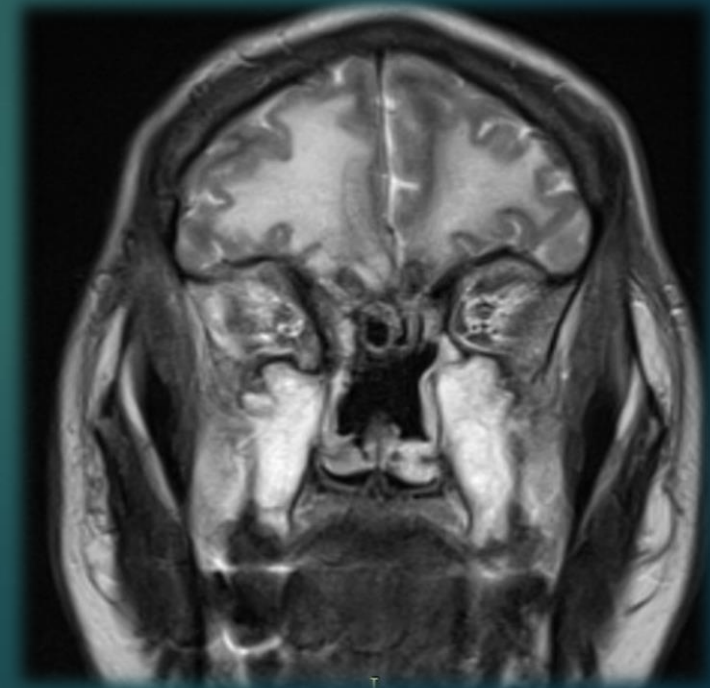
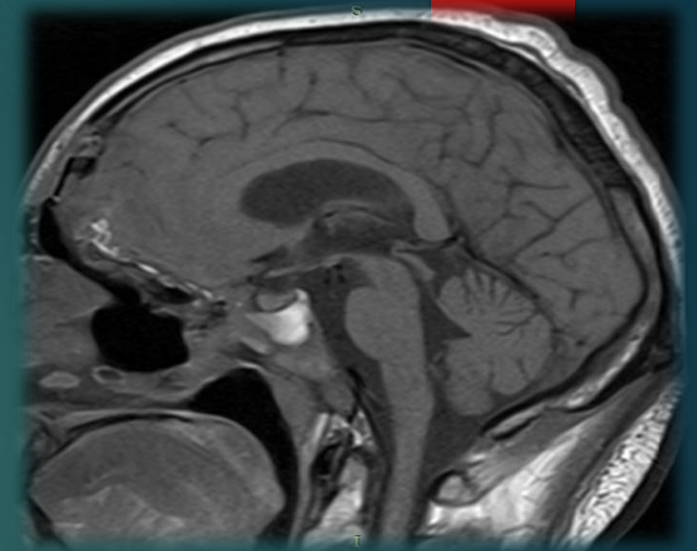
Pre op



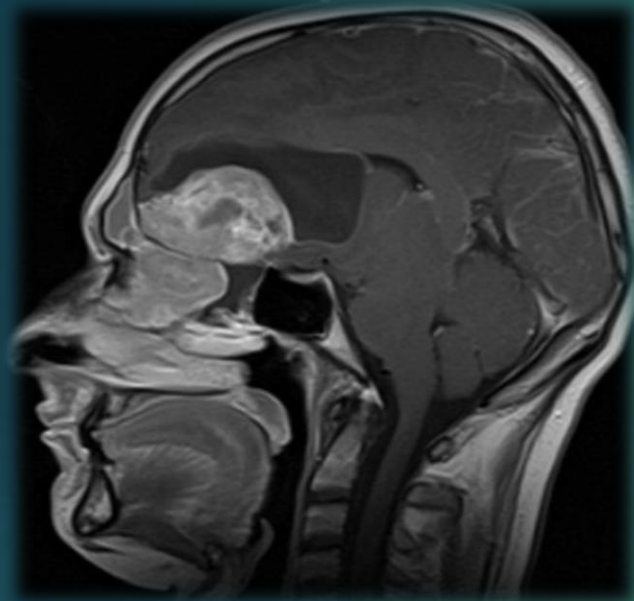
Ethmoid sinus
esthesioneuroblastoma.
Transbasal approach



Post op



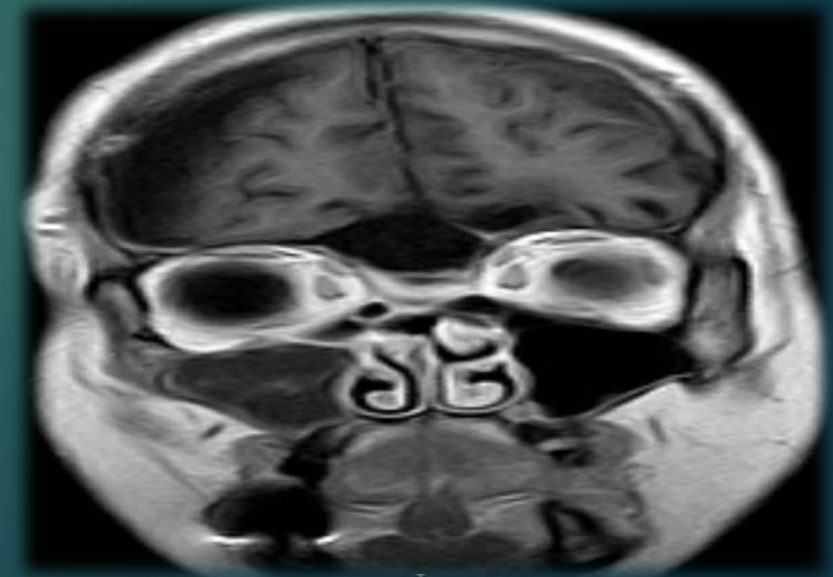
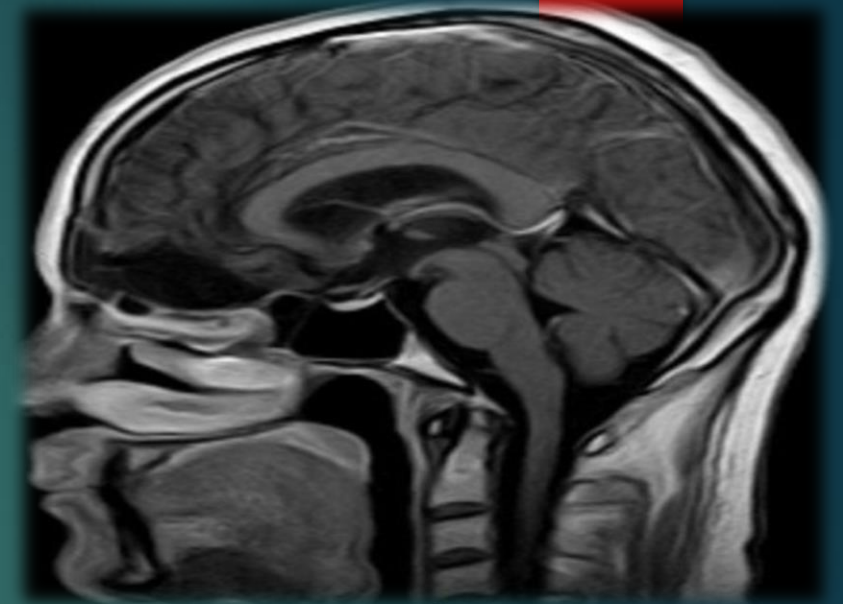
Pre op



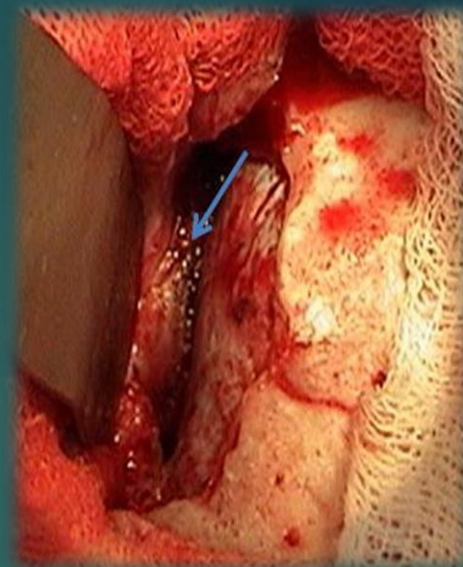
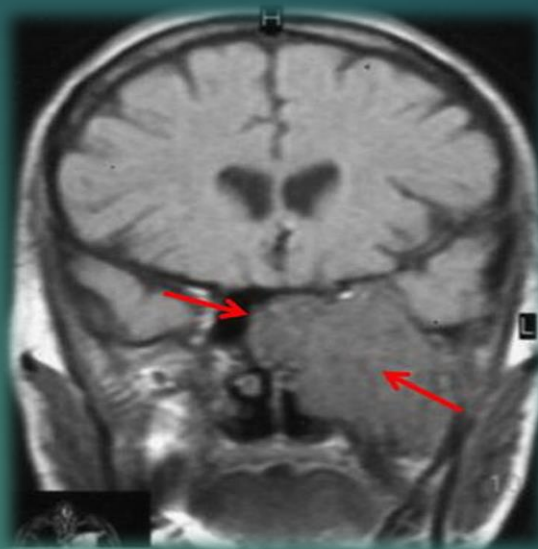
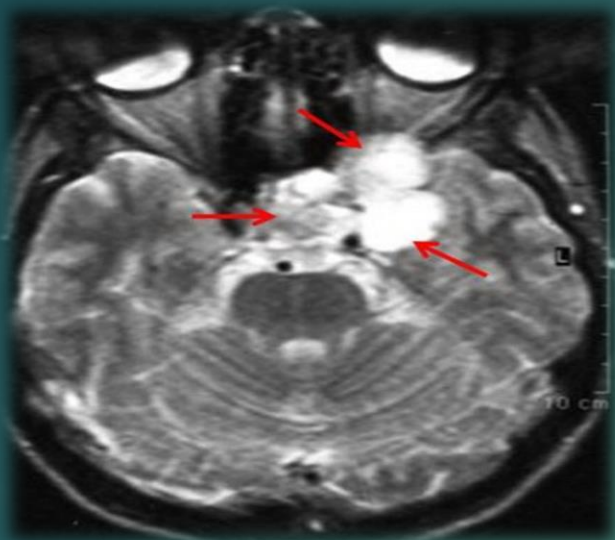
Ethmoid sinus
esthesioneuroblastoma.
Subcranial approach



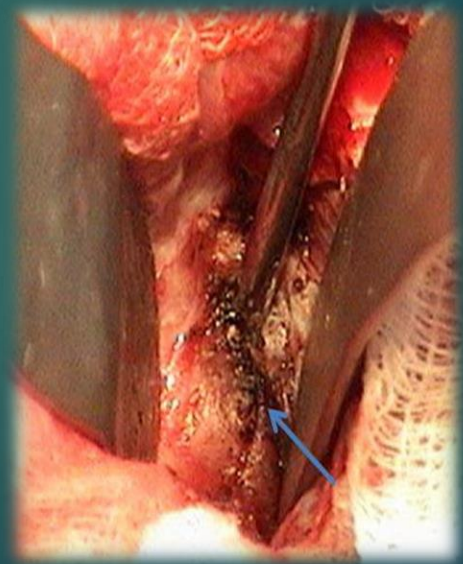
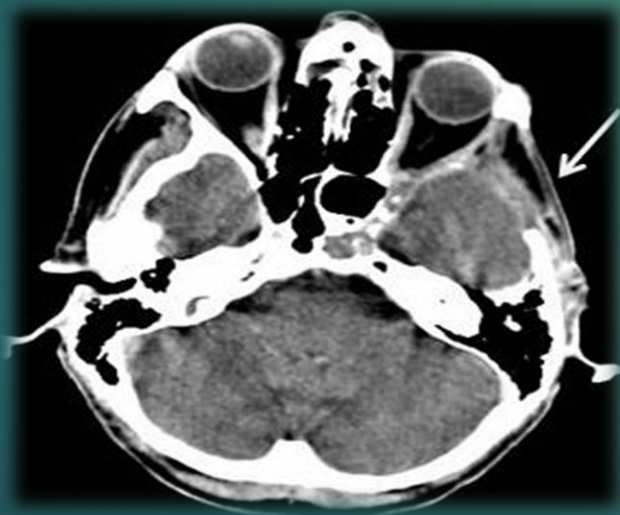
Post op



Pre op

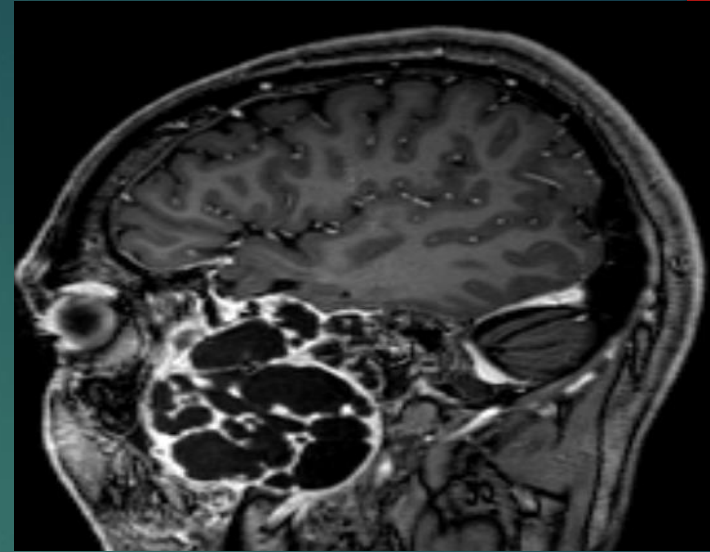
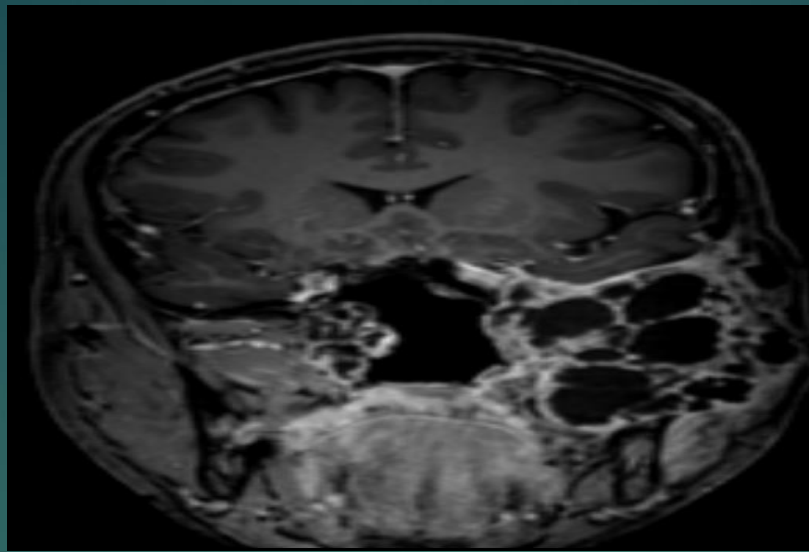


Post op

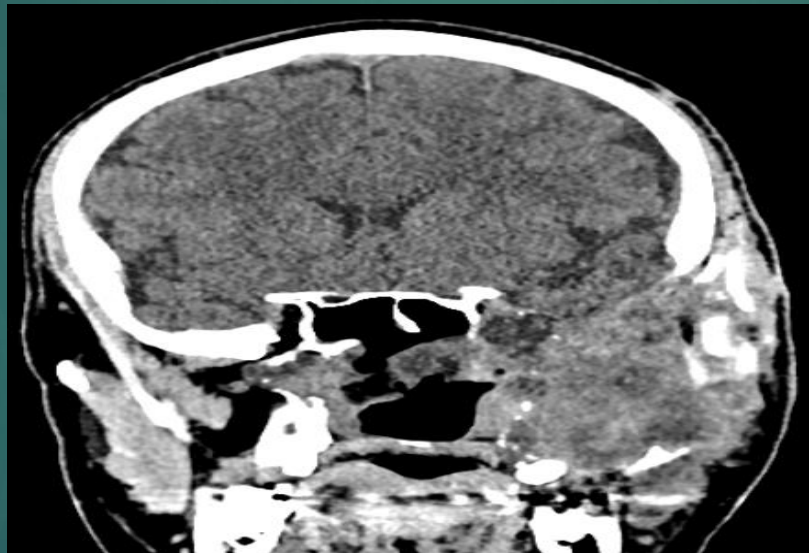


Lateral craniofacial resection

Chondrosarcoma



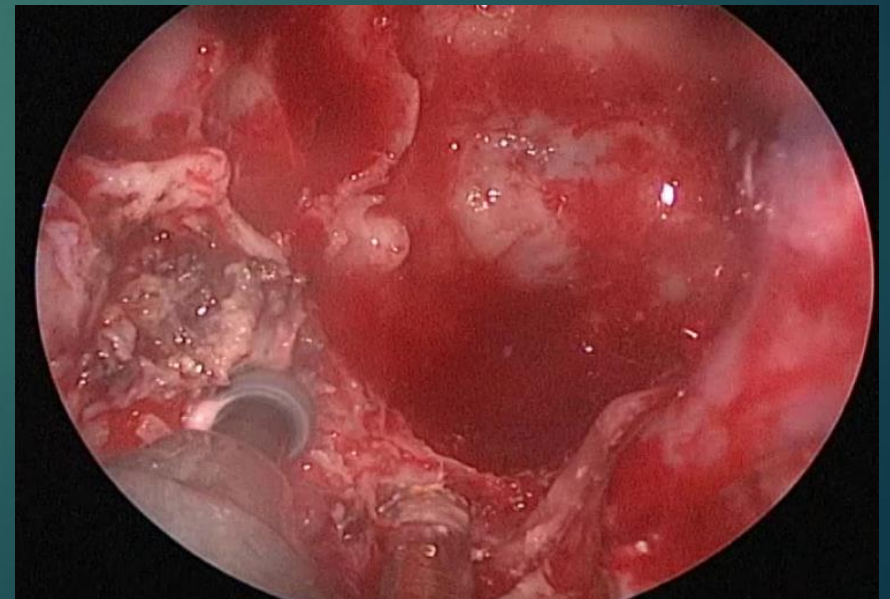
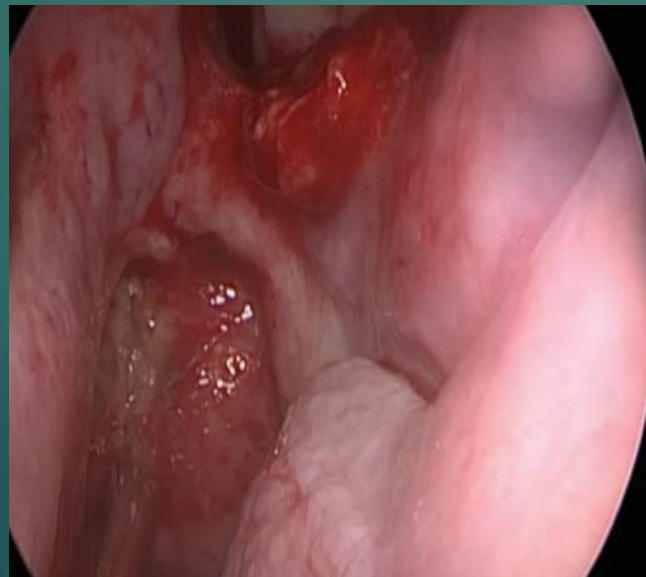
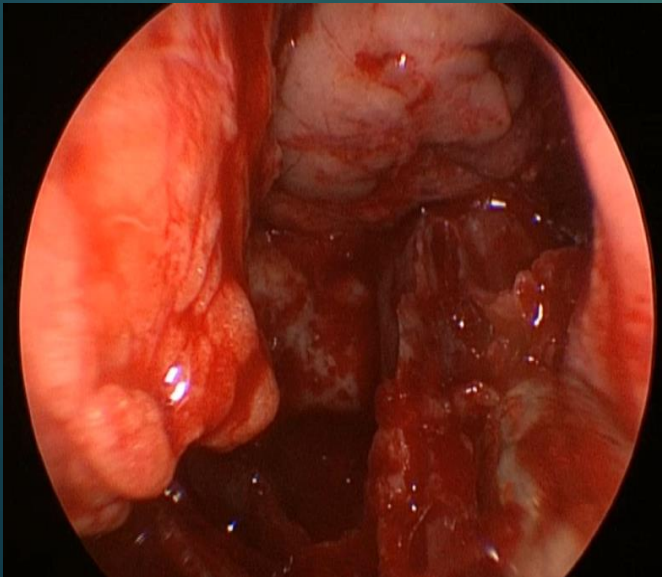
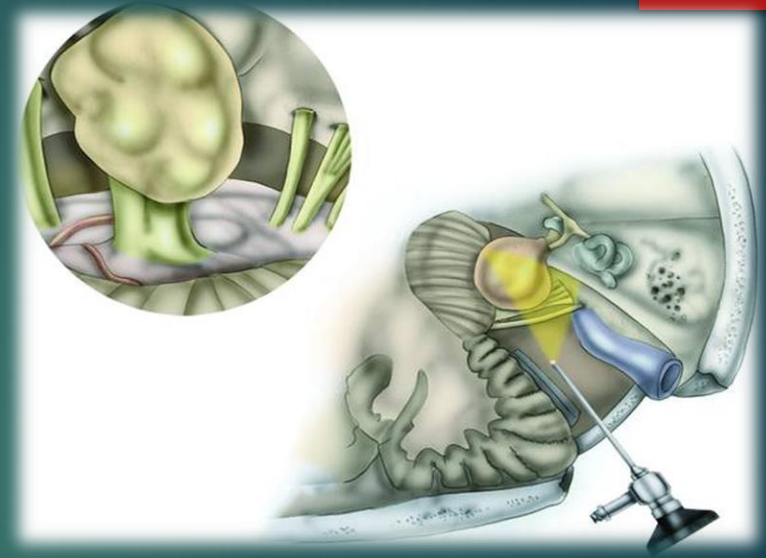
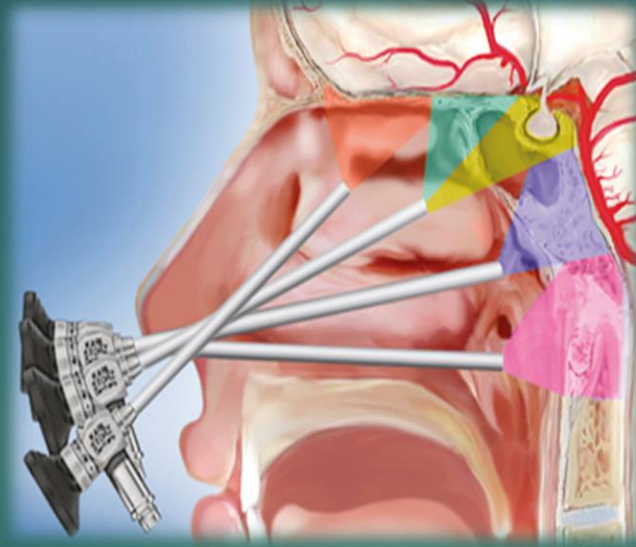
Pre op



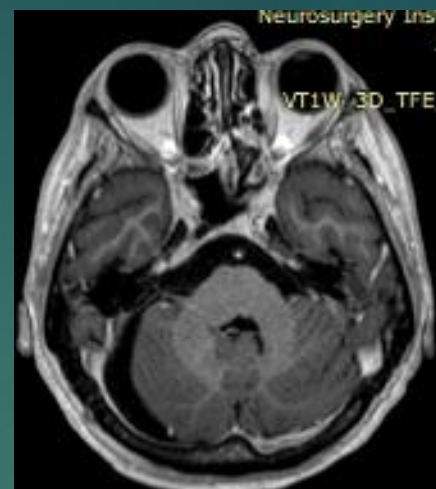
Post op

Lateral craniofacial resection. Subtotal removal.
Small residual removed with endonasally.

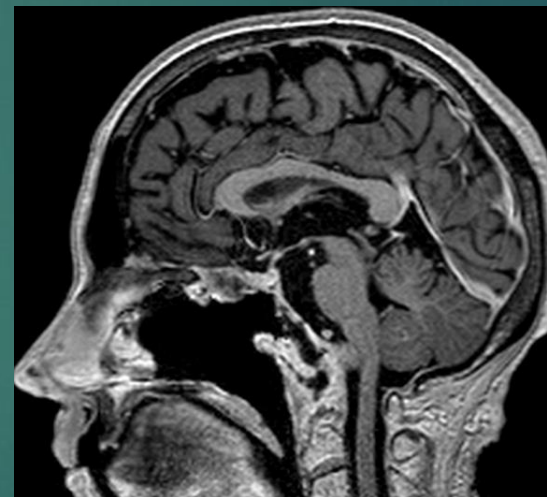
Endoscopic techniques in surgery



Endoscopic endonasal transclival + retrosigmoid approach



Clivus chordoma

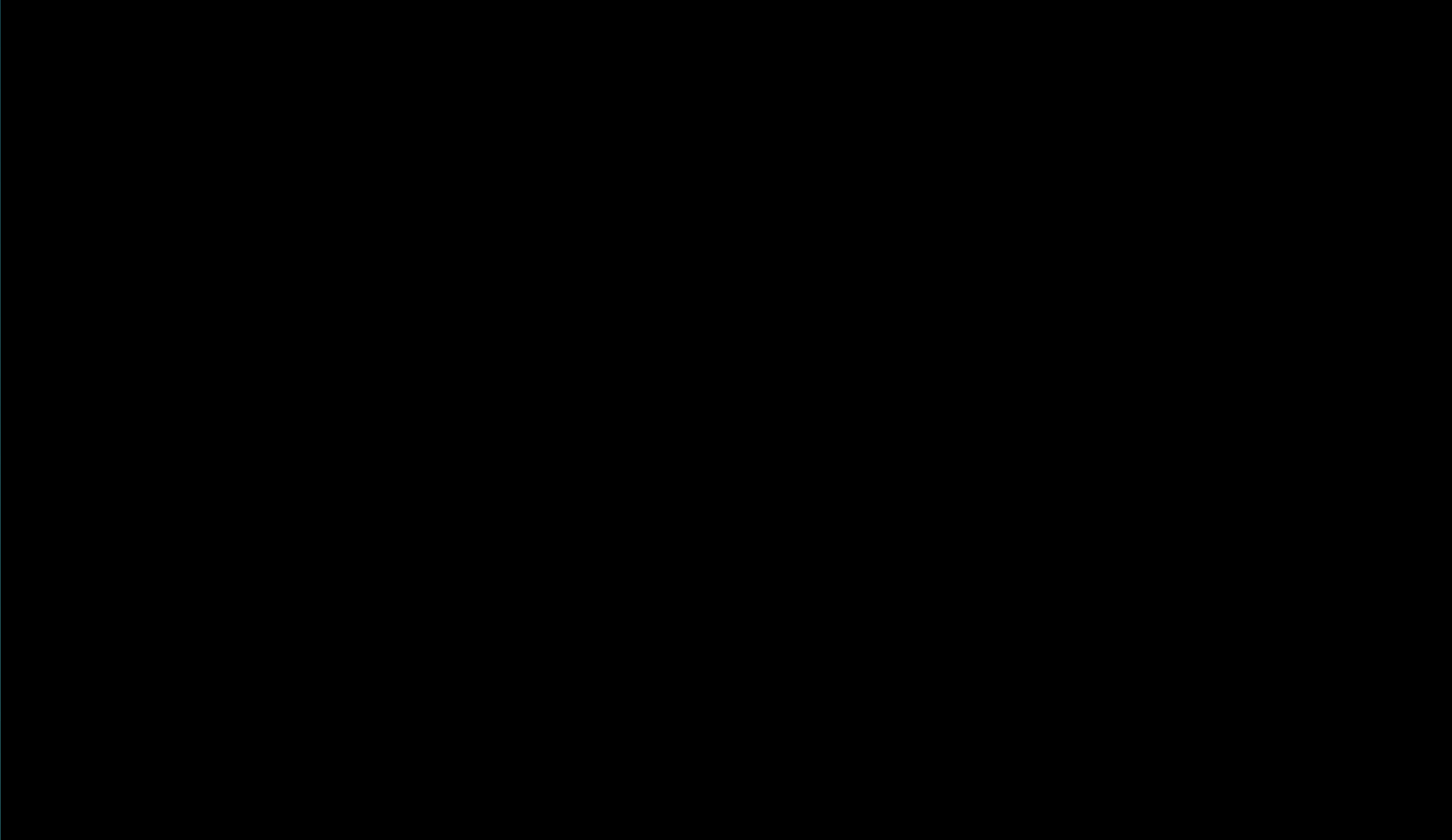


Pre op

Post op 1

Post op 2

Previous case

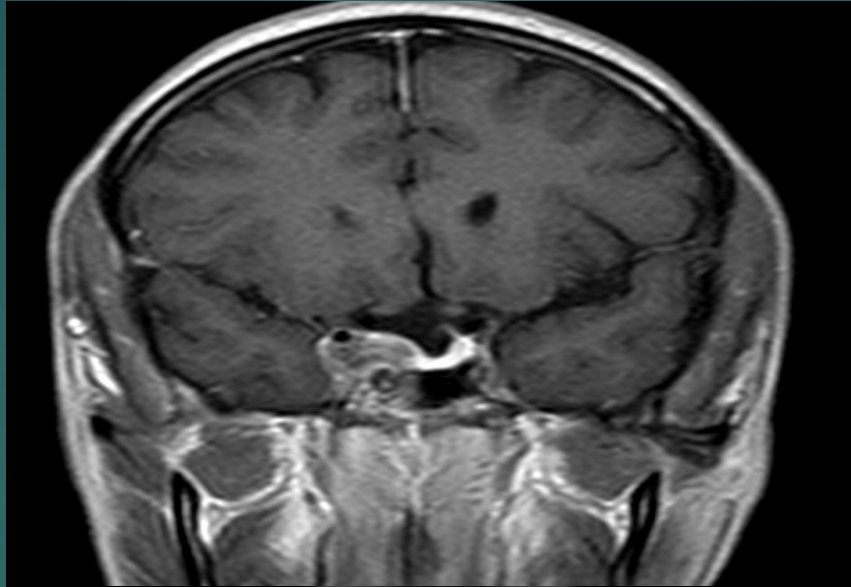


Endoscopic endonasal transclival approach

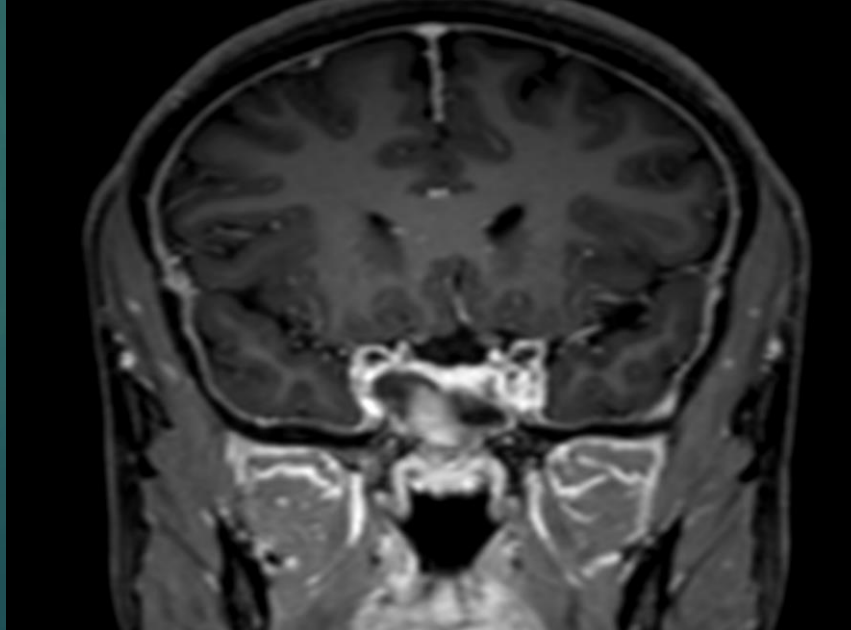
Clinical case

Endoscopic endonasal transpterygoid approach

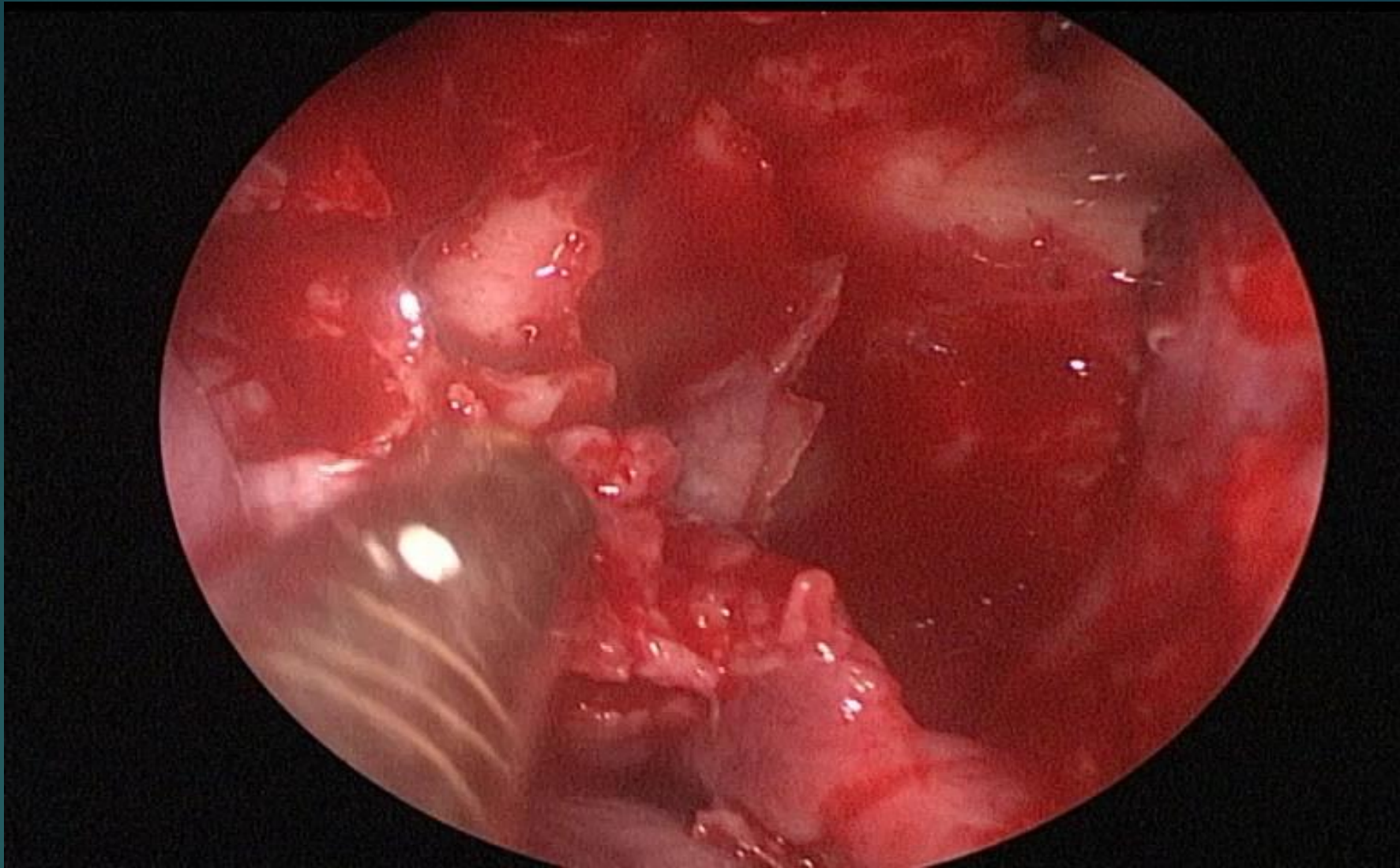
Chordoma



Pre op



Post op



Endoscopic endonasal transpterygoid approach

Conclusions:

- Craniofacial resections have advantage over transcranial and facial approaches. Radicality increased.
- Subcranial surgical interventions are appropriate when significant extracranial component.
- Transbasal approach (for Derome) is effective in severe intra- and extracranial tumor components.
- Orbito-zygomaticus approach is more effective for large extracranial components.
- Subtemporal approach is more effective for large intracranial components.



Thank you for
your attention