ANNUAL CLINICAL MEETING

DEPARTMENT OF OTORHINOLARYNGOLOGY AND HEAD AND NECK SURGERY

“NAVIGATING THE CRISIS:ENDOSCOPIC ENDONASAL TRANSSHENOIDAL SURGERY IN PITUITARY APOPLEXY”

INTRODUCTION

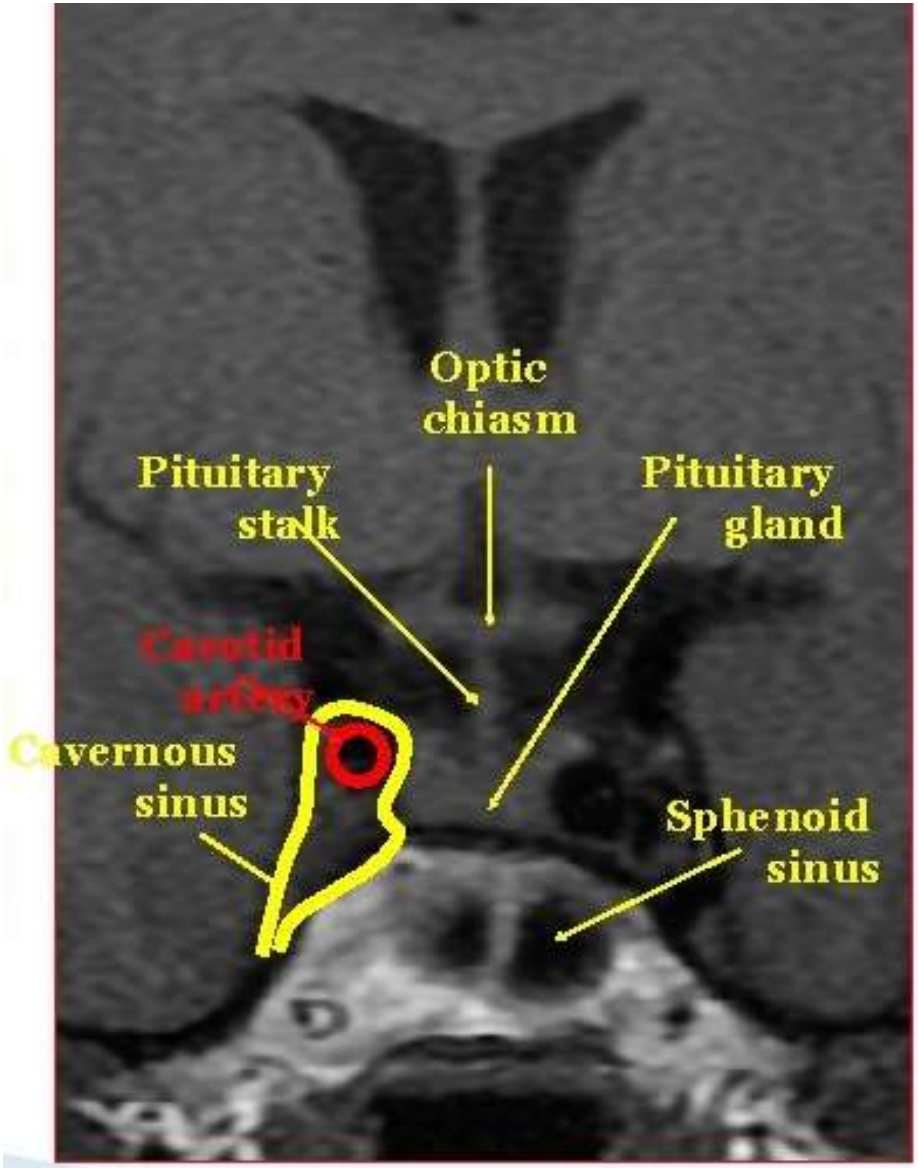
Pituitary apoplexy is bleeding into or impaired blood supply of the pituitary gland. This usually occurs in the presence of a tumor of the pituitary.

PA is generally associated with **macroadenomas** and nonfunctioning adenomas, rarely it is seen with microadenomas.

Some precipitating factors for PA include **surgery**, **head trauma**, use of **anticoagulants, pregnancy**.

PITUITARY GLAND-

- Location-sella turcica
- Blood Supply-The pituitary gland normally derives its blood supply from vessels that pass through the hypothalamus
- **Tumors** on the other hand develop a blood supply from the nearby **inferior hypophyseal artery** that generates a higher blood pressure, possibly accounting for the risk of bleeding.



- Paired venous cavities that lie on either side of the sphenoid bone, extending from the most posterior aspect of the orbit to the petrous part of the temporal bone.
- The cavernous sinus contains the internal carotid artery and cranial nerves(III, IV, V, VI), which are prone to get compressed with a pituitary tumor.
- Also provides a safe surgical landmark during the surgery.

After an apoplexy, the **pressure inside the sella turcica rises**, and surrounding structures such as the optic nerve and the contents of the cavernous sinus are compressed.

The raised pressure further **impairs the blood supply** to the hormone-producing tissue, leading to tissue death.

CASE-

A 46-year-old female patient presented to the OPD with complaints of headache and drooping of the right eyelid for 1.5 months.

The patient got an MRI outside the results were suggestive of pituitary macroadenoma.

Patient has been a known case of type II diabetes mellitus for 7 years and is on regular treatment and also had hypothyroidism for 1 month.

- **PRE-OPERATIVE EVALUATION**

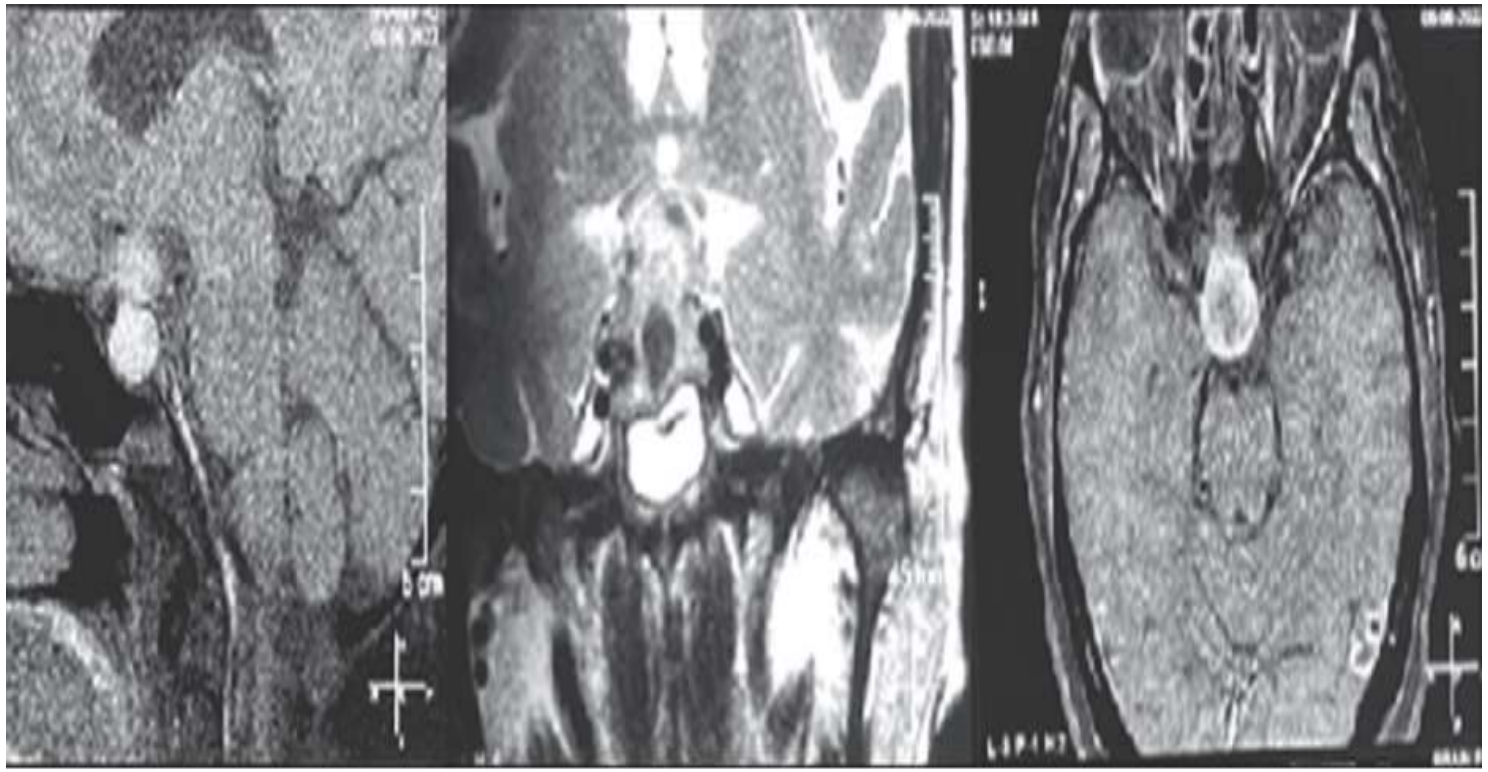
- All routine blood investigations - within normal limits

Endocrine Evaluation:

- Baseline hormone levels(Prolactin, Growth hormone, ACTH, TSH) to determine pituitary function and guide postoperative management.

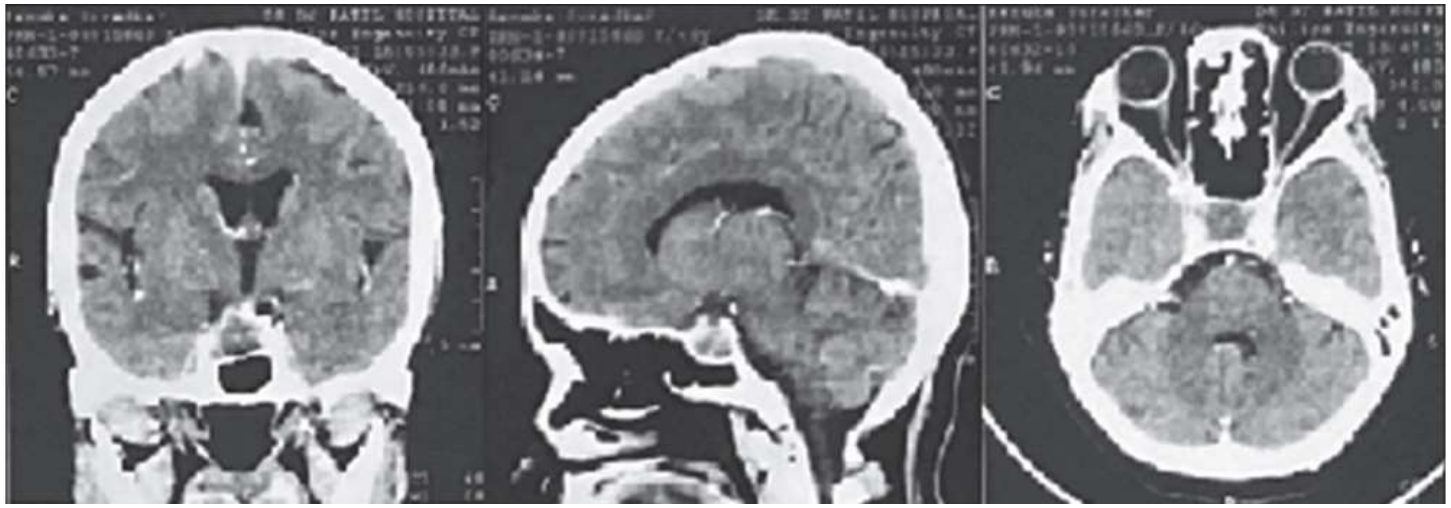
-All the endocrine levels were normal except Serum cortisol level i.e; 3.93(reduced)

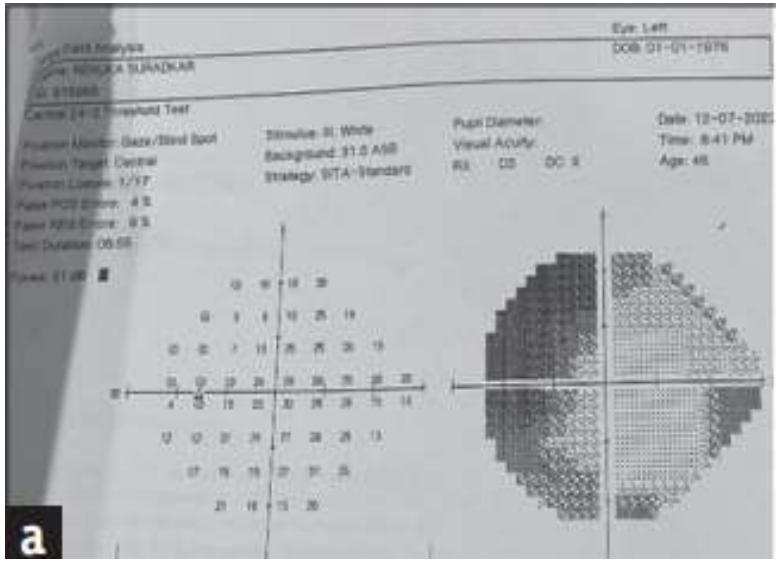
- Diagnostic Nasal Endoscopy - Normal



Imaging:

- MRI brain : revealed a well-defined, round to oval-shaped lesion in the pituitary fossa, measuring 1.7 × 1.8 × 2.6 cm AP × TR × CC, which had features suggestive of neoplastic etiology.





CT scan : CT brain was suggestive of necrotic pituitary macroadenoma

Visual field assessment
On perimetry, the left eye showed temporal hemianopia.

- On neurological examination, right severe ptosis was present and extraocular movements of the right eye are restricted to the muscles supplied by the third nerve. Pupils are reactive to light.

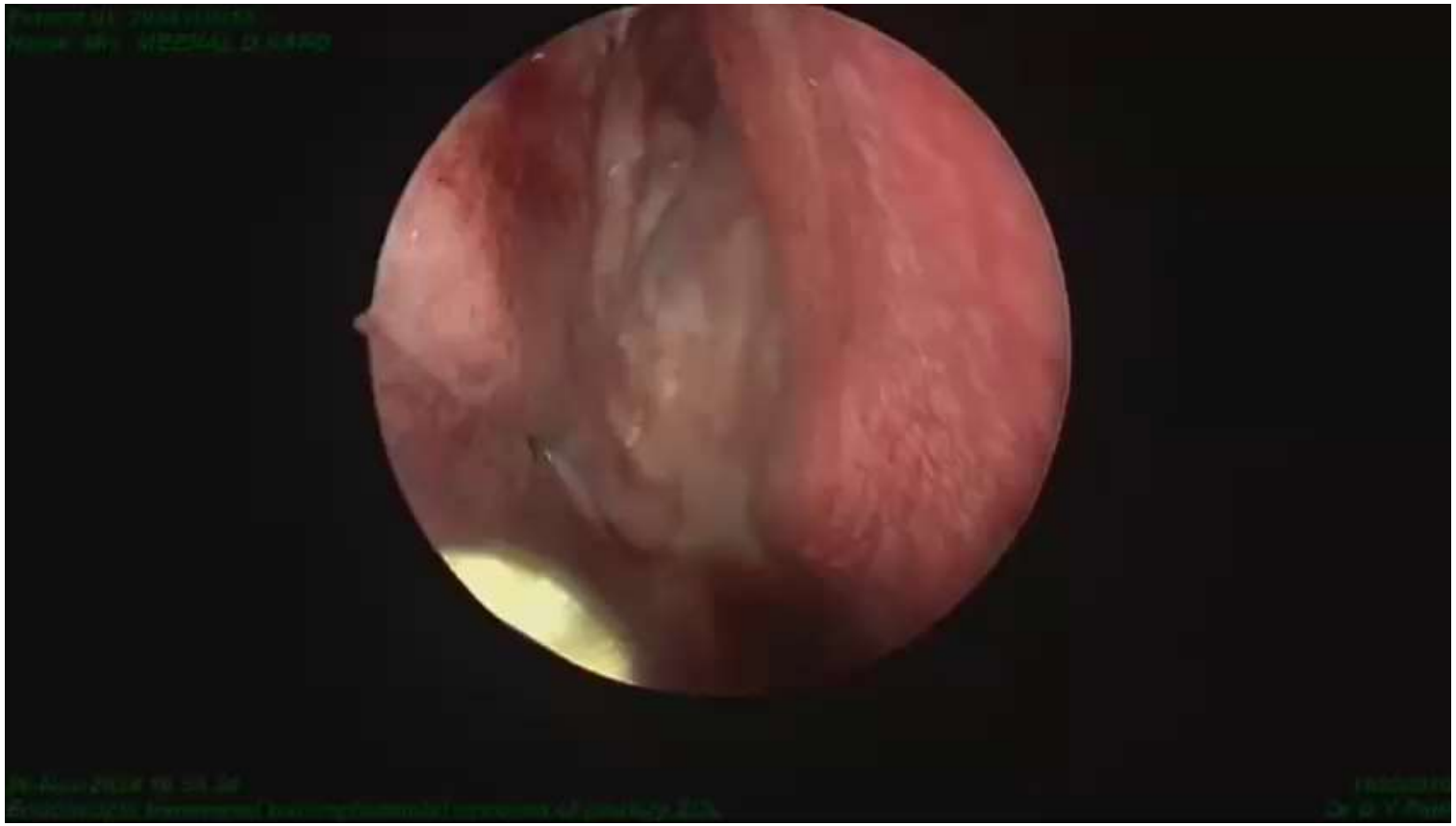
- The rest of the central nervous system examination was normal.

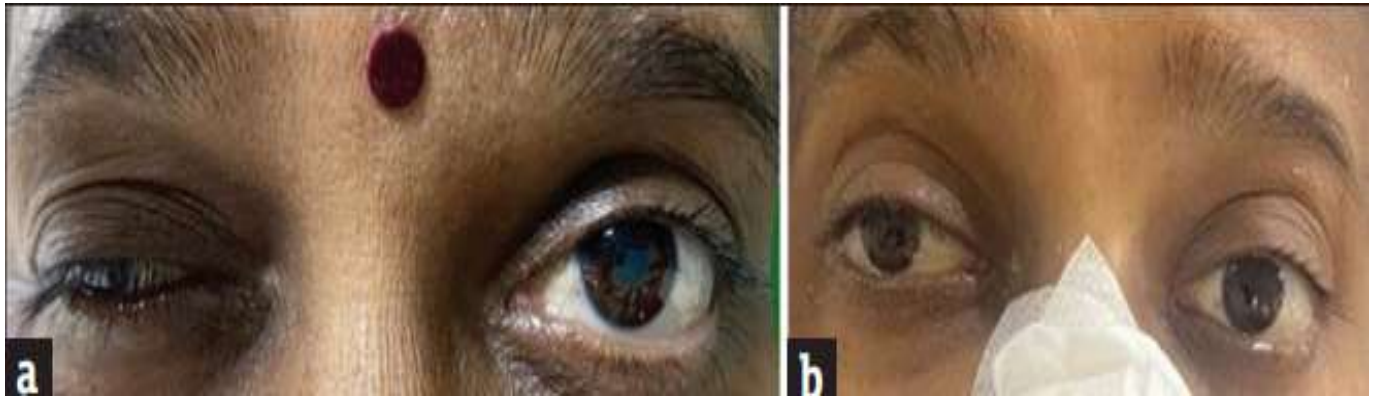
- Pre anesthetic evaluation was done for fitness under General anesthesia

- Patient was taken for Endoscopic transnasal transsphenoidal excision of the tumor along with assistance of a neurosurgeon.

SURGICAL STEPS

- Under general anesthesia, the patient in supine position.
- Nasal decongestion
- Sphenoid ostium identified and widened.
- Posterior septectomy done
- Removal of the rostrum.
- Moderately vascular tumor is visualized and dissected.
- Anterior nasal packing.





A)PREOPERATIVE IMAGE SHOWING PTOSIS(THIRD NERVE PALSY)

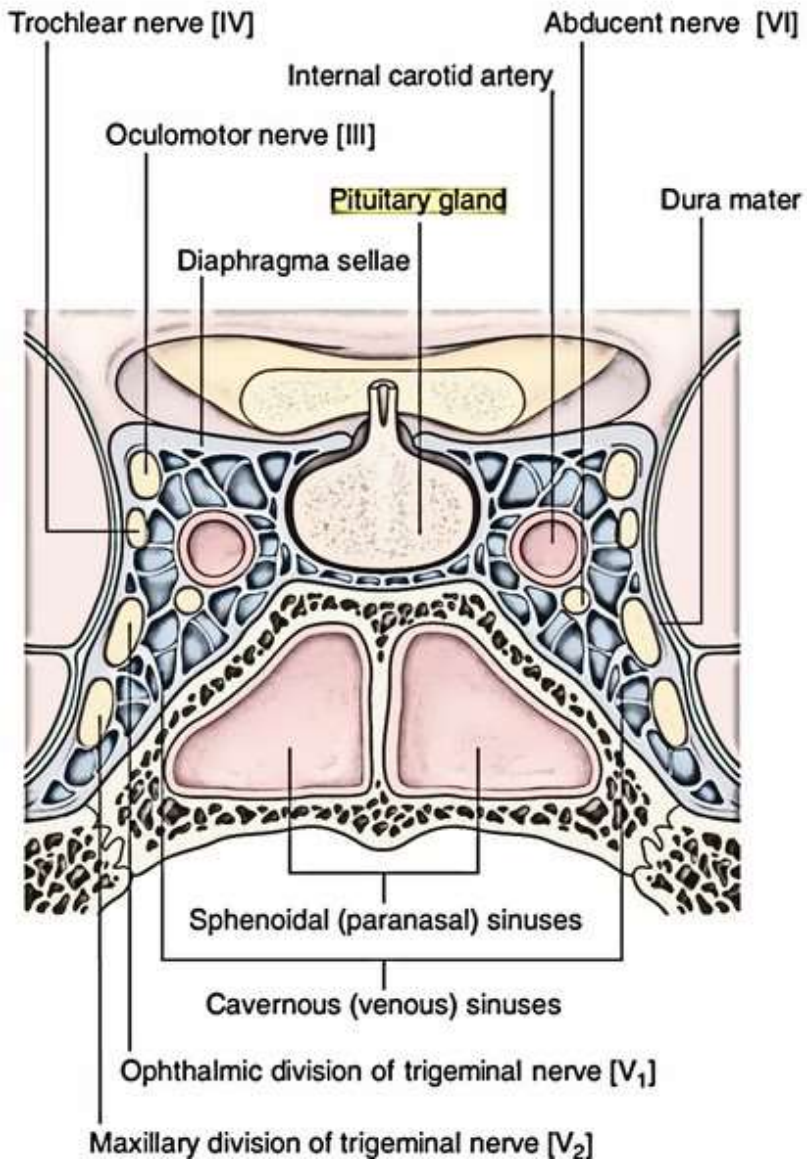
B)POSTOPERATIVE IMAGE SHOWING COMPLETE RECOVERY OF PTOSIS

- There was immediate relief of compressive symptoms post surgery, with improvement in vision and recovery from ptosis

POSTOPERATIVE MRI TO ASSESS EXTENT OF TUMOR RESECTION

DISCUSSION

- The Trans-nasal trans-sphenoidal approach is a **minimally invasive** surgical technique used to access and remove pituitary tumors or lesions in the sellar region through the nasal cavity and sphenoid sinus.
- Endoscpic Transsphenoidal surgery of pituitary tumors is to date considered the **most commonly practised** operative technique for these lesions.
- At least **90%** of pituitary adenomas are being treated by this operation.
- **Low morbidity and mortality** associated with a **high correction rate of hormonal over secretion** makes it one of the safest and most effective operations performed by neurosurgeons.



Patients presents with,

- Headache(95%),
- Vomiting(69%),
- Ocular paresis(78%), which results from compression of the cavernous sinus, which make cranial nerves III, IV, VI vulnerable to compression.
- Oculomotor nerve is involved most commonly-unilateral dilated pupil, ptosis

- **SHEEHAN SYNDROME:** Refers to pituitary apoplexy of a non tumorous gland, presumably due to post partum arterial spasm of areterioles supplying anterior pituitary and its stalk

Pituitary Tumors-

-Functioning pituitary adenomas :

Acromegaly(excess Growth Hormone)

Cushing's disease(excess ACTH)

Other Sellar Pathologies-

- Rathke's cleft cysts, Craniopharyngiomas, Chordomas, Meningiomas of the sellar region

Symptoms Warranting Surgery-

- Visual disturbances (e.g., bitemporal hemianopia).
- Endocrine abnormalities (e.g., hyperprolactinemia, ACTH excess).
- Headache and neurological deficits.

OTHER APPROACHES

APPROACH	INDICATIONS	ADVANTAGES	DISADVANTAGES
TRANSNASAL TRANS SPHENOIDAL	MOST PITUITARY TUMORS	MINIMALLY INVASIVE, FAST RECOVERY	LIMITED ACCESS TO LARGE/INVASIVE TUMORS
TRANS CRANIAL	LARGE/INVASIVE/SUPRASELLAR TUMORS	WIDE EXPOSURE	HIGHER MORBIDITY, LONGER RECOVERY
TRANSORAL	RARELY USED	DIRECT ACCESS	HIGH INFECTION RISK
STEREOTACTIC RADIOSURGERY	RESIDUAL/RECURRENT TUMORS	NON-INVASIVE	DELAYED EFFECTS, LIMITED USE

ADVANTAGES OF TRANS NASAL TRANS SPHENOIDAL APPROACH

- **Minimally invasive: No external scars.**
- **Reduced morbidity compared to transcranial approaches.**
- **Faster recovery and shorter hospital stay.**
- **Better visualization with modern endoscopic techniques**

RISKS AND COMPLICATIONS

- **Intraoperative Risks:**
- Cerebrospinal fluid (CSF) leak.
- Injury to internal carotid artery or optic nerve
- Damage to normal pituitary tissue.

- **Postoperative Complications**:
- CSF rhinorrhea
- Meningitis
- Diabetes insipidus
- Hypopituitarism

- **Long-term Risks:**
- Tumor recurrence.
- Endocrine dysfunction.

OUTCOMES

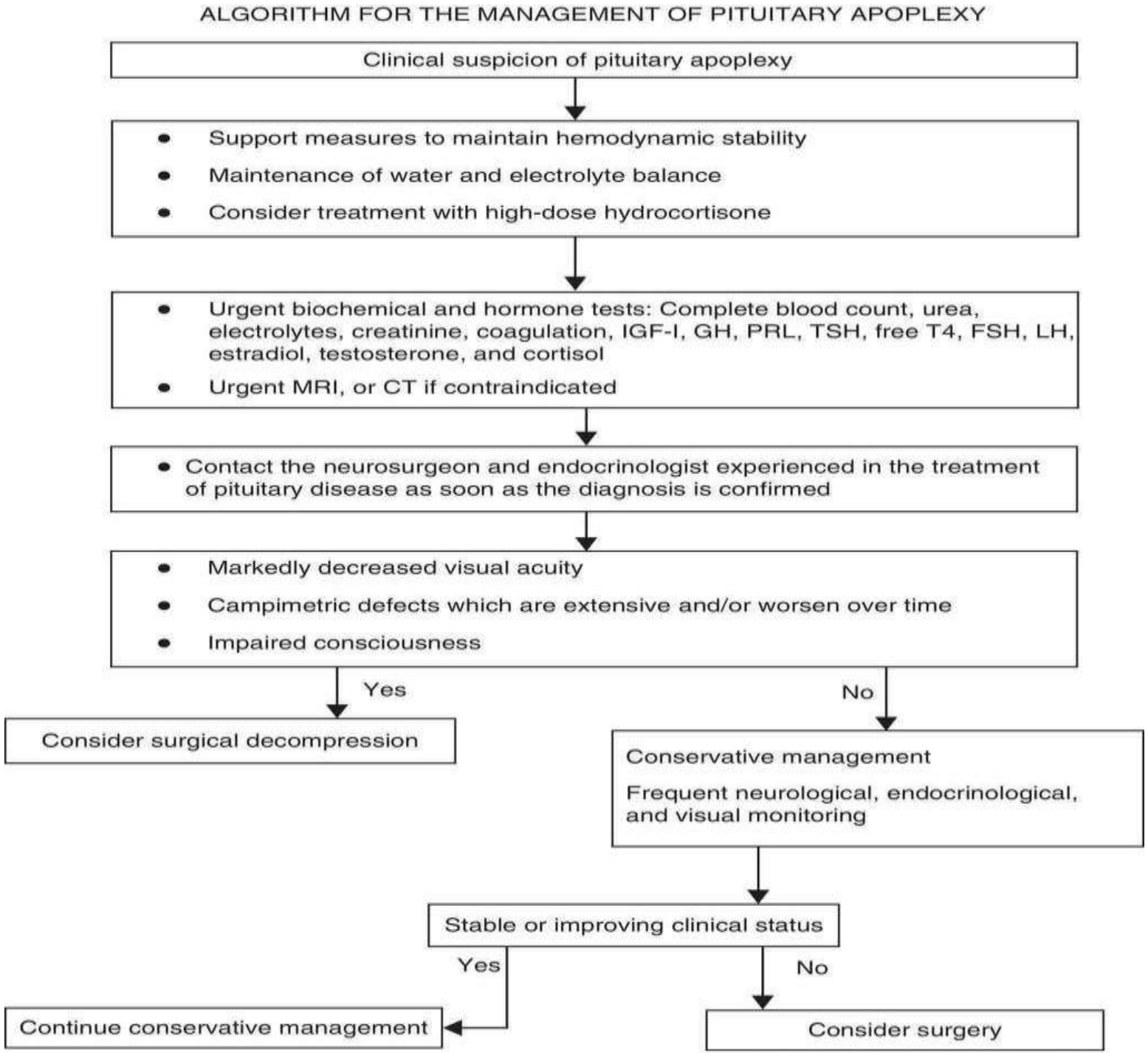
Success Rates:

- Hormonal remission: 70–90% for functioning adenomas.
- Complete tumor resection: Dependent on tumor size and invasiveness.

Quality of Life:

- Significant improvement in symptoms like headache and vision.
- Improved control of endocrine disorders.

CONCLUSION

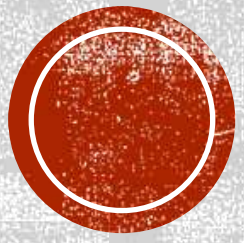

ALGORITHM FOR THE MANAGEMENT OF PITUITARY APOPLEXY
Clinical suspicion of pituitary apoplexy
Support measures to maintain hemodynamic stability
Maintenance of water and electrolyte balance
Consider treatment with high-dose hydrocortisone
Urgent biochemical and hormone tests: Complete blood count, urea, electrolytes, creatinine, coagulation, IGF-I, GH, PRL, TSH, free T4, FSH, LH, estradiol, testosterone, and cortisol
Urgent MRI, or CT if contraindicated
Contact the neurosurgeon and endocrinologist experienced in the treatment of pituitary disease as soon as the diagnosis is confirmed
Markedly decreased visual acuity
Campimetric defects which are extensive and/or worsen over time
Impaired consciousness
Yes
No
Consider surgical decompression
Conservative management
Frequent neurological, endocrinological, and visual monitoring
Stable or improving clinical status
Yes
No
Continue conservative management
Consider surgery

- Pituitary apoplexy is rare. Even in people with a known pituitary tumor, only **0.6–10%** experience apoplexy; the risk is higher in larger tumors.

- It has recently been estimated that the prevalence of pituitary apoplexy is approximately six people in every 1,00,000

- How can we prevent pituitary apoplexy? If you have pituitary adenoma, we should be aware of pituitary apoplexy. Urgent care to be taken if patient experiences sudden headache and change in vision.

THANK YOU



“ Total Maxillectomy for Malignant Tumour of the Nasal Cavity” A Case report and Surgical Insights

DR AISHWARYA VERMA
DEPARTMENT OF ENT

CASE REPORT

- 76year old female complaints of

➢ B/L nasal obstruction (L>R) since 2 months

Insidious in onset, gradually progressive in nature.

➢ epiphora since 1 month

➢ hyposmia since 1 month

➢ difficulty in breathing since 1 month

➢ Negative history

Past History-

No known co- morbidities

No History of addictions

LOCAL EXAMINATION

- ***NOSE***
- External appearance: Normal
- Anterior Rhinoscopy :
- Left nasal cavity – Bluish discolouration mass present between nasal septum and inferior turbinate.
- On probing :
- bleeds on touch , non tender
- passes superiorly and inferiorly soft to firm in consistency.
- Right nasal cavity - DNS to Right, congested nasal mucosa.

LOCAL EXAMINATION

- On posterior rhinoscopy **:** No mass seen in the nasopharynx.
- On Para nasal sinus examination:

- ***THROAT***
- Missing teeth
- ***EAR***
- Bilateral Tympanic membrane intact

- DNE Findings – Mass seen in left nasal cavity, mucosal secretion present.

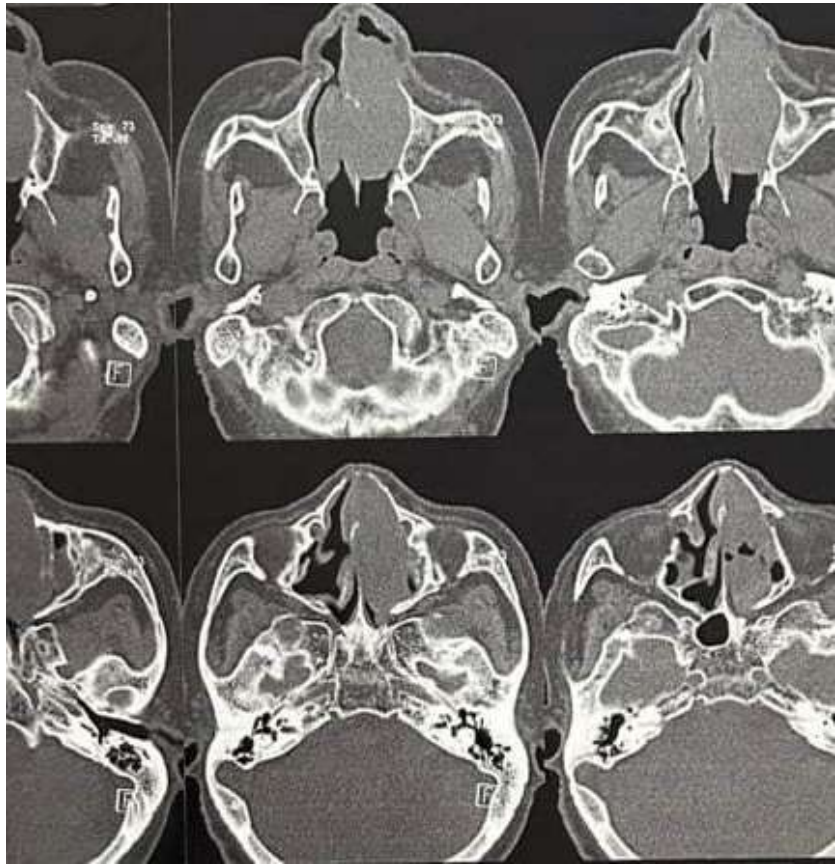
DIFFERENTIAL DIAGNOSIS

➢**DIFFERENTIAL DIAGNOSIS**	
Inflammatory	Antro choanal Polyp
Congenital	Meningoencephalocele
Granulomatous	**Bacterial** :- Rhinoscleroma, Tuberculosis, Leprosy, Syphilis **Fungal** :- Rhinosporidiosis, Aspergillosis, Mucormycosis **Unspecified** :- Wegener's granulomatosis, Midline granuloma
Benign tumours	- Inverted Papilloma, - Squamous papilloma, Haemangioma,
Malignant tumours	Sinonasal malignancy Squamous carcinoma , Adenocarcinoma, Adenoid cystic carcinoma Malignant melanoma ,Olfactory neuroblastoma ,Lymphoma, Plasmacytoma
Fungal Invasive	Chronic granulomatous invasive Fungal sinusitis
Miscellaneous	Blob of mucus, Hypertrophied Inferior turbinate ,Rhinolith

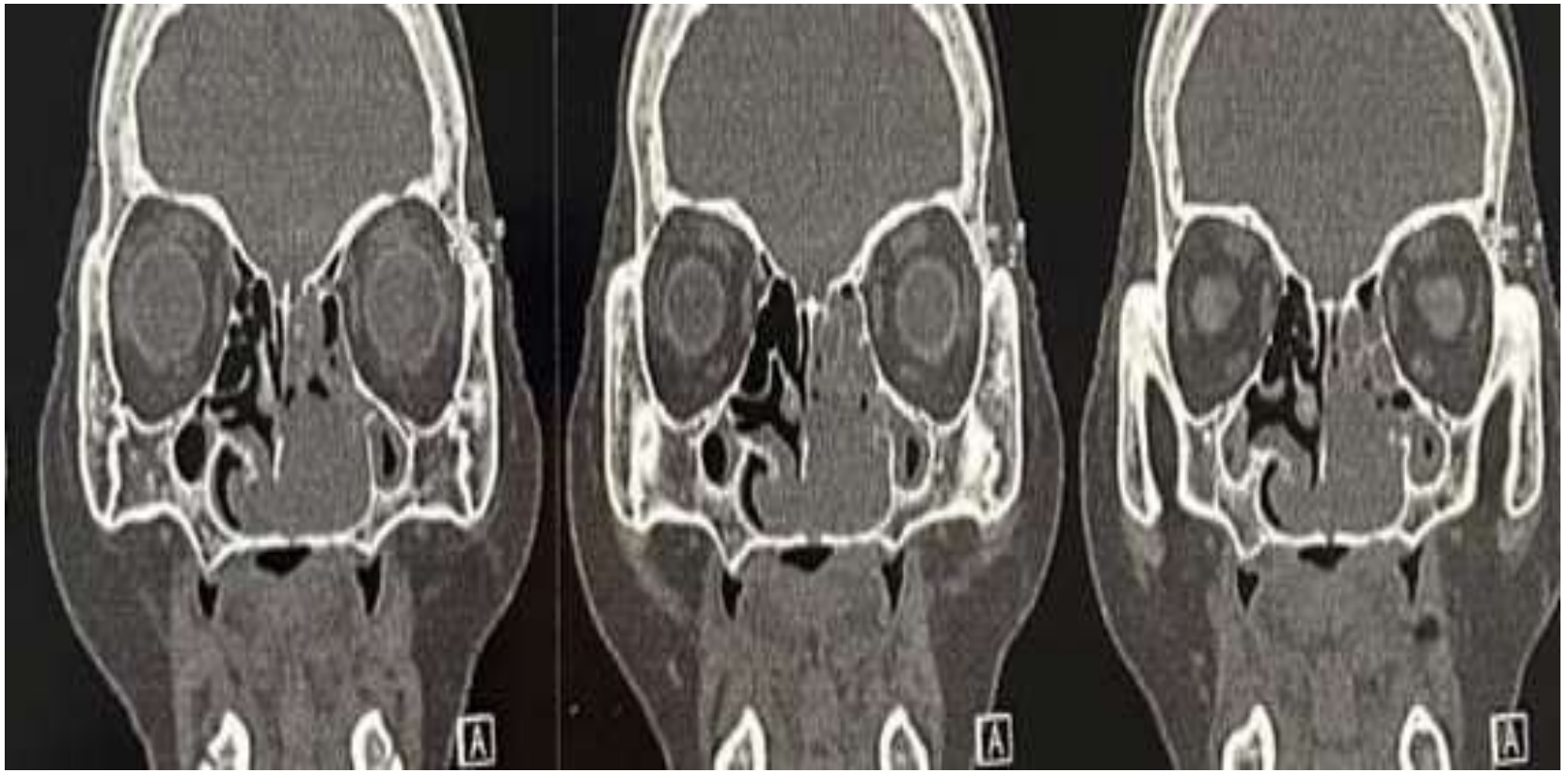
INVESTIGATIONS

- All routine investigations were within normal limit

- **CT PNS(PLAIN AND CONTRAST)**
- Well defined heterogeneously enhancing soft tissues lesion in left nasal cavity causing complete nasal obstruction of the left nasal cavity
- DNS to right side



CT-PNS



BIOPSY

Reporting – Non-keratinizing Squamous cell carcinoma

IHC Marker :

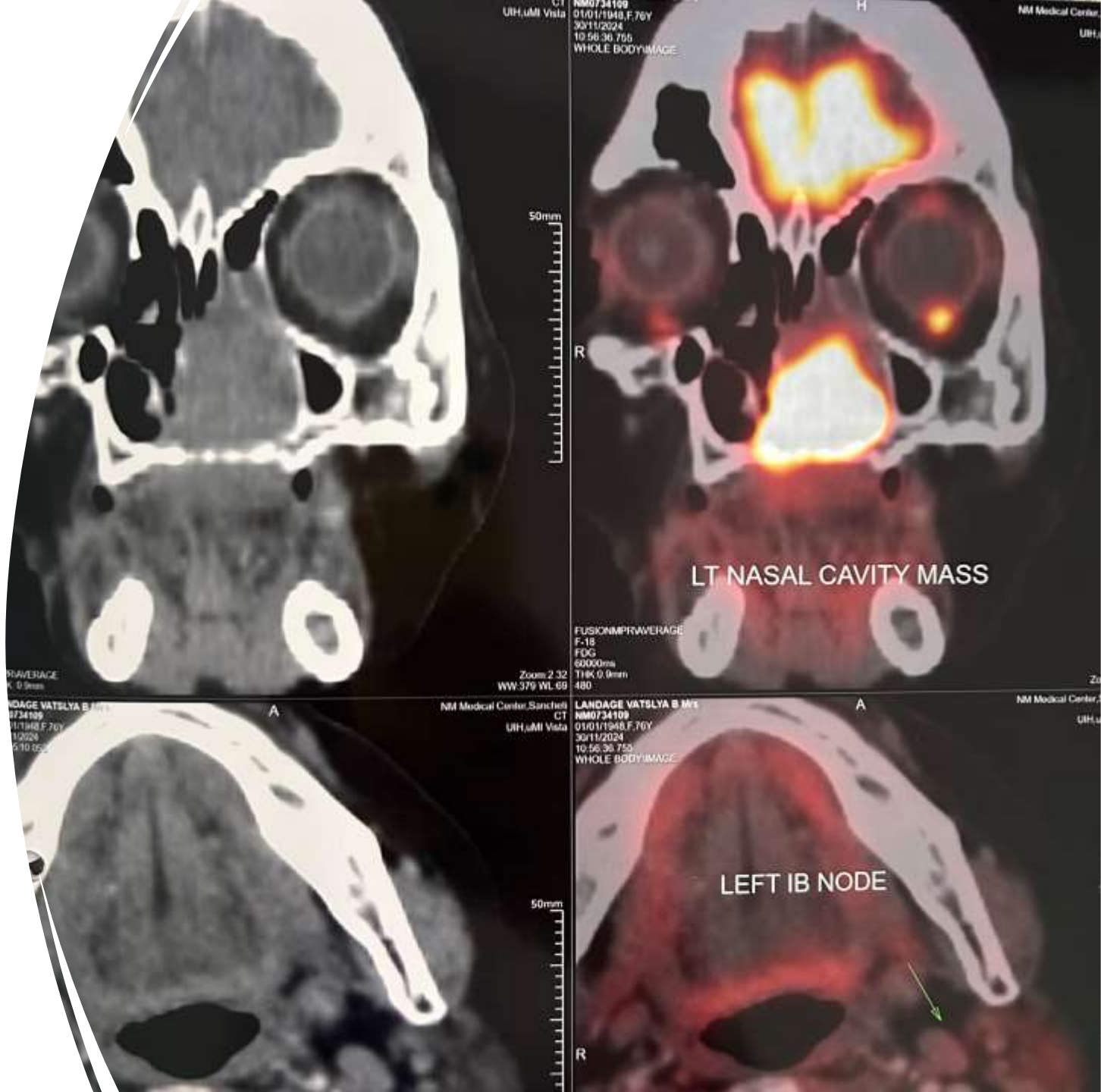
Panck, ck5,ck6 and ck7

Synaptophysin, chromogranin

Ki67

• PET SCAN

- Large metabolically active mass almost occupying the entire lest nasal cavity with erosion of bony nasal septum
- No definite evidence of distant metastasis



Management :
Total Maxillectomy

Osteotomy was done to remove left side of the maxilla

- Right palatal cut till right paramedian as septum was involved

HPR of the final specimen

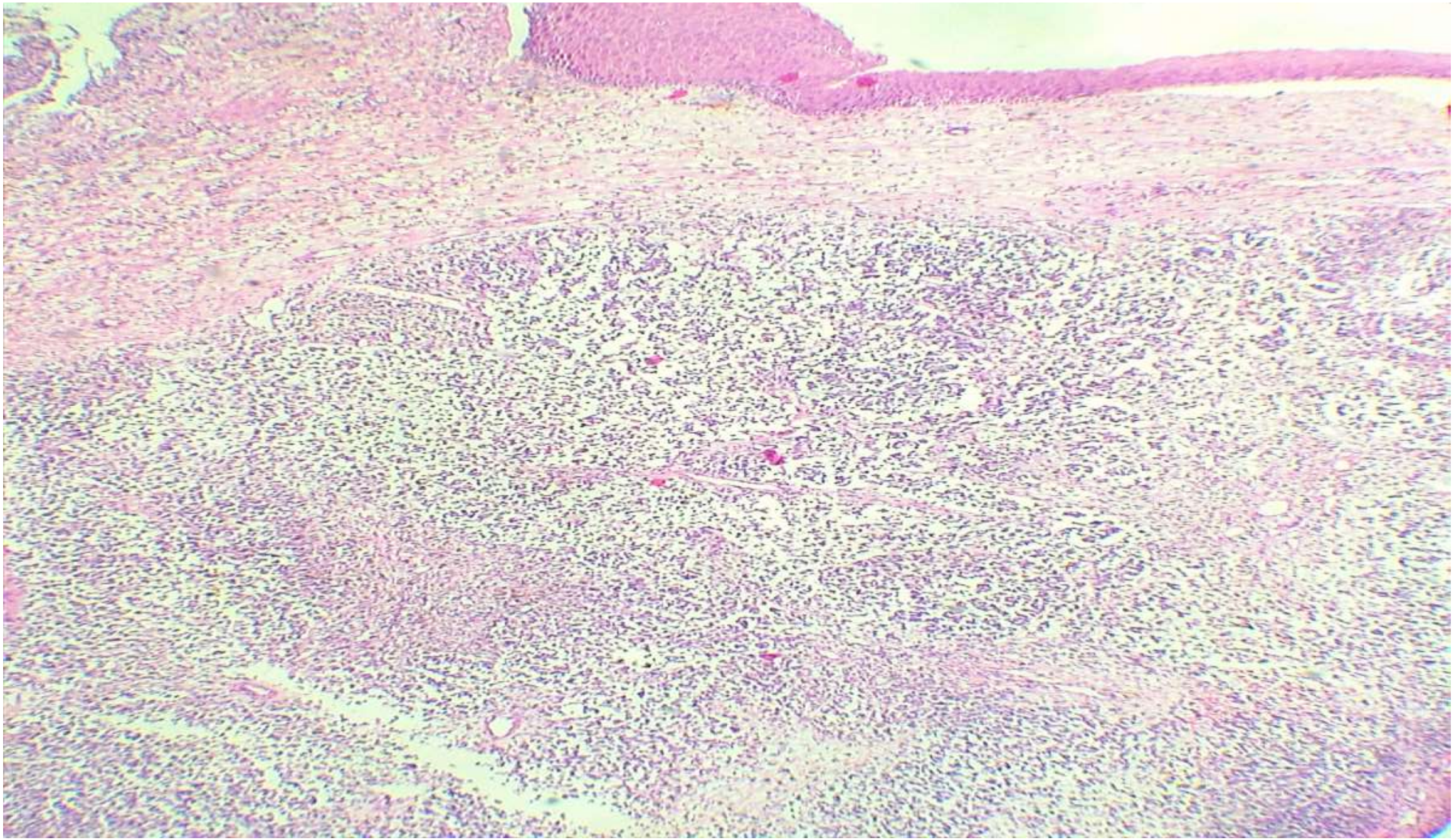
Reporting of final specimen of Total Maxillectomy with nasal septum and left nasal cavity showed Mucosal Melanoma with Negative margins with closest margin 5mm (posterior margin)

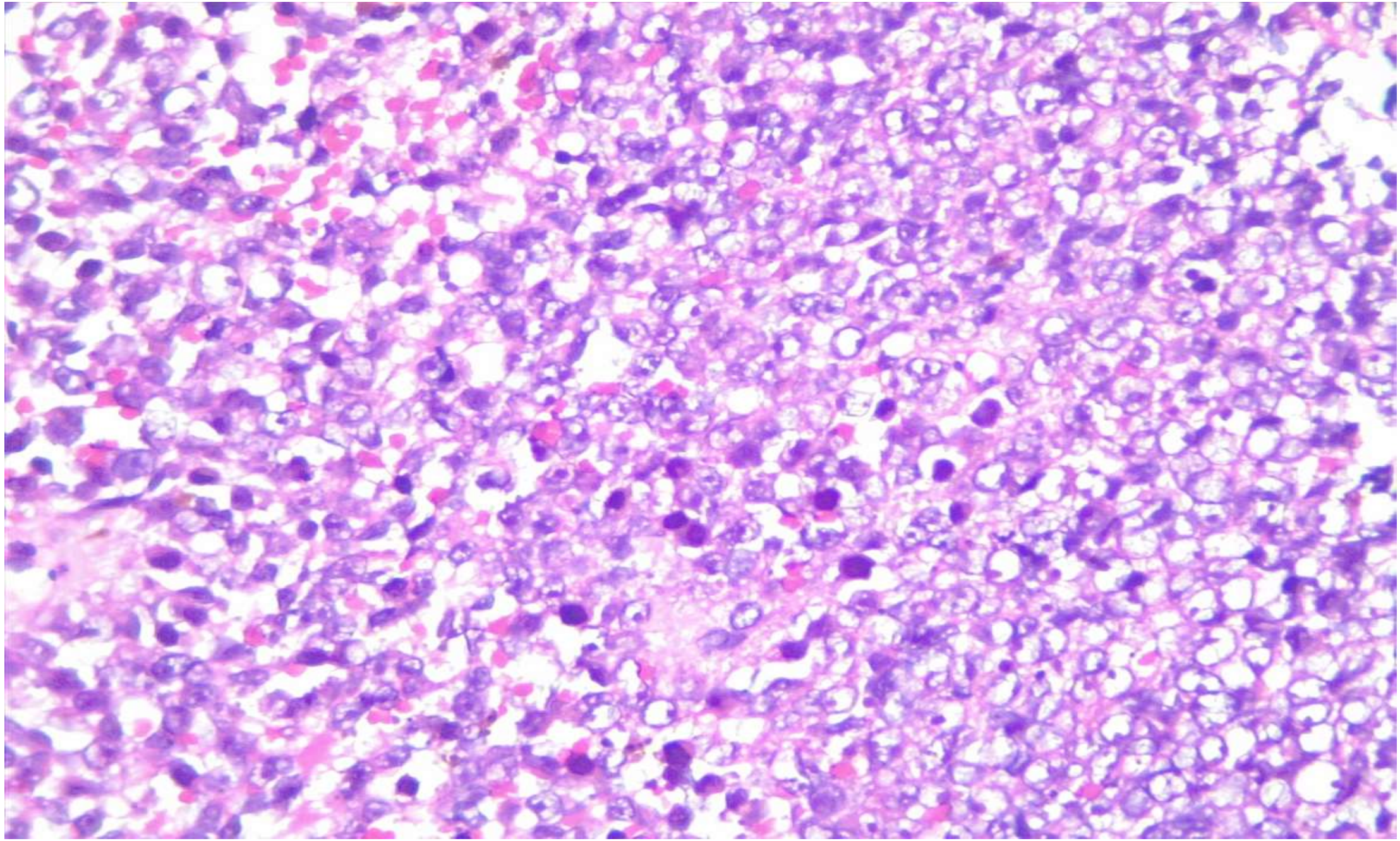
4 additional margins from skull base, 2 posterior and 2 medial of mucosal and bony margins each sent

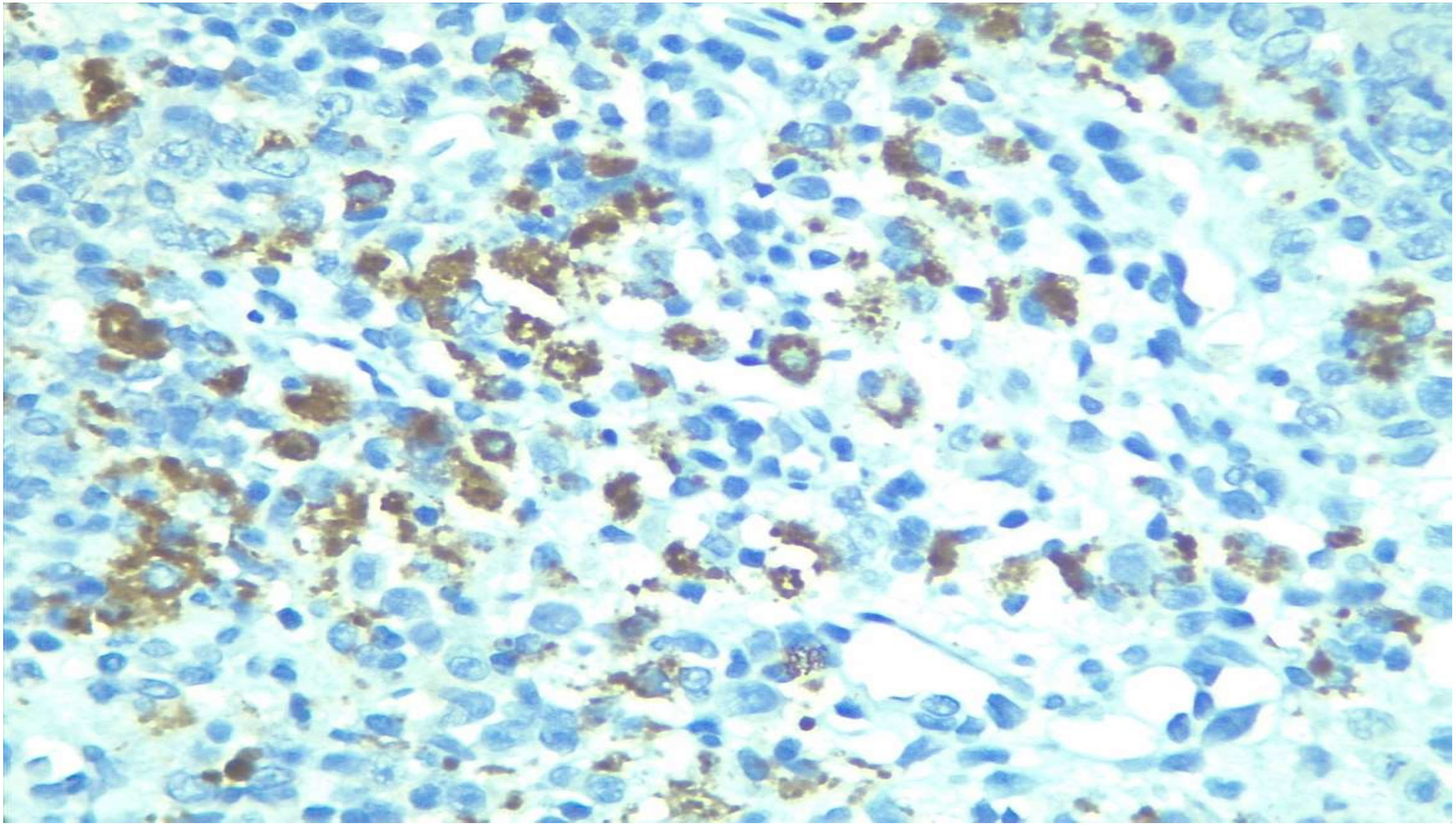
In which, mucosal margins of 1 posterior and 1 medial came positive suggestive of Skip lesions

Biopsy of left nasal cavity mass

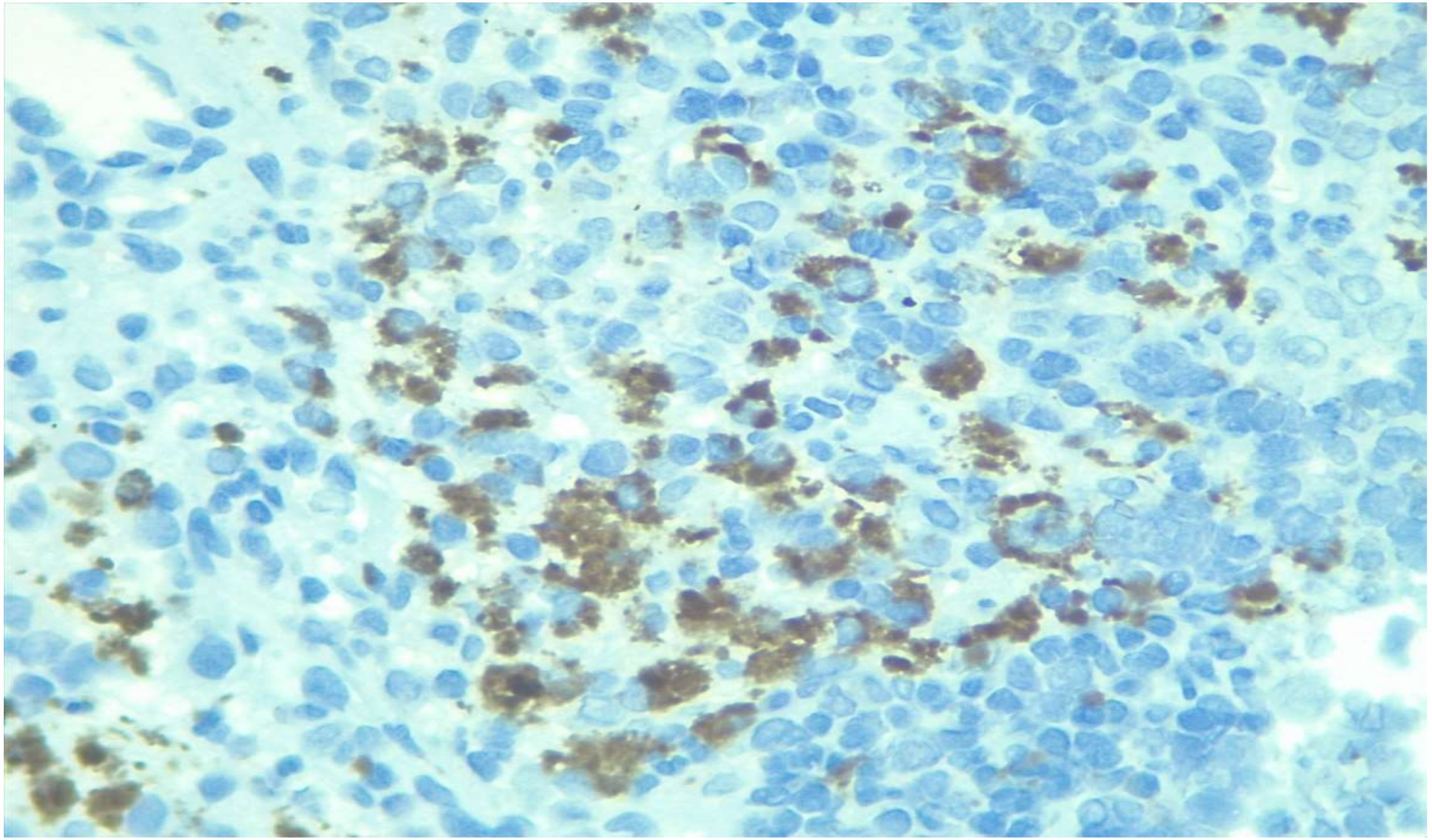
Grossly, we received three grey-brown soft tissue bits, aggregating to 1.5 cm.



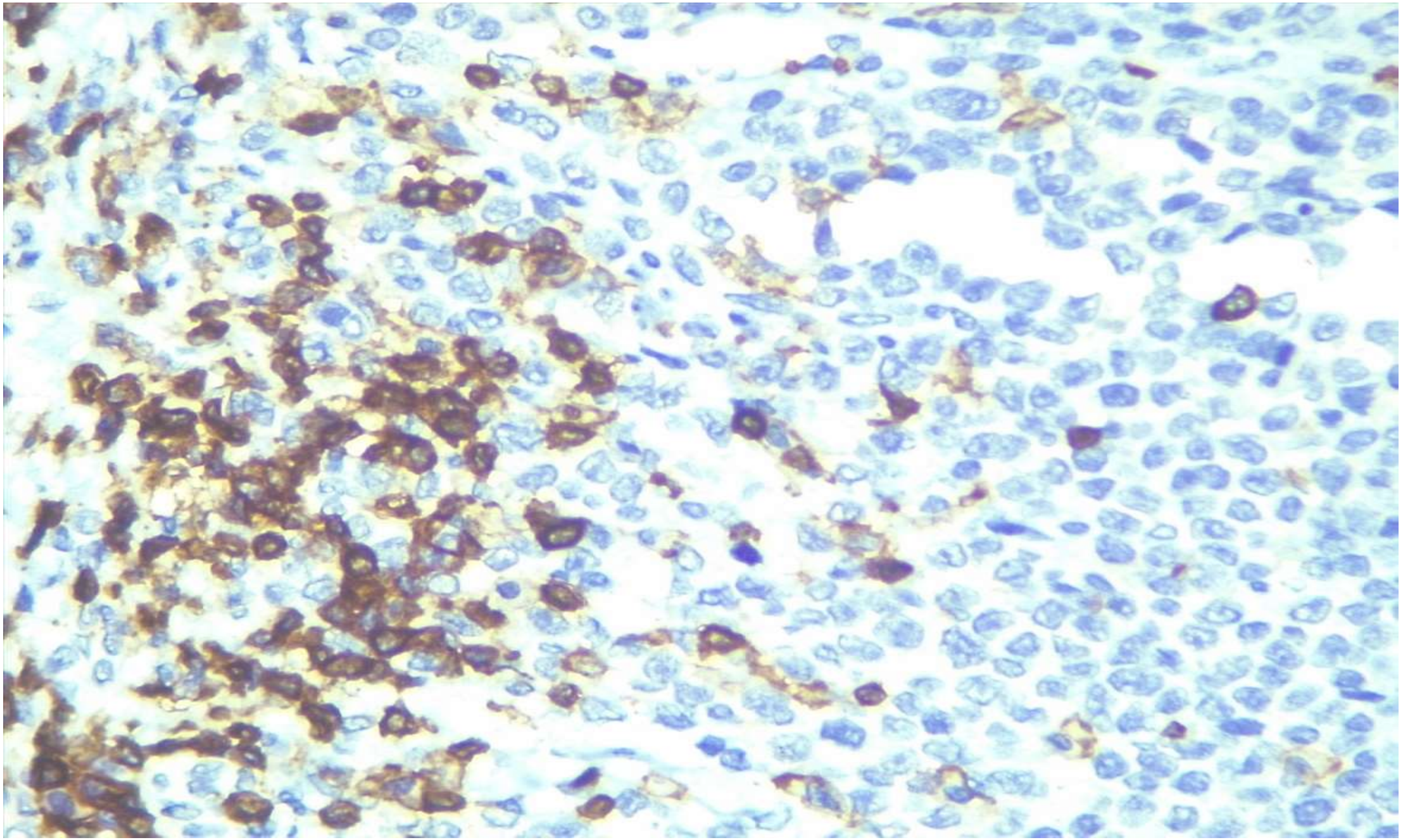




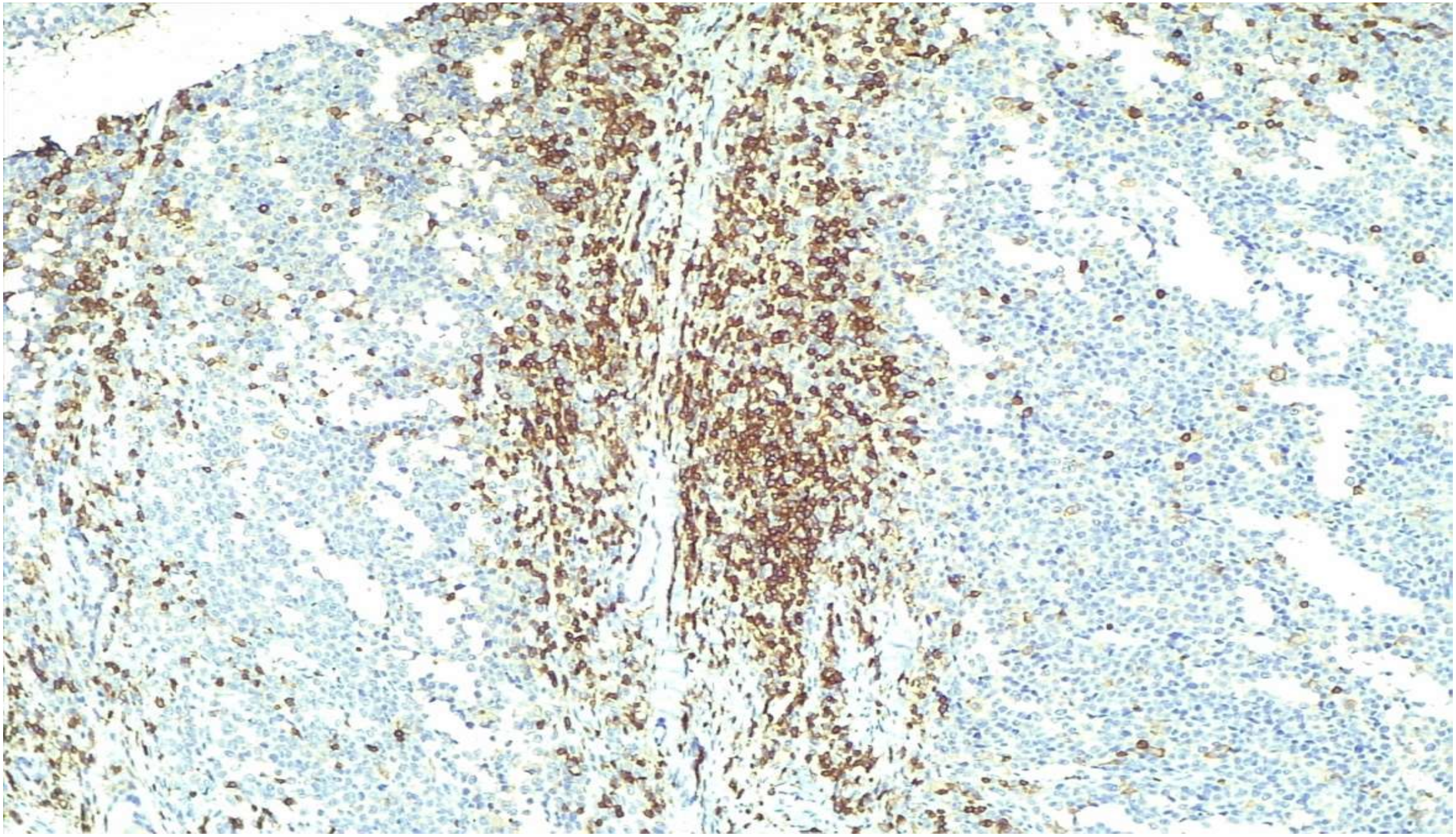
CK-5,6

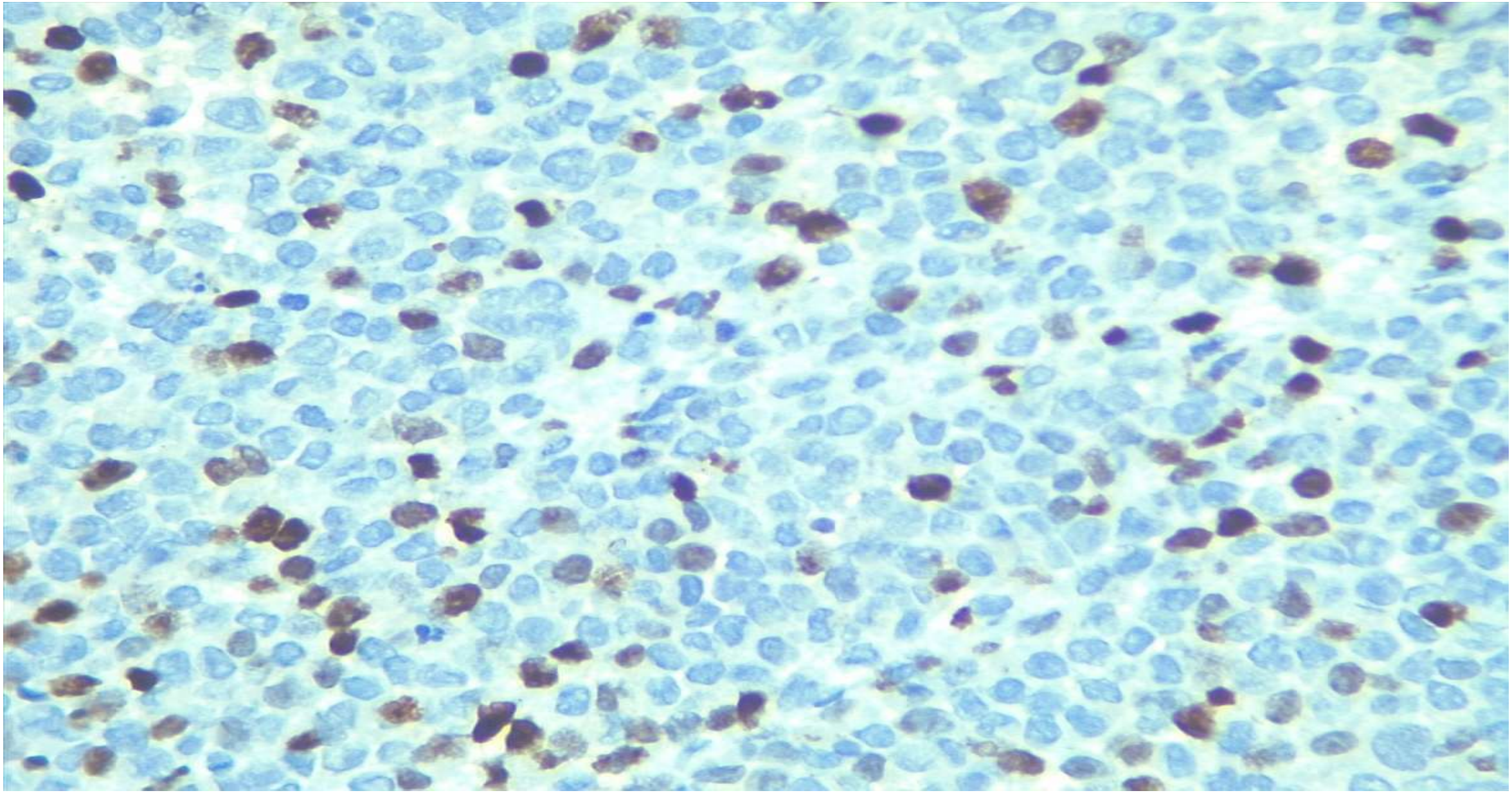


CK-7



Pan CK



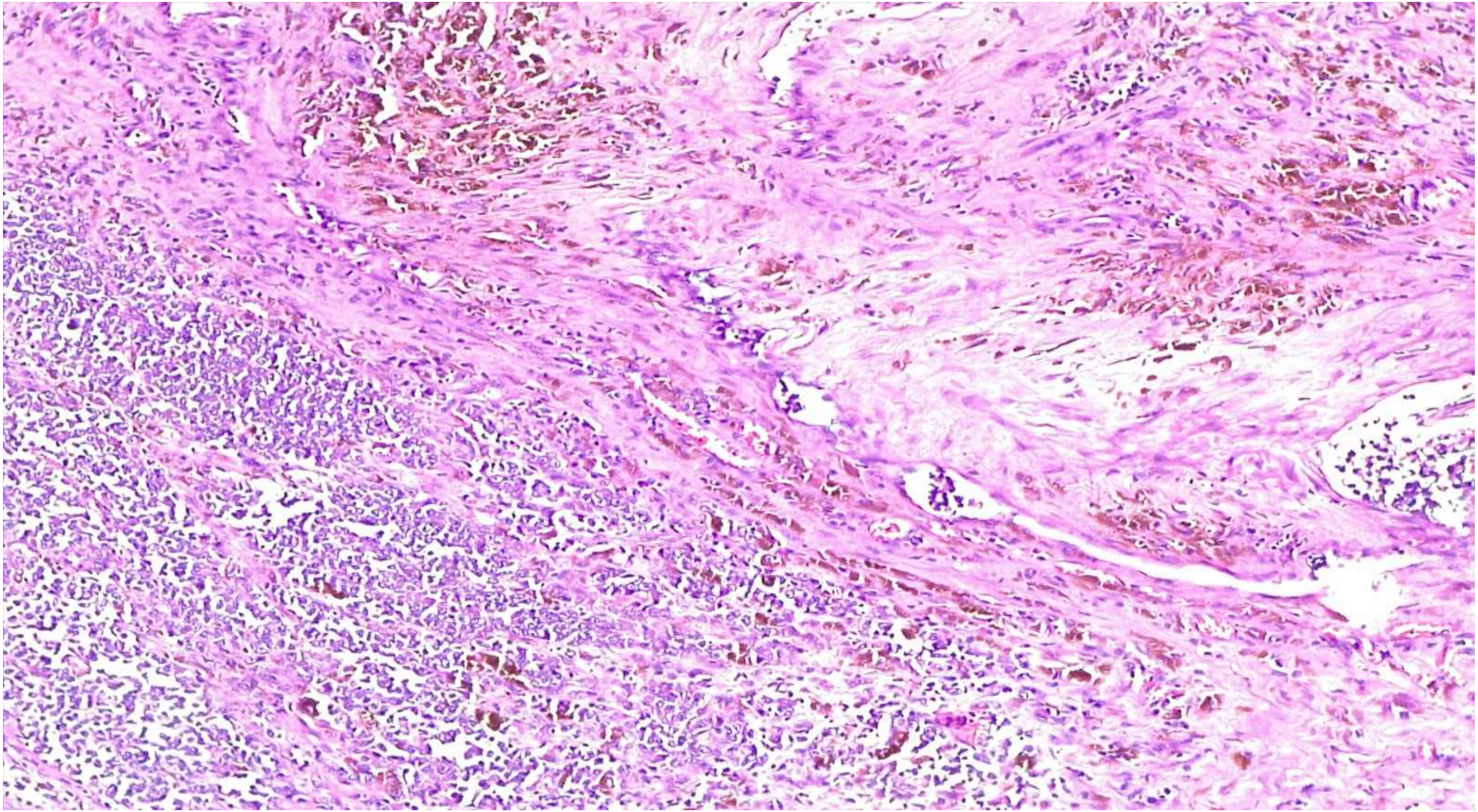


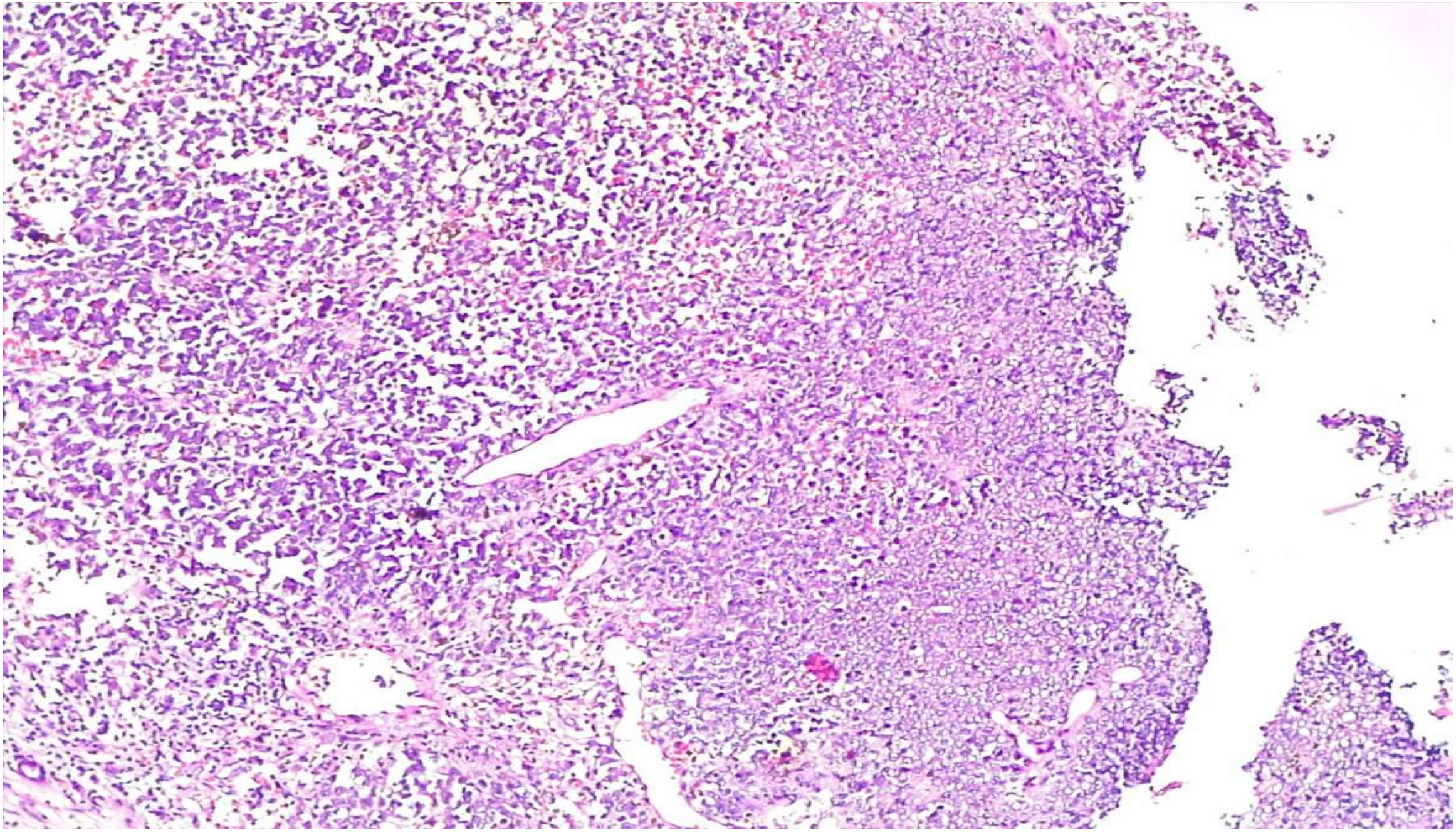
Ki-67

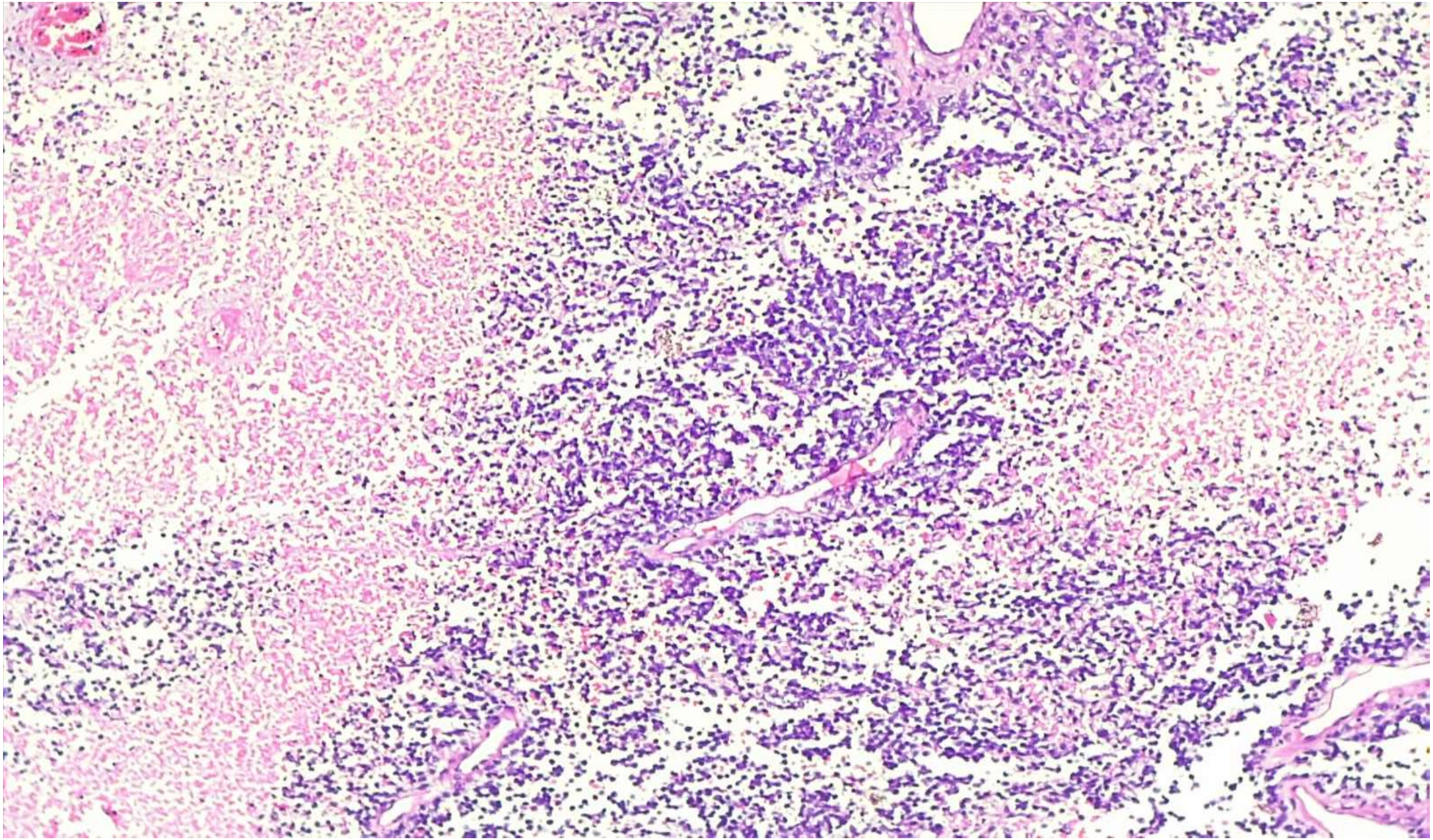
Final diagnosis – Non- keratinizing squamous cell carcinoma.

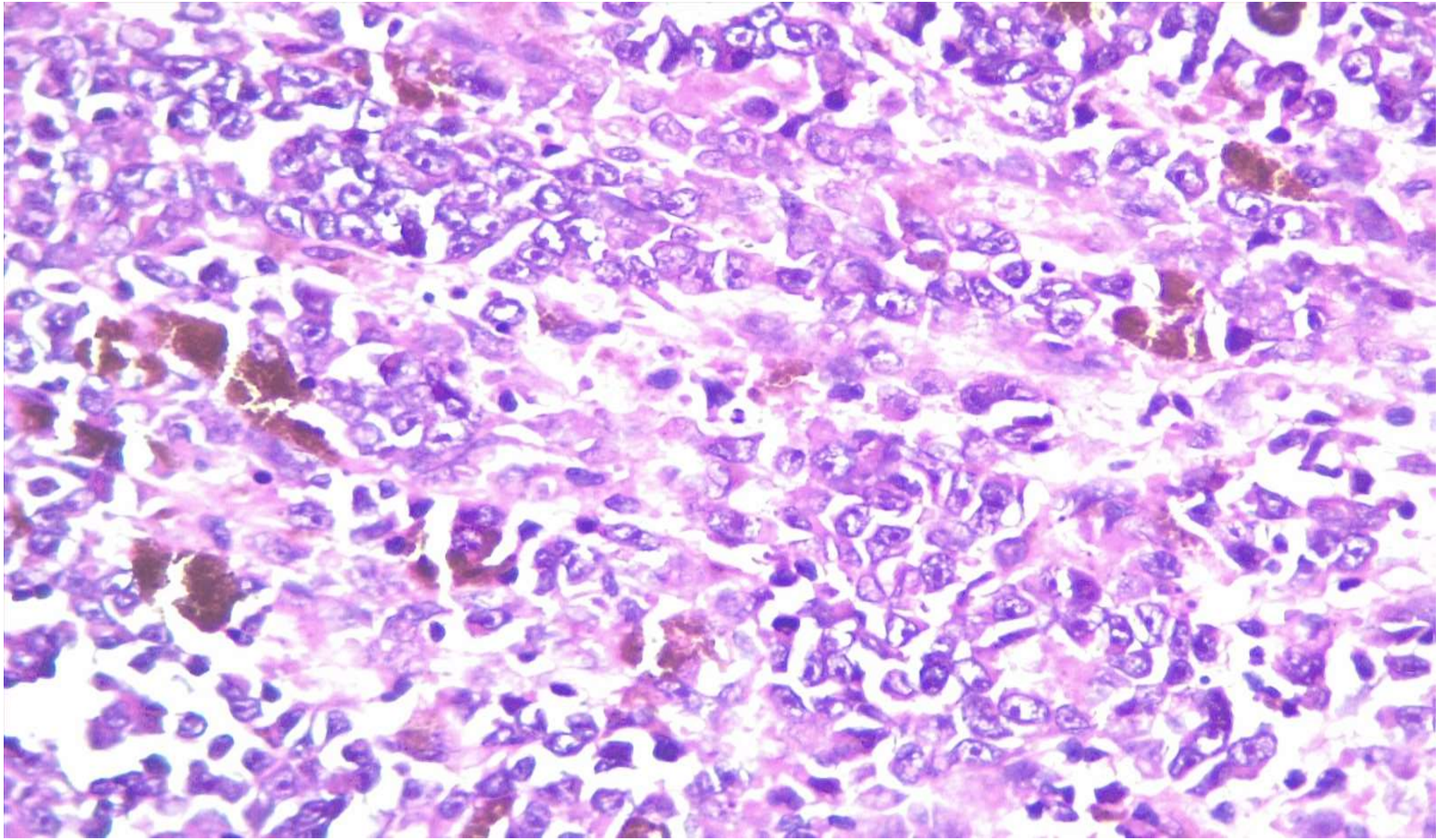
Left total maxillectomy

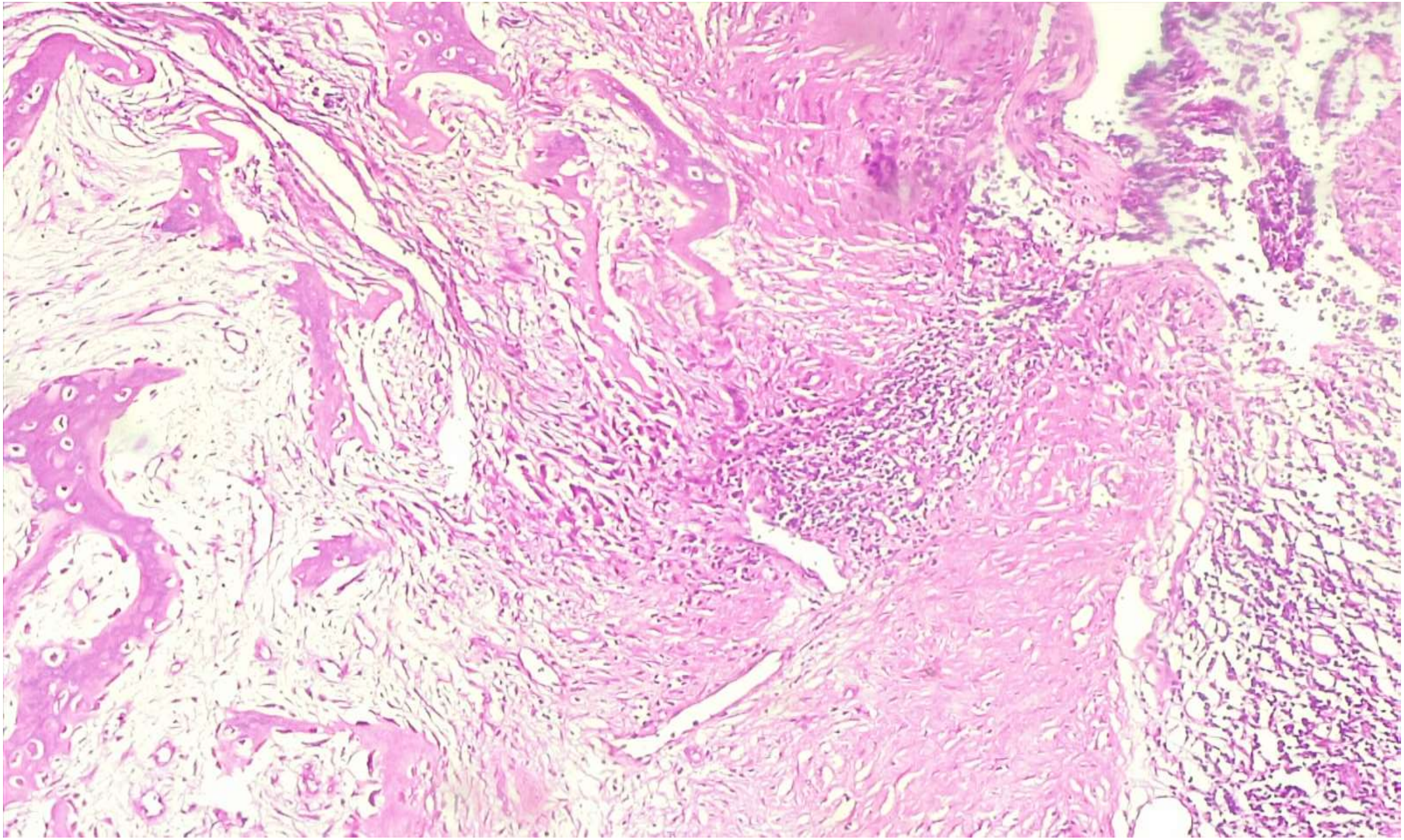
- Grossly, we received a specimen of left total maxillectomy with nasal cavity.
- The specimen measured 6 x 6 x 5 cm.
- The nasal cavity which was already cut-open showed a polypoidal tumor arising from nasal septum and extending up to the base of nasal cavity, which measured 5.5 x 4 x 2 cm.
- Externally, the tumor appeared brownish. The cut surface of tumor was grey-white to brownish in color and soft-firm in consistency.

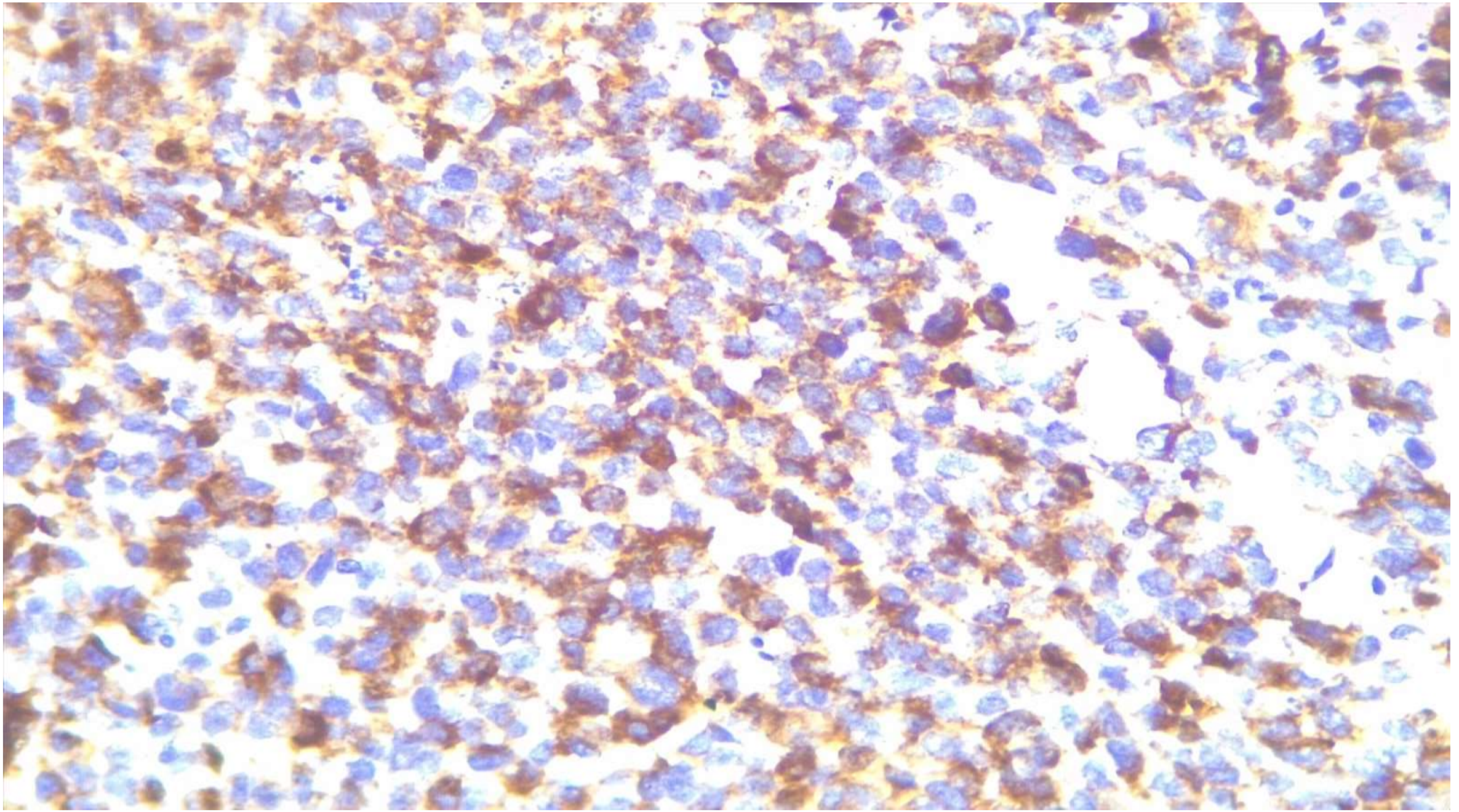




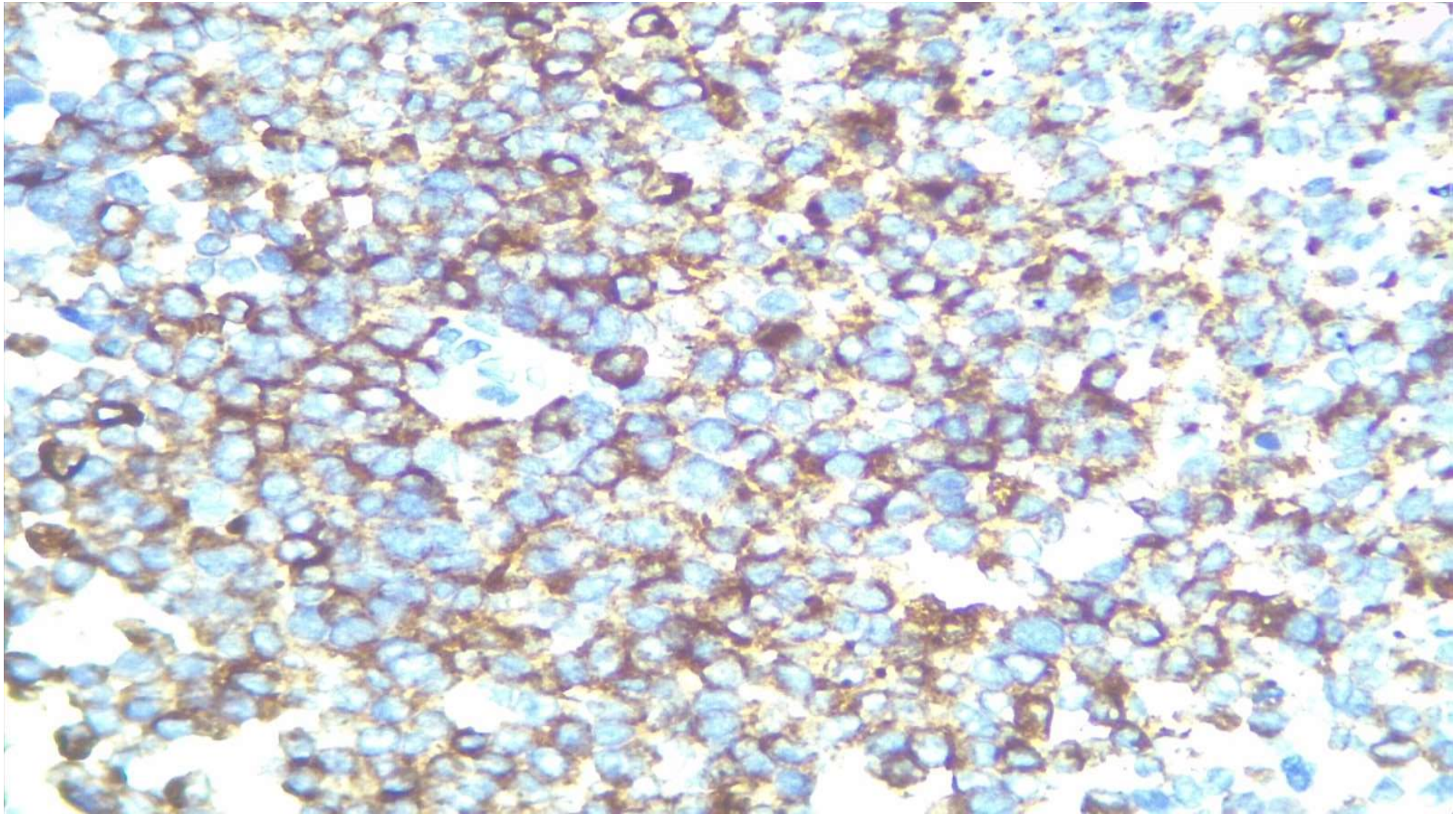








S-100



HMB-45

Final Impression – Mucosal Melanoma arising from the left nasal septum without lymphatic or perineural invasion. Separately sent posterior revised mucosal and medial revised mucosal margins are involved by tumor. AJCC 8th edition – pT4a pN not assigned pM not applicable.

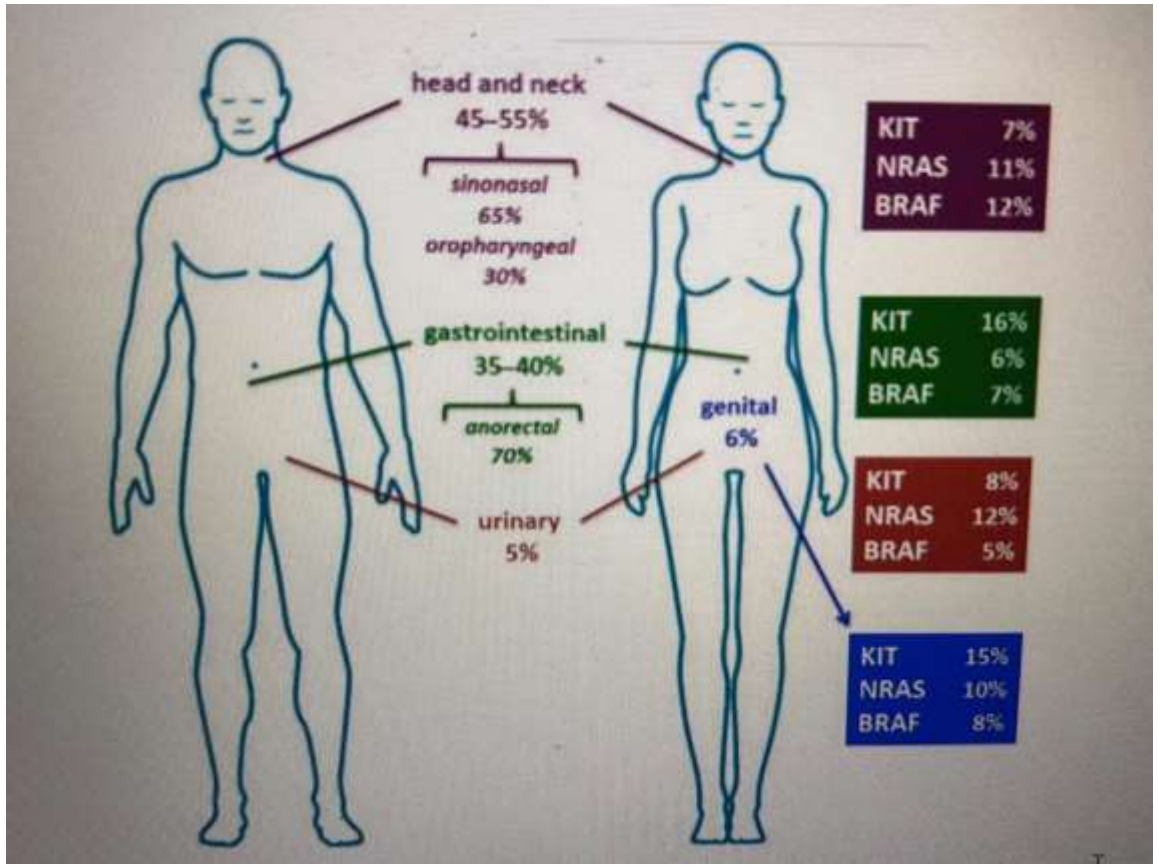
MANAGEMENT

Opinions taken from Medical and Radiation Oncologist

Patient undergoing Immunotherapy and Radiation, presently

Mucosal Melanoma

- Mucosal Melanoma derived from the melanocytes in nasal mucosa
- Rare,(0.5-1.5%) of melanomas and 3.5% of all sinonasal neoplasia
- Primary site of disease in Head and neck
- sinonasal cavity (65%)
- oral cavity (35%)
- Fifth to Eighth decades, no sex preponderance
- Risk Factors: formaldehyde exposure, tobacco smoking are causative factors
- At presentation localized (70-80%), Lymph nodes metastasis (10-20%), distant metastasis (<10%)



MANAGEMENT

- Curative treatment – Surgical Excision
- Adjuvant radiotherapy and chemotherapy have been used but not found to have change in survival rates
- Immunotherapy : Ipilimumab, Pembrolizumab and Nivolumab
- Local recurrence 67-92%
- For recurrent lesions, surgical salvage, radiation, chemotherapy or combination may be required
- Prognosis is poor with 5year survival of 11% and 20 year survival of 0.5%

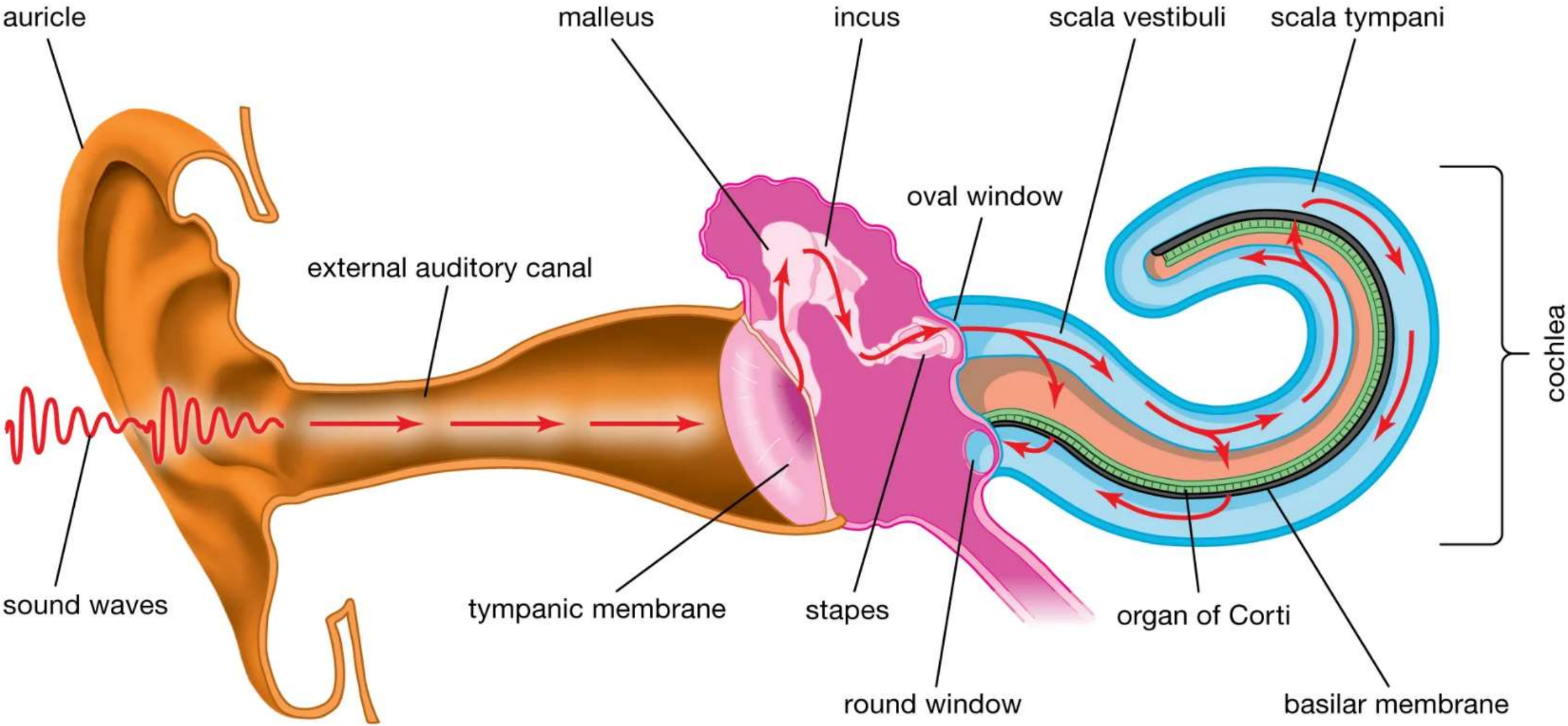
CONCLUSION

- Sinonasal malignant melanoma is a rare, aggressive tumour that has a very poor prognosis.
- CECT PNS is the imaging modality of choice which reveals an enhancing mass.
- Surgical resection is the first-line treatment but its own limitations due to limited surgical visibility and the complex anatomy of the sinonasal region.
- Surgery in combination with radiotherapy and adjuvant chemotherapy is utilised, however, it does not always improve chances of survival as local recurrence and distant metastasis are common outcomes and are poor prognostic indicators of the disease.

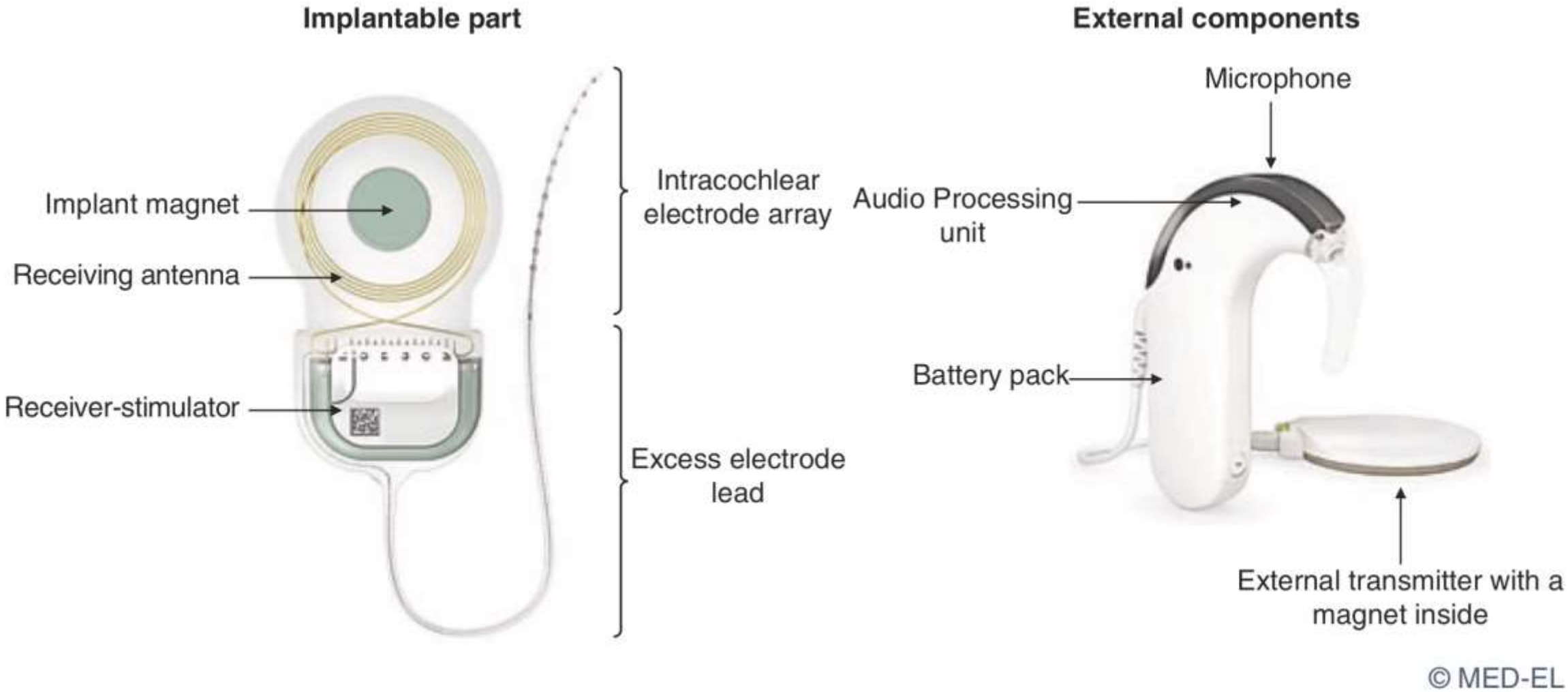
THANK YOU

Sounding New Horizons : A JOURNEY WITH COCHLEAR IMPLANT SO FAR

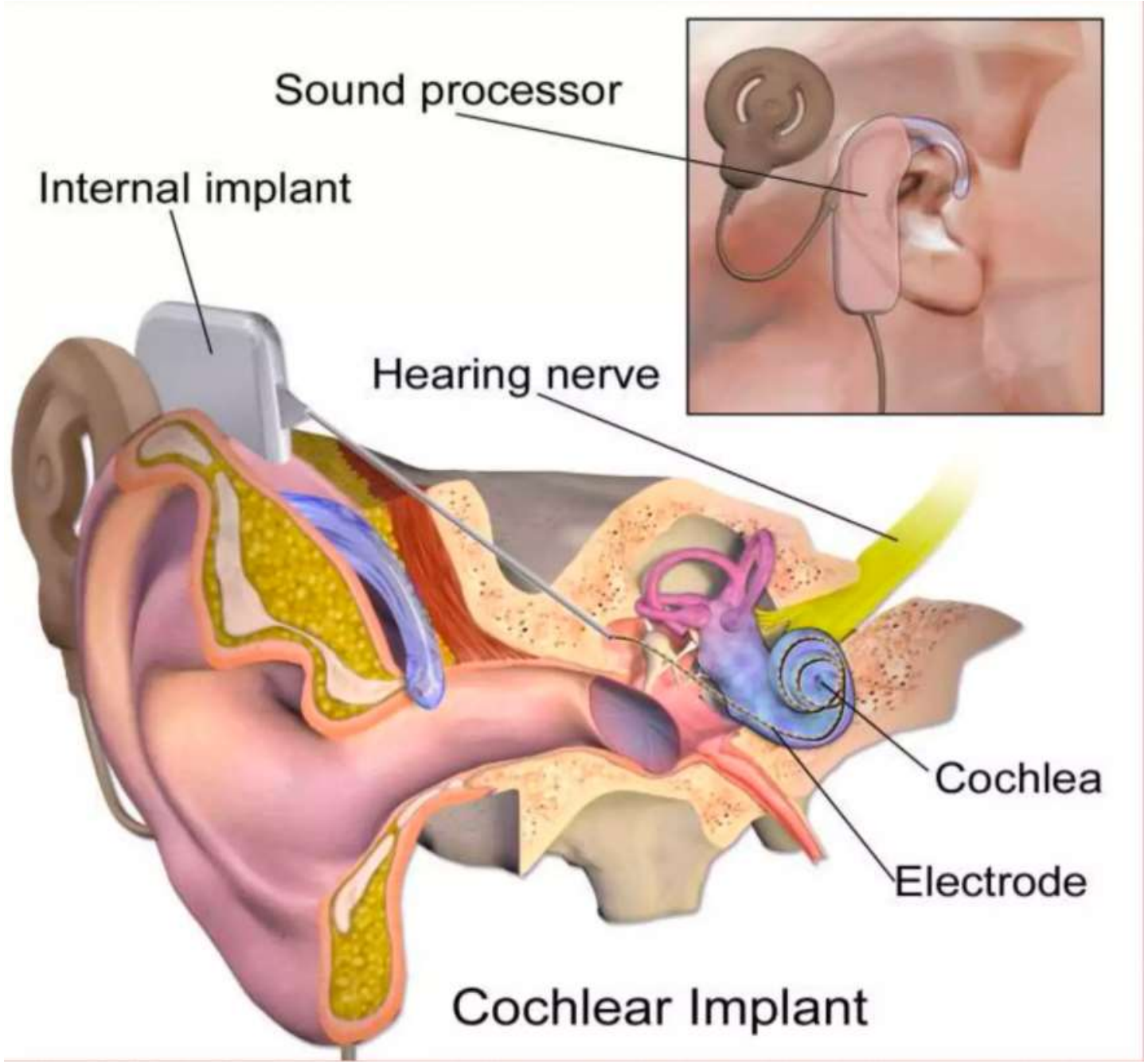
Dr Chekuri Charmila


auricle
malleus
incus
scala vestibuli
scala tympani
oval window
external auditory canal
cochlea
sound waves
tympanic membrane
stapes
round window
organ of Corti
basilar membrane

- COCHLEAR IMPLANT is a surgically placed electrical device that receive sound and transmit the resulting electrical signal to electrodes implanted in the cochlea of the ear
- Like other human hair cells, they receive mechanical sound energy, and converted into a sense of electrical impulse, thus acting like electro mechanical transducer
- Cochlear implants are the true **bionic** sense organs


Implantable part
External components
Implant magnet
Receiving antenna
Receiver-stimulator
Intracochlear electrode array
Excess electrode lead
Microphone
Audio Processing unit
Battery pack
External transmitter with a magnet inside
© MED-EL

How does it work ?



1. Sound is received by microphone

2. Sound is sent from microphone to speech processor
3. Speech processor analyzes and digitizes the sound into coded signals

4. Coded signals are sent to the transmitter
5. Transmitter sends the code across the skin into the internal implant

6. Internal implant converts code to electrical signals

7. Signals are sent to the electrodes to stimulate the remaining nerve fibers
8. Signals are recognized as sounds by the brain producing a hearing sensation

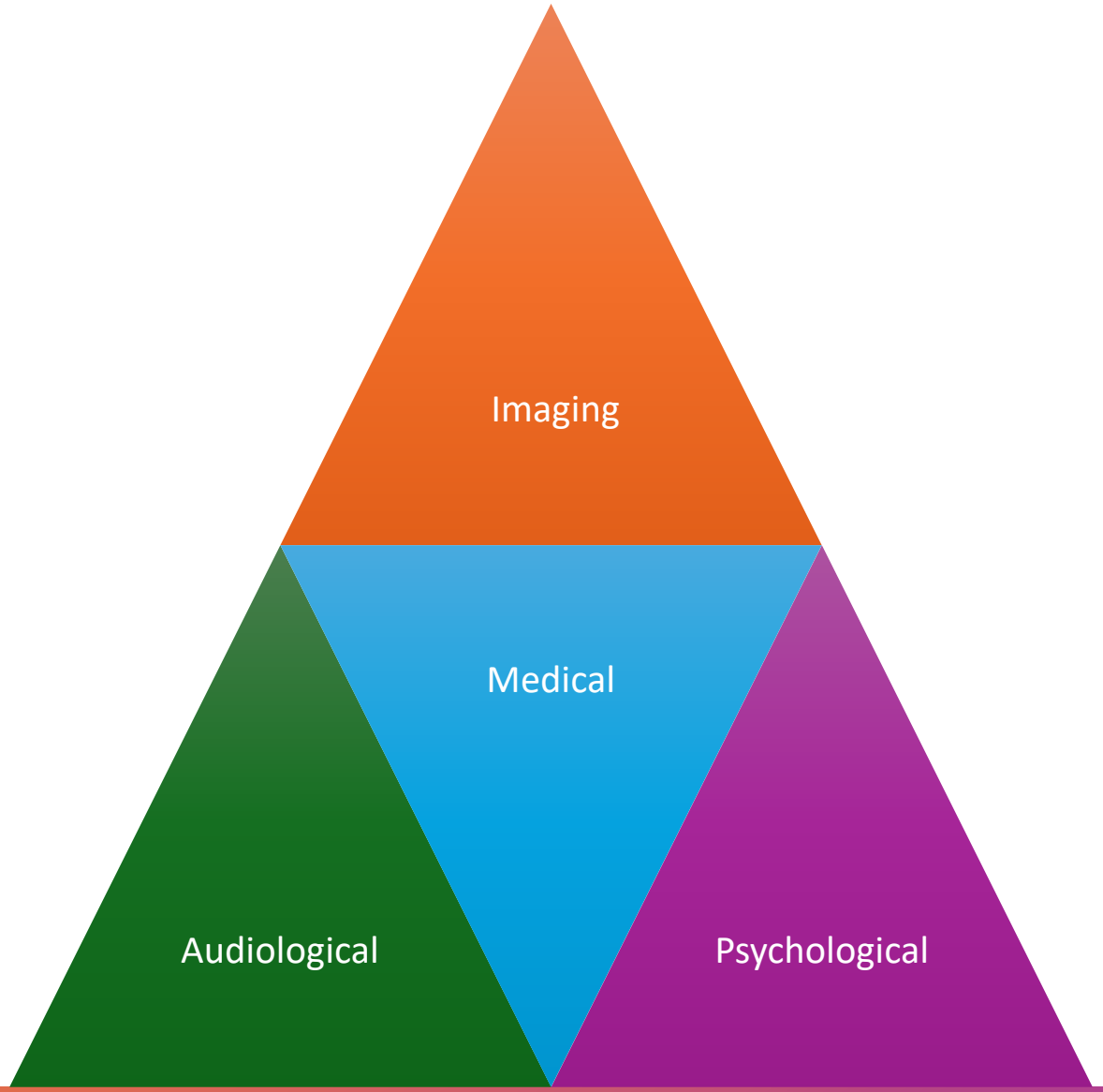
Candidacy

- **Hearing loss:** ***Severe to profound*** SNHL hearing loss in both ears
- **AGE:** Pre lingual Child above 12 months, below seven years
- **Limited benefit from hearing aids-** Hearing aid trial should be done for at least 3 months
- **Sensorineural hearing loss-** due to inner ear /Cochlea

multi disciplinary team

- Otolaryngologist
- Audiologist
- Speech-language therapist
- Radiologist
- Paediatrician
- Social workers

What tests should we get done ?



Medical evaluation

- ***History***- age of onset and progression of hearing loss, infection, surgery, pre natal, natal and post natal history
- History of **delayed milestones**
- **Family history** of hearing loss and **consanguinity**
- Complete **Immunisation**
- **Acquired** deafness (ototoxicity, trauma)-adult pt

Psychological evaluation

Purpose

- To determine the developmental ability of the child
- **DQ / IQ**
- To establish the child’s expectations for the post implant performance
- The most important thing in this evaluation is to access both the recipients and his/ her family expectations for the device

Audiological evaluation

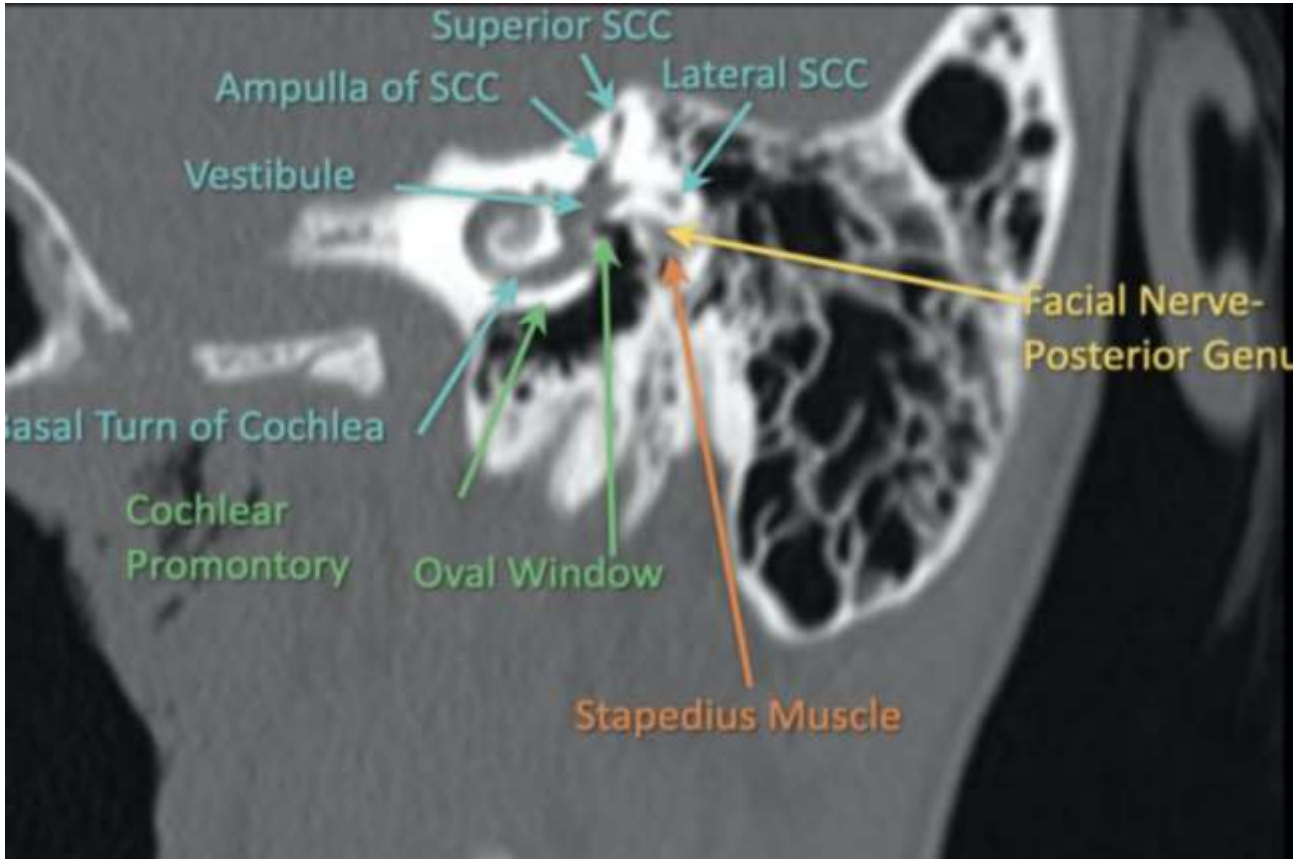
To determine the type and severity of hearing loss

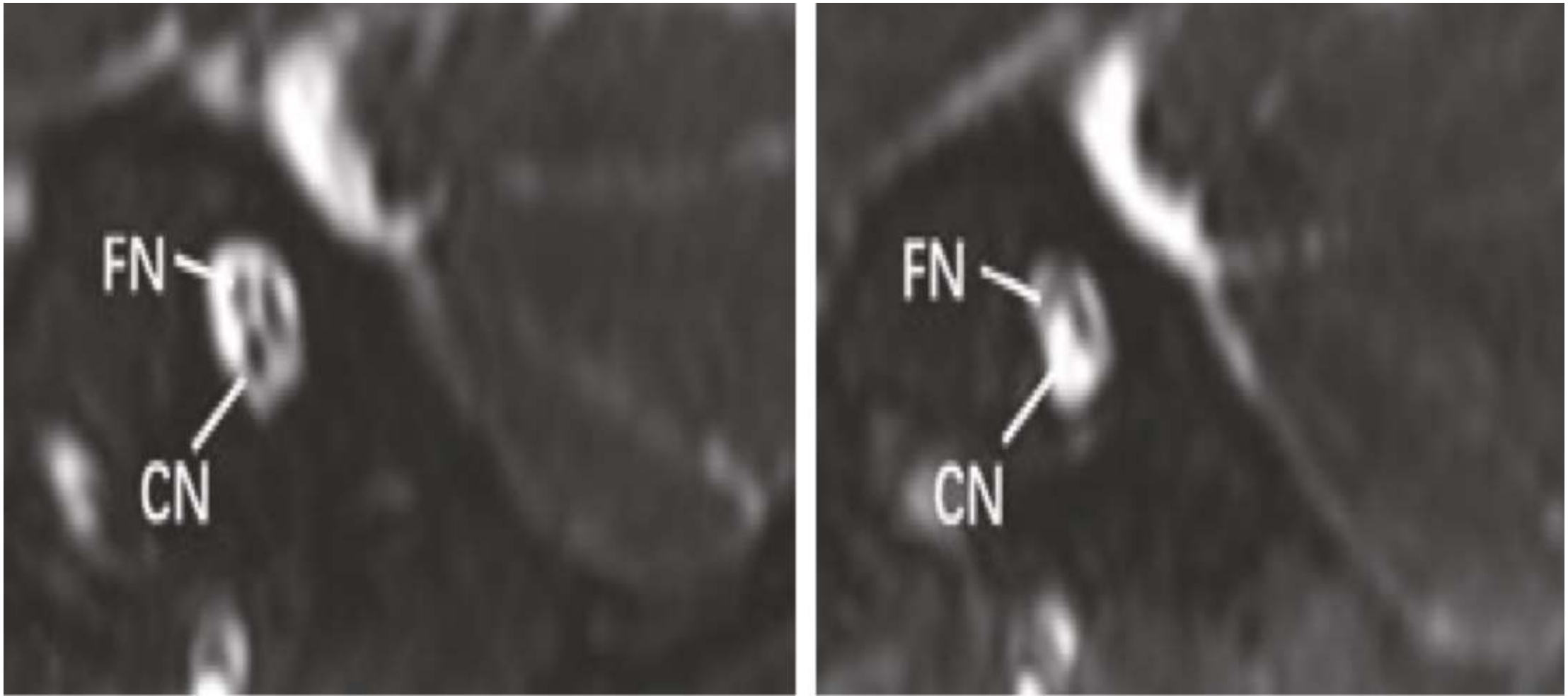
OAE (oto acoustic emission)

BERA (brainstem evoked response Audiometry)

Imaging techniques

- Preoperative HRCT temporal bone without contrast
- MRI should be considered for evaluating congenital deafness

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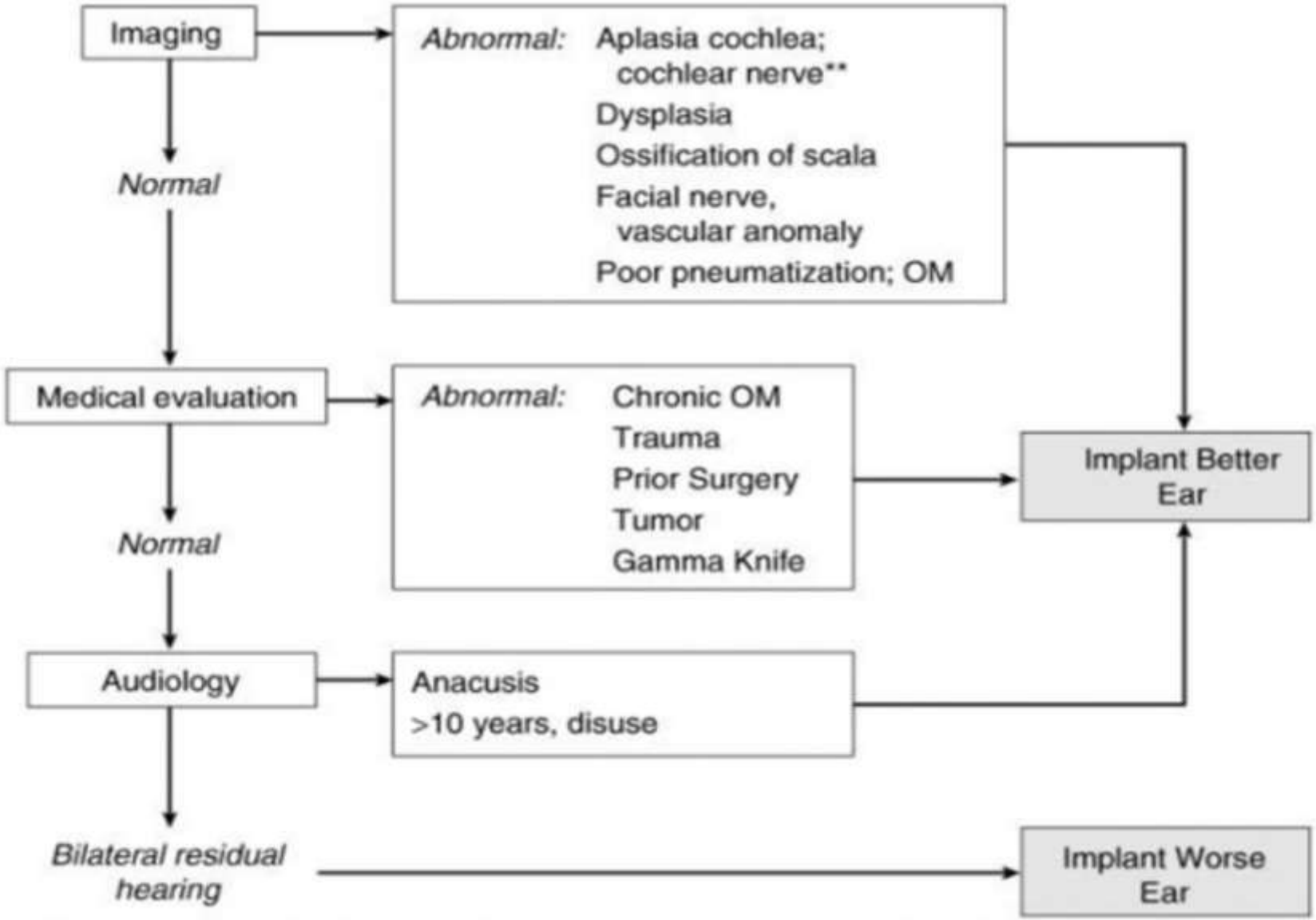
Ear Selection for Cochlear Implantation*



*After candidate meets implantation criteria, demonstrates appropriate expectations and habilitation options. These are general guidelines. Each patient must be evaluated individually.

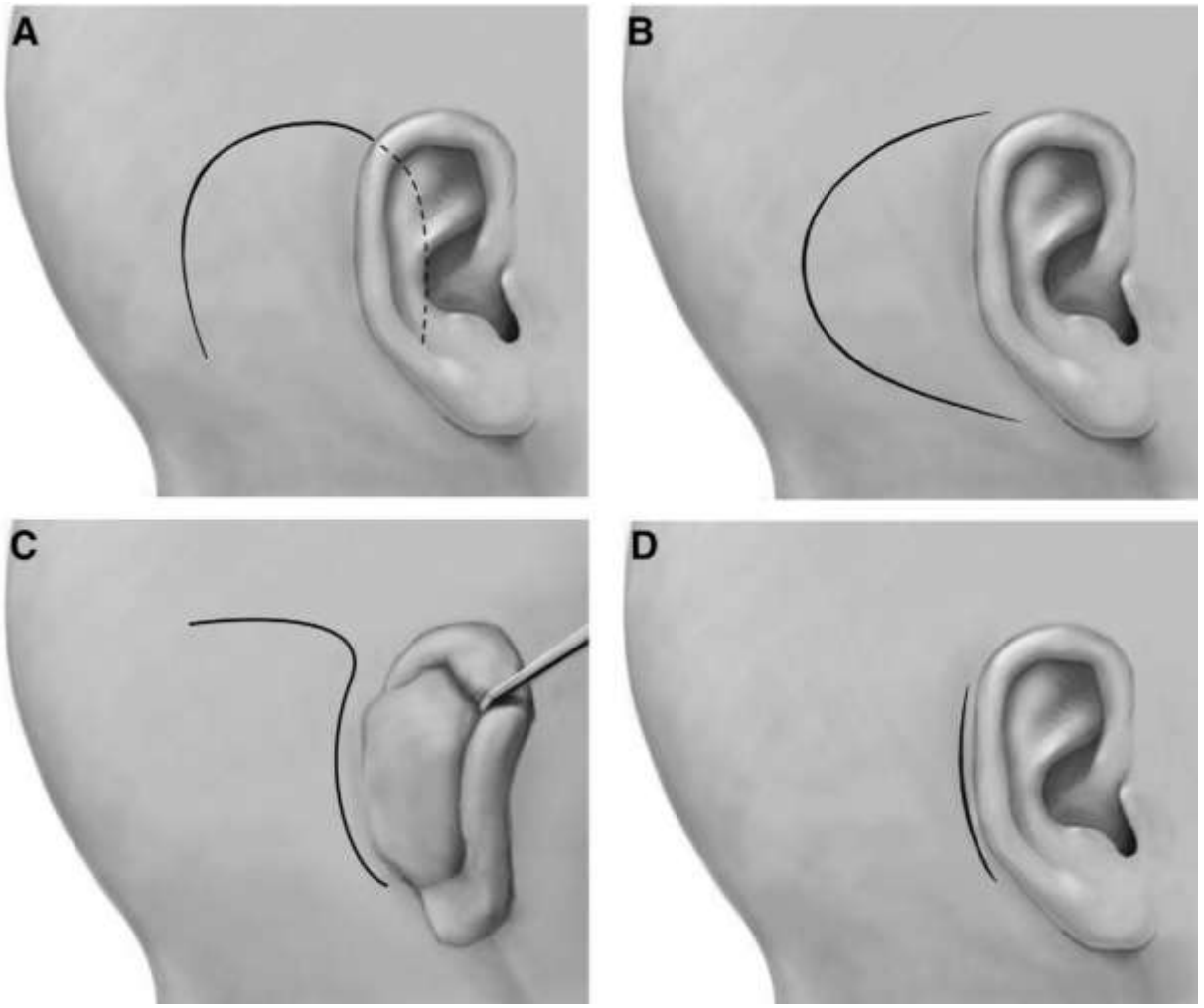
**Absolute contraindication.

Contraindications

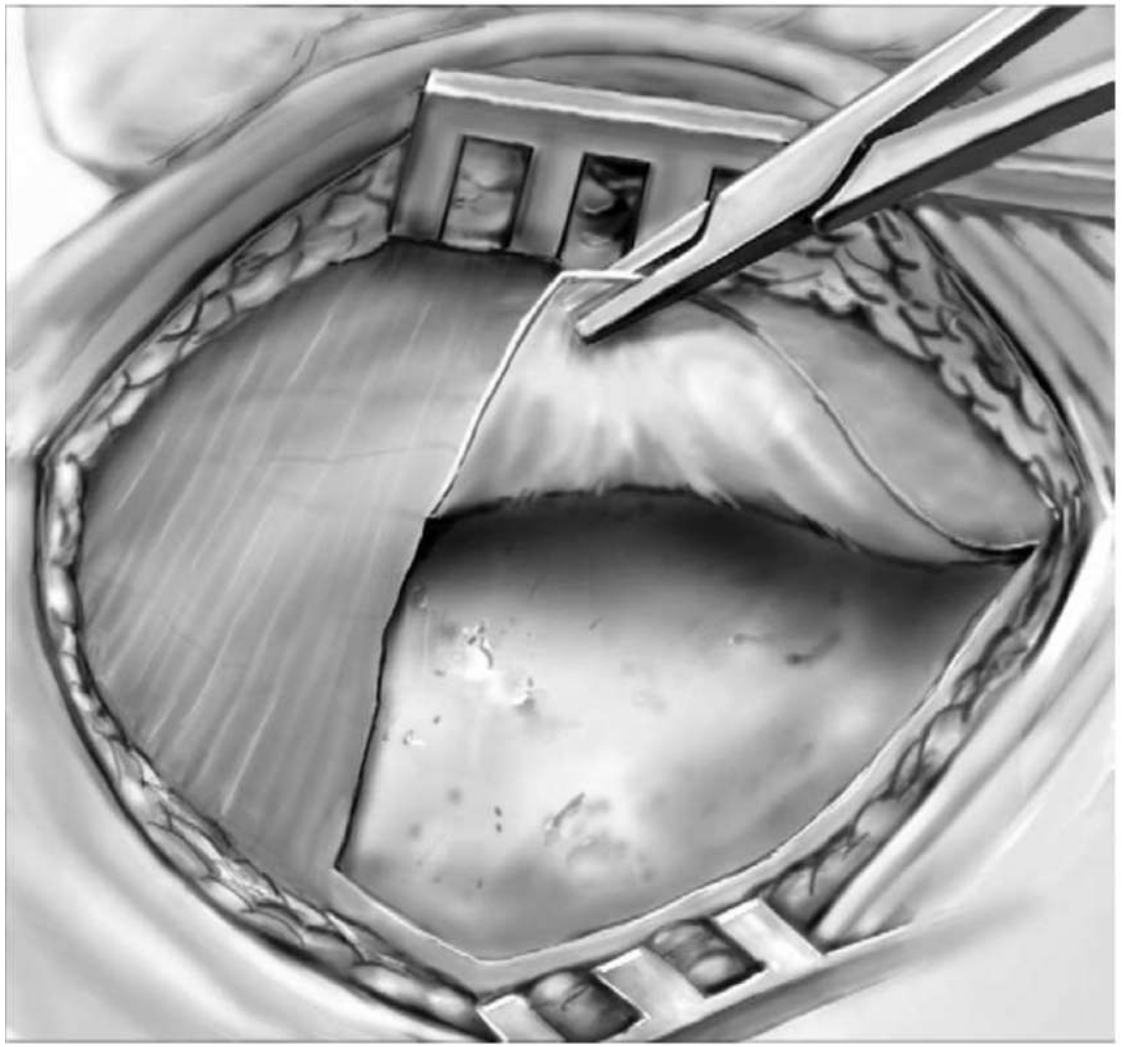
- Cochlear nerve aplasia
- Cochlear aplasia-Michel deformity
- complete labrynthitis ossificans
- Chronic infections of the middle ear and mastoid cavity
- Tympanic membrane perforation

What happens during a cochlear implant surgery ?

Skin incision

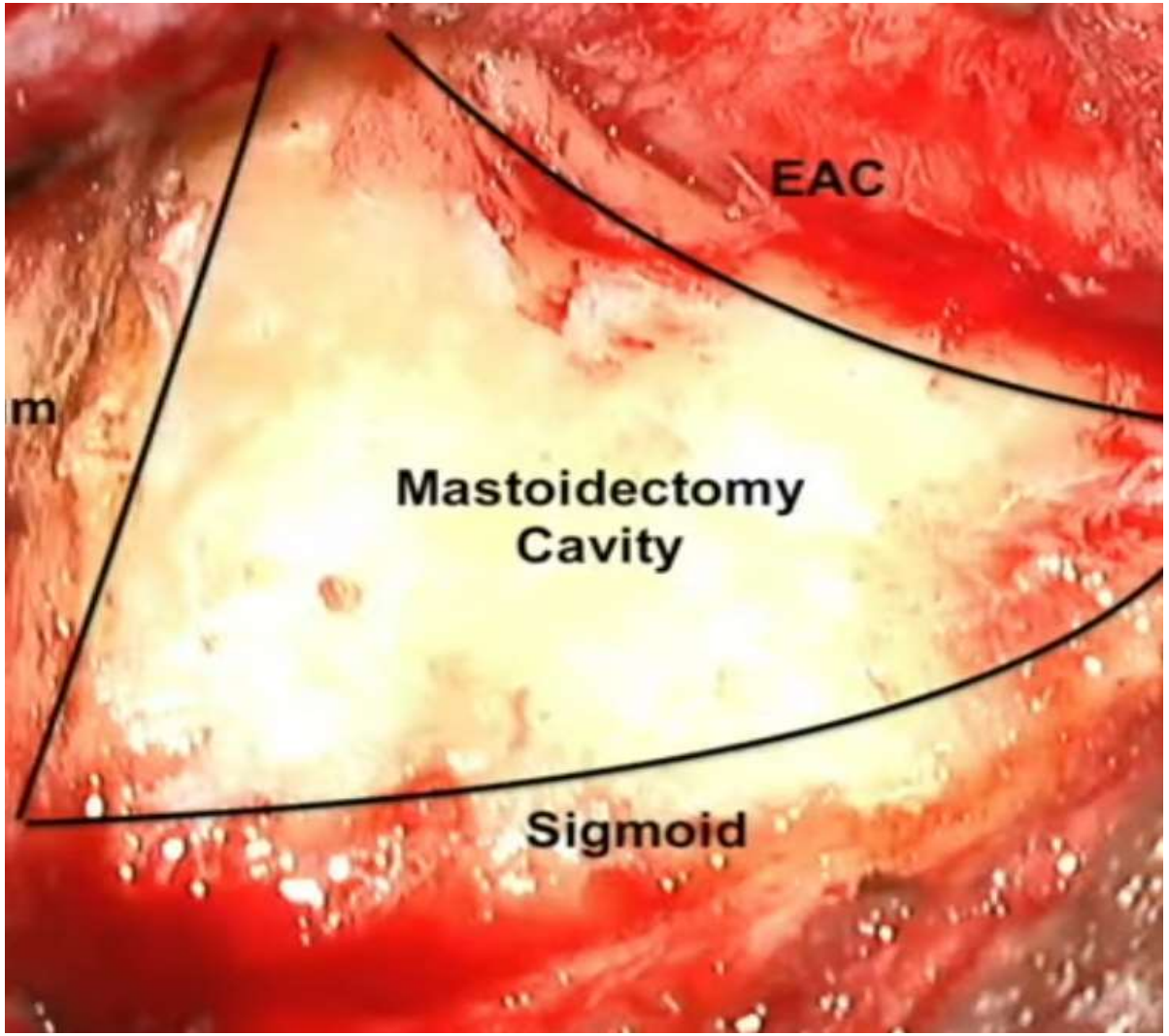


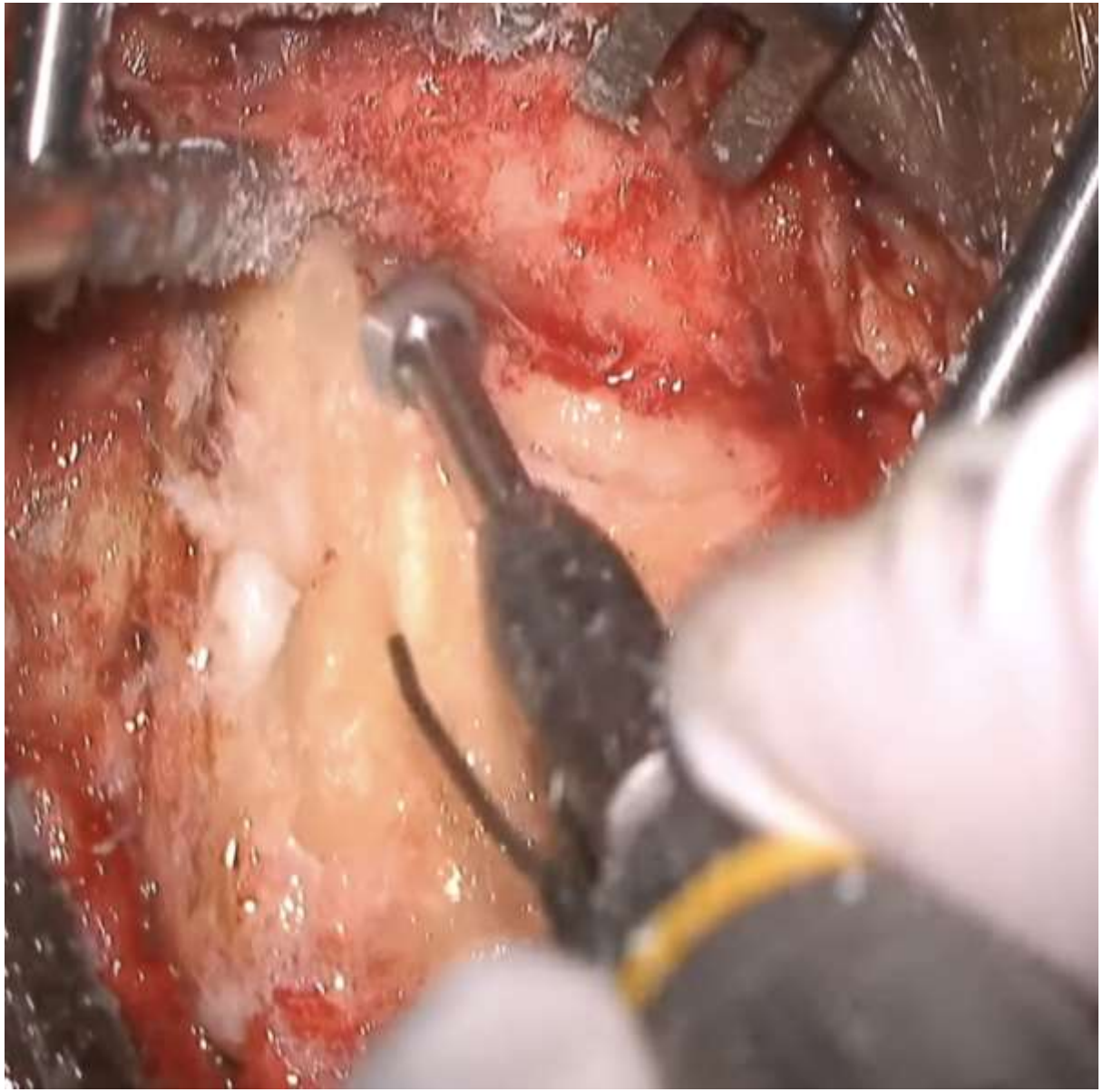
Musculoperiosteal layer

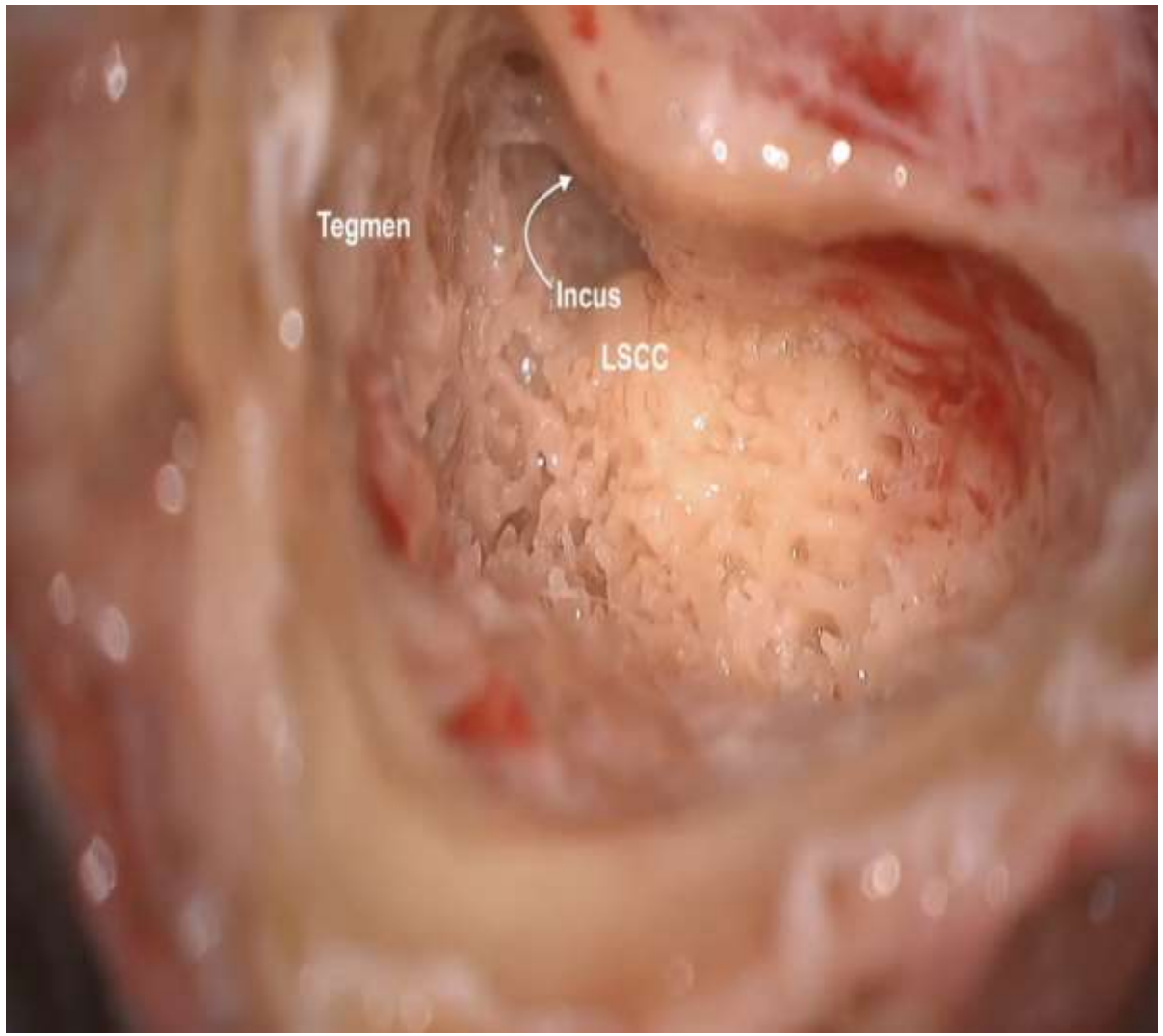


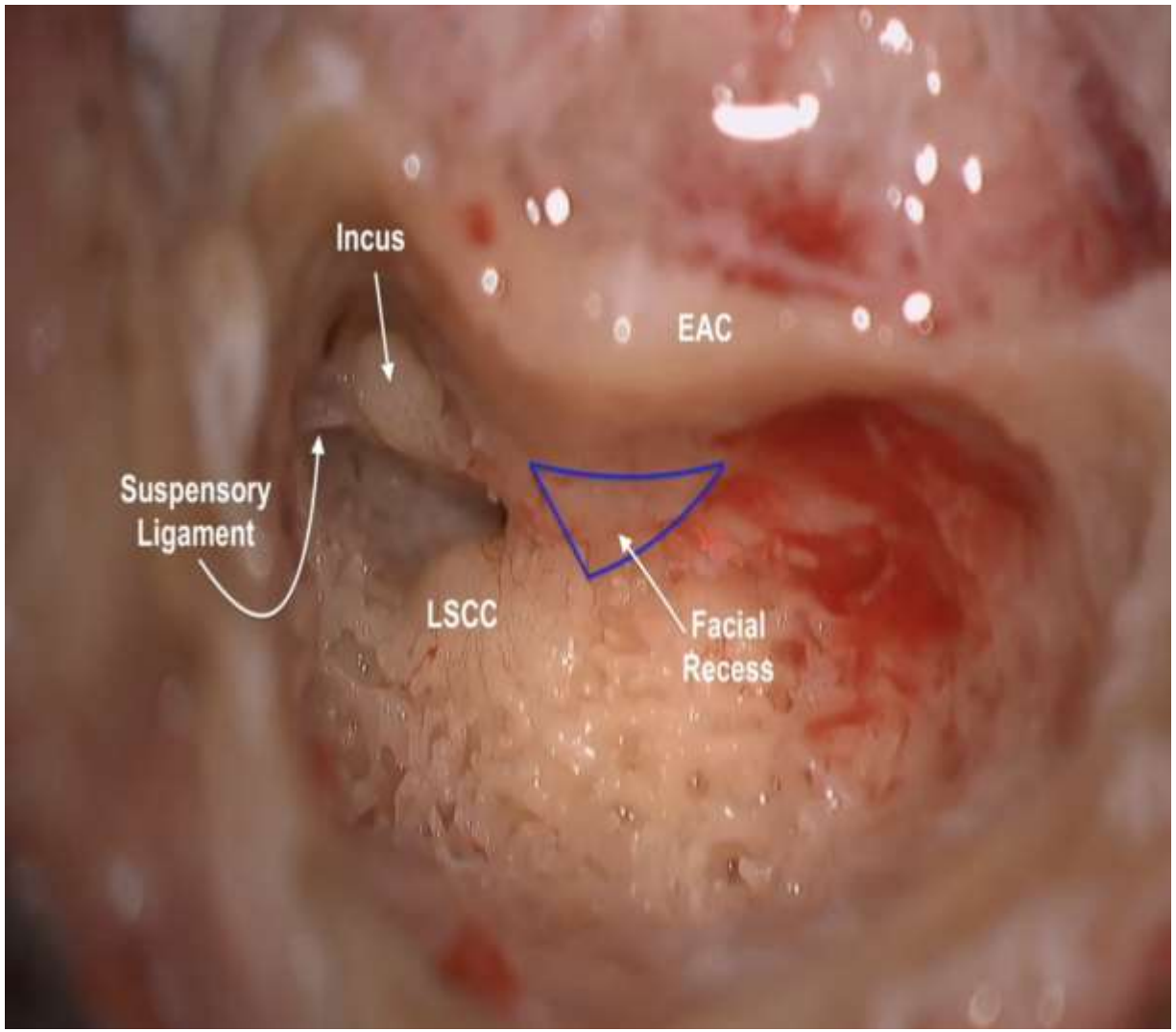
Drill out-Receiver well

Mastoidectomy

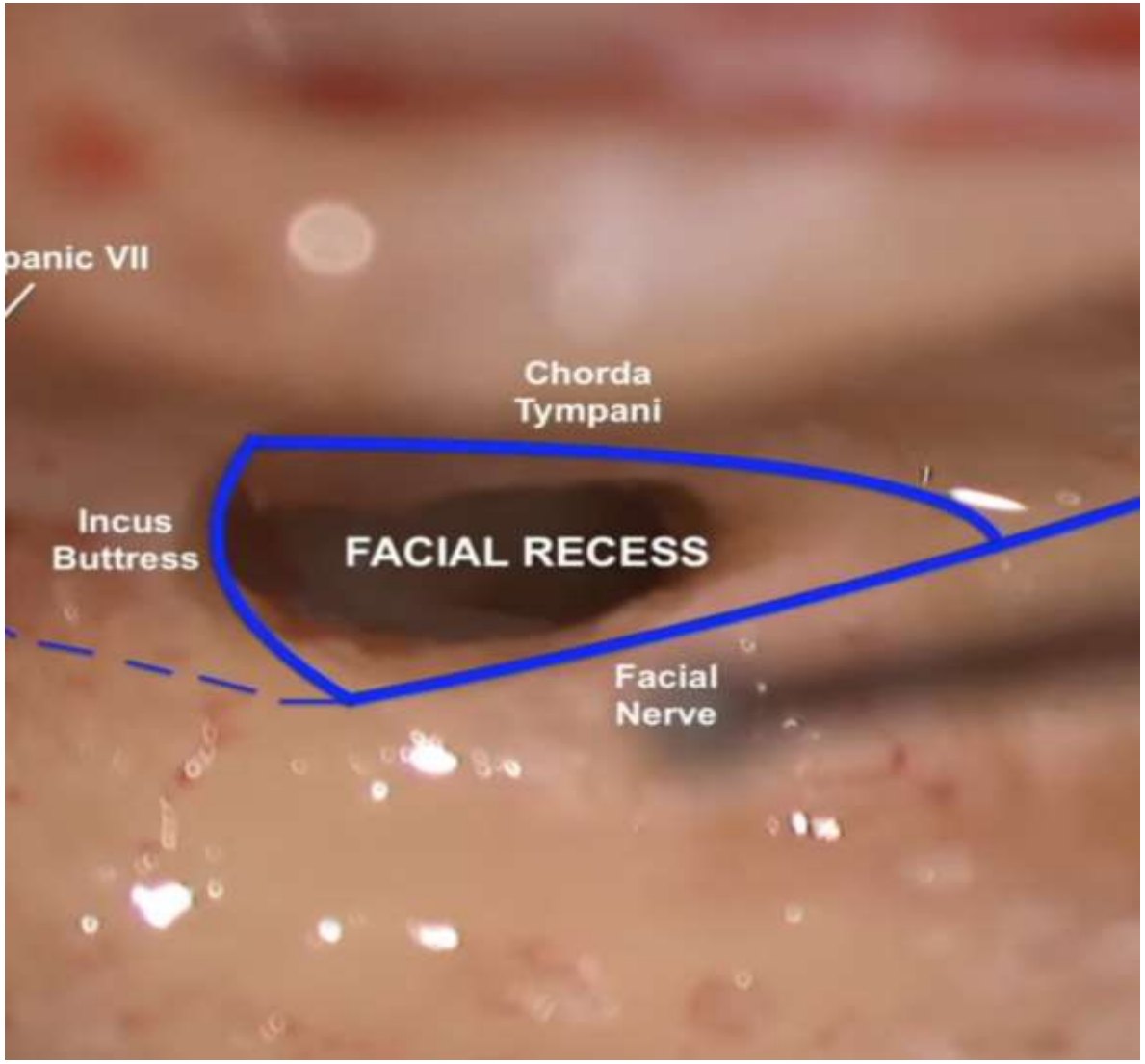


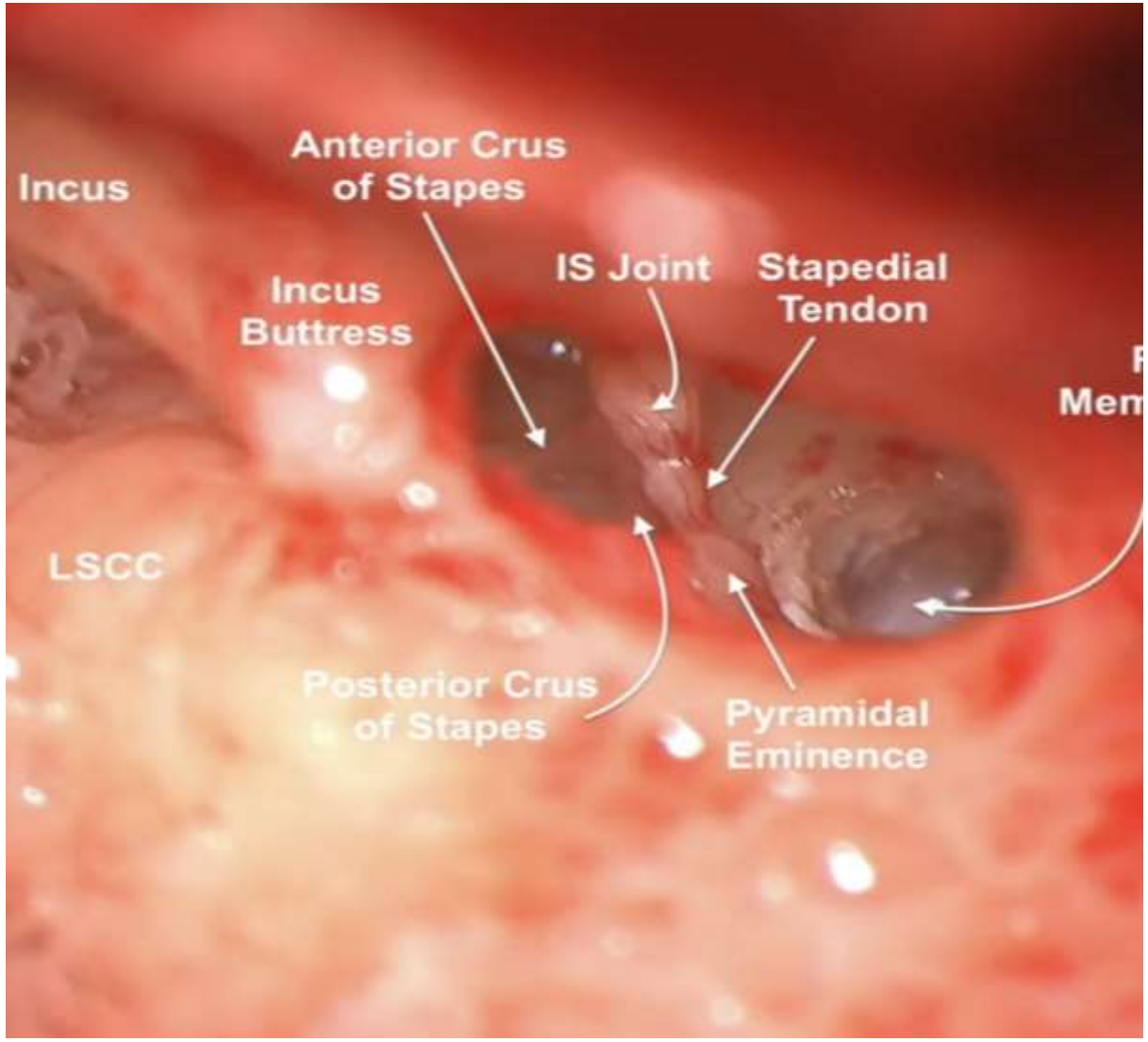


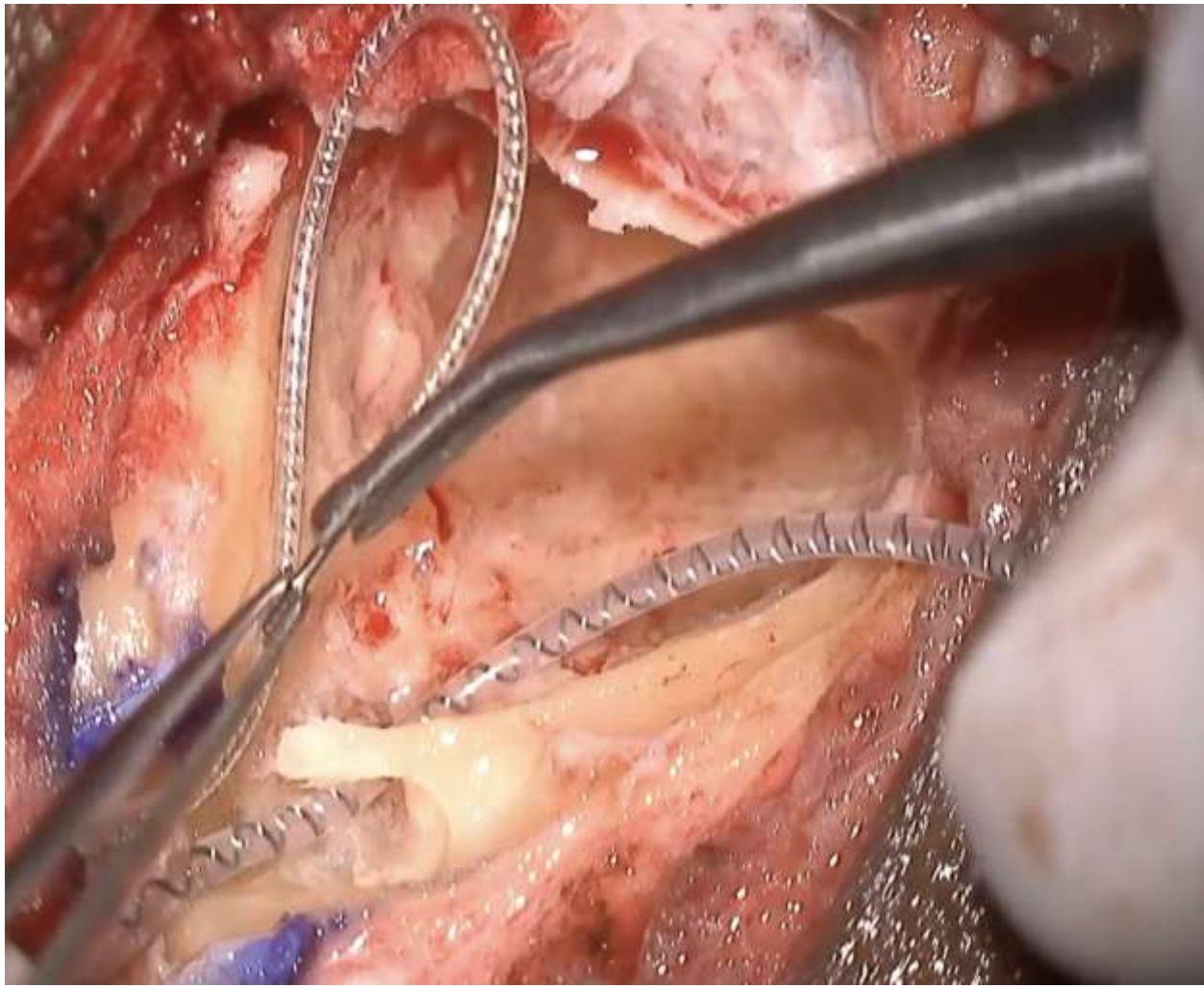

Tegmen
Incus
LSCC

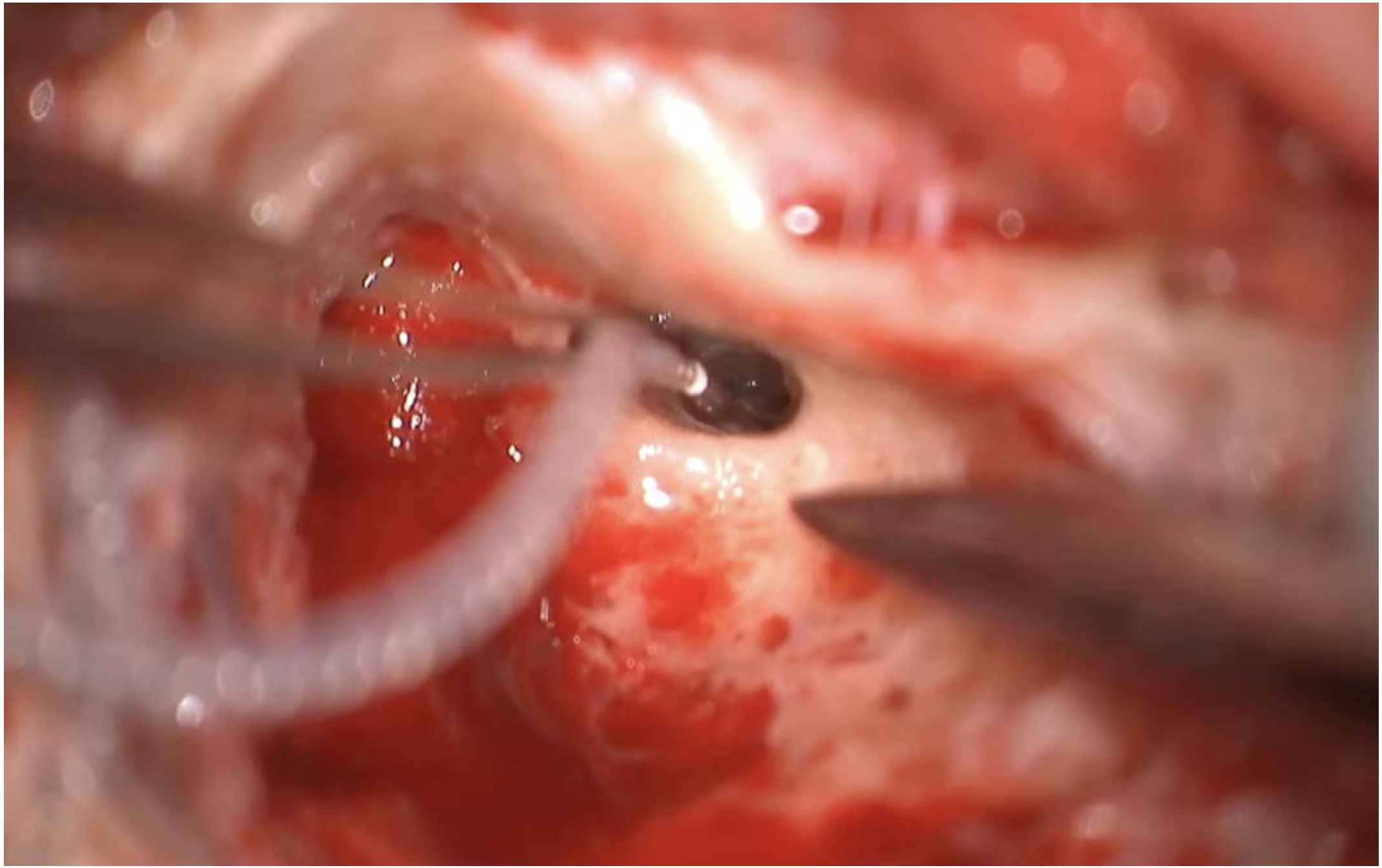

Incus
EAC
Suspensory
Ligament
LSCC
Facial
Recess

Exposure of the round window







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Early Complications:

- ***Facial nerve injury***-incidence is less than 10%.
- ***Hematoma-*** formation of more than 10 cc requires evacuation
- ***Infection***
- ***Wound dehiscence***
- ***Flap necrosis***
- ***Early device failure***
- ***CSF leak***

Late complications

- **Displacement of magnet** -due to physical injury/scar formation
- Meningitis
- Late device failure-usually internal device failure is due to trauma/spontaneous,

Living with a cochlear implant

- You'll have this implant for life
- You'll have ***regular follow up*** so your audiology team can confirm that:
- The device is working well.
- The settings on your device are functioning at their best.
- skin at the site of the magnet is healthy.




- We have successfully implanted *six* ears
- They are on regular follow up

One day our patients will be able to *tell* their ***own stories***, and we *no* longer have to convince the naysayer's that deaf children can ***listen*** and ***speak***

THANK YOU