

NEOPLASMS OF PARANASAL SINUSES

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Tumours of Maxillary, Ethmoid, Frontal & Sphenoid Sinuses

MedMentor EDU | ENT Study Notes for MBBS, NEET-PG, INI-CET & MS ENT

CONTENTS AT A GLANCE

1. Introduction & Epidemiology
2. Applied Anatomy Relevant to Sinonasal Tumours
3. Etiology & Risk Factors
4. Premalignant Lesions
5. Classification of Paranasal Sinus Tumours
6. Pathways of Tumour Spread
7. Maxillary Sinus Carcinoma
8. Ohngren's & Lederman Classification
9. Ethmoid, Frontal & Sphenoid Sinus Tumours
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11. Olfactory Neuroblastoma
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SECTION 1 | INTRODUCTION & EPIDEMIOLOGY

Definition

Paranasal sinus neoplasms are benign or malignant tumours arising from:

- Maxillary sinus
- Ethmoid sinus
- Frontal sinus

- Sphenoid sinus

They may arise from:

- Mucosal epithelium
- Minor salivary glands
- Bone
- Cartilage
- Neuroectodermal tissue
- Lymphoid tissue

Epidemiology

Sinonasal malignancies constitute:

- <1% of all human malignancies
- 3% of head and neck cancers

Relative Frequency

SITE	FREQUENCY
Maxillary sinus	70–80%
Ethmoid sinus	10–15%
Nasal cavity	10–15%
Sphenoid sinus	Rare

SITE	FREQUENCY
Frontal sinus	Very rare

Age Distribution

- Peak incidence: 50–70 years
- Rare in children

Sex Distribution

- Male : Female ? 2:1

[IMPORTANT]

Most common malignant tumour of paranasal sinuses = **Squamous cell carcinoma**

[COMMON MCQ]

Most common site of paranasal sinus malignancy = **Maxillary sinus**

SECTION 2 | APPLIED ANATOMY RELEVANT TO SINONASAL TUMOURS

Maxillary Sinus

Largest paranasal sinus.

Relations

Roof

- Orbit

Floor

- Alveolar process
- Upper molar teeth

Medial Wall

- Nasal cavity

Anterior Wall

- Cheek

Posterior Wall

- Pterygopalatine fossa
- Infratemporal fossa

Ethmoid Sinus

Important relations:

- Orbit (lamina papyracea)
- Anterior cranial fossa
- Optic nerve

Therefore early:

- Proptosis
- Diplopia
- Intracranial extension

Frontal Sinus

Relations:

- Anterior cranial fossa
- Orbit

Sphenoid Sinus

Important relations:

- Optic nerve
- Cavernous sinus
- Internal carotid artery
- Pituitary gland
- Cranial nerves III, IV, V1, V2, VI

Lymphatic Drainage

Maxillary Sinus

? Submandibular nodes

? Upper deep cervical nodes

Ethmoid Sinus

? Retropharyngeal nodes

SECTION 3 | ETIOLOGY & RISK FACTORS

Occupational Factors

Very High Yield

OCCUPATION	TUMOUR
Wood workers	Adenocarcinoma
Furniture industry	Adenocarcinoma
Leather workers	Adenocarcinoma
Nickel industry	SCC
Chromium exposure	SCC
Textile workers	Sinonasal carcinoma

Environmental Factors

- Smoking
- Air pollution
- Radiation exposure

Viral Factors

HPV

Associated with:

- SCC
- Sinonasal papilloma

EBV

Associated with:

- Nasopharyngeal carcinoma
- Some sinonasal malignancies

Chronic Predisposing Conditions

- Chronic sinusitis
- Chronic inflammation
- Nasal polyposis
- Inverted papilloma

SECTION 4 | PREMALIGNANT LESIONS

Sinonasal Papillomas

Inverted Papilloma

Most important premalignant lesion.

Fungiform Papilloma

Oncocytic Papilloma

Dysplastic Lesions

- Leukoplakia
 - Epithelial dysplasia
-

Malignant Transformation

Risk highest in:

Inverted Papilloma

Malignant transformation:

5–15%

Usually transforms into:

Squamous Cell Carcinoma

SECTION 5 | CLASSIFICATION OF PARANASAL SINUS TUMOURS

BENIGN TUMOURS

Epithelial

- Inverted papilloma
-

- Fungiform papilloma
- Oncocytic papilloma

Osteogenic

- Osteoma
- Osteblastoma

Fibro-osseous

- Fibrous dysplasia
- Juvenile ossifying fibroma

Mesenchymal

- Fibroma
- Hemangioma
- Neurofibroma
- Schwannoma
- Chondroma

MALIGNANT TUMOURS

Carcinomas

- Squamous cell carcinoma (most common)

- Verrucous carcinoma
- Adenocarcinoma
- Adenoid cystic carcinoma
- Mucoepidermoid carcinoma
- Neuroendocrine carcinoma
- Sinonasal undifferentiated carcinoma (SNUC)

Sarcomas

- Osteosarcoma
- Chondrosarcoma
- Fibrosarcoma
- Rhabdomyosarcoma

Neuroectodermal

- Olfactory neuroblastoma

Melanocytic

- Mucosal melanoma

Hematolymphoid

- Lymphoma
 - Plasmacytoma
-

SECTION 6 | PATHWAYS OF TUMOUR SPREAD

Local Spread

Direct extension into:

- Orbit
 - Nasal cavity
 - Oral cavity
 - Pterygopalatine fossa
-

Orbital Spread

Causes:

- Proptosis
 - Diplopia
 - Visual loss
-

Intracranial Spread

Through:

- Cribriform plate
 - Ethmoid roof
-

- Frontal sinus posterior wall
-

Perineural Spread

Classically seen in:

Adenoid cystic carcinoma

Common nerves:

- Infraorbital nerve
 - Trigeminal branches
-

Lymphatic Spread

To:

- Submandibular nodes
 - Retropharyngeal nodes
 - Upper deep cervical nodes
-

Hematogenous Spread

Common sites:

- Lung
 - Liver
-

- Bone

SECTION 7 | MAXILLARY SINUS CARCINOMA

Introduction

Most common malignant tumour of paranasal sinuses.

Most are:

Squamous Cell Carcinoma

Histological Types

- SCC
- Adenocarcinoma
- Adenoid cystic carcinoma
- Mucoepidermoid carcinoma

Clinical Features

Early Symptoms

- Unilateral nasal obstruction
- Blood-stained discharge
- Recurrent epistaxis

- Facial discomfort
-

Late Symptoms

- Facial swelling
 - Facial pain
 - Trismus
 - Proptosis
 - Diplopia
 - Palatal swelling
 - Loose teeth
-

Wall-Wise Presentation

Medial Wall

- Nasal obstruction
- Epistaxis

Anterior Wall

- Cheek swelling

Inferior Wall

- Loose teeth

- Palatal bulge

Superior Wall

- Proptosis
- Diplopia

Posterior Wall

- Trismus
- Pterygopalatine fossa involvement

SECTION 8 | OHNGREN'S & LEDERMAN CLASSIFICATION

Ohngren's Line

Imaginary line:

Medial canthus ? angle of mandible

Divides maxillary sinus into:

Suprastructure

Above line

Poor prognosis

Infrastructure

Below line

Better prognosis

[EXAM FAVORITE]

Suprastructure tumours have poorer prognosis because of early orbital and skull base invasion.

Lederman Classification

Anterior Lesions

Better prognosis

Posterior Lesions

Poor prognosis

Due to:

- Skull base involvement
- Orbital invasion

SECTION 9 | INVERTED PAPILLOMA

Definition

Benign epithelial tumour characterized by:

Endophytic growth pattern

Clinical Features

- Unilateral nasal obstruction
- Unilateral discharge
- Epistaxis

- Nasal mass
-

CT Findings

- Unilateral soft tissue mass
 - Bone remodeling
-

MRI

Characteristic:

Convuluted Cerebriform Pattern

High-yield sign.

Histopathology

- Endophytic epithelial growth
 - Intact basement membrane
-

Treatment

Endoscopic Medial Maxillectomy

Treatment of choice.

SECTION 10 | OLFACTORY NEUROBLASTOMA (ESTHESIONEUROBLASTOMA)

Definition

Rare malignant neuroectodermal tumour arising from:

Olfactory neuroepithelium

Located in:

- Roof of nasal cavity
- Cribriform plate region
- Superior turbinate region

Epidemiology

- Rare tumour
- Bimodal age distribution
 - 2nd decade
 - 5th–6th decade

Clinical Features

Nasal Symptoms

- Unilateral nasal obstruction
- Epistaxis
- Nasal mass

Orbital Symptoms

- Proptosis
- Diplopia

Intracranial Symptoms

- Headache
- Seizures
- Personality changes

Kadish Classification

Stage A

Confined to nasal cavity

Stage B

Involves paranasal sinuses

Stage C

Extension beyond sinonasal region

Stage D (Modified)

Nodal or distant metastasis

Imaging

CT Scan

- Soft tissue mass
- Bone destruction
- Cribriform plate erosion

MRI

Better for:

- Intracranial extension
- Orbital involvement

Histopathology

Characteristic findings:

- Small round blue cells
- Neurofibrillary background
- Homer-Wright rosettes

Treatment

Craniofacial Resection

-

Postoperative Radiotherapy

Current trend:

Endoscopic Craniofacial Resection

Prognosis

5-year survival:

Approximately 60–80%

Depends upon:

- Kadish stage
- Intracranial extension
- Nodal metastasis

SECTION 11 | FIBROUS DYSPLASIA

Definition

Benign fibro-osseous disorder in which:

Normal bone

?

Replaced by fibrous tissue and immature bone

Types

Monostotic

Single bone involved

Most common

Polyostotic

Multiple bones involved

May be associated with:

McCune-Albright Syndrome

Clinical Features

- Facial asymmetry
 - Facial swelling
 - Nasal obstruction
 - Proptosis
 - Cosmetic deformity
-

Radiology

CT Scan

Characteristic:

Ground Glass Appearance

Very High Yield

Histology

- Irregular woven bone
- Chinese letter pattern
- Fibrous stroma

Management

Observation

For stable lesions

Surgical Recontouring

For cosmetic deformity

Radical Excision

Rarely required

SECTION 12 | JUVENILE OSSIFYING FIBROMA

Definition

Aggressive fibro-osseous tumour occurring in children and adolescents.

Clinical Features

- Facial swelling

- Nasal obstruction
- Proptosis
- Orbital displacement

Imaging

CT Scan

- Well-defined expansile lesion
- Mixed radiolucent-radiopaque appearance

Treatment

Complete Surgical Excision

High recurrence if incompletely removed.

SECTION 13 | ETHMOID, FRONTAL & SPHENOID SINUS TUMOURS

ETHMOID SINUS CARCINOMA

Clinical Features

Nasal Symptoms

- Nasal obstruction

- Epistaxis

Orbital Symptoms

Very common

- Proptosis
- Diplopia
- Epiphora

Intracranial Symptoms

Late feature

Investigations

- DNE
 - CT
 - MRI
-

Treatment

- Endoscopic resection
 - Craniofacial resection
 - Radiotherapy
-

FRONTAL SINUS TUMOURS

Rare

Clinical Features

- Forehead swelling
- Headache
- Frontal deformity
- Orbital displacement

Treatment

- Surgical excision
- Craniofacial surgery

SPHENOID SINUS TUMOURS

Very rare

Clinical Features

Cranial Nerve Palsies

May involve:

- II

- III
- IV
- V
- VI

Produces:

- Diplopia
- Visual loss
- Retro-orbital pain

Investigation

MRI

Investigation of choice

SECTION 14 | INVESTIGATIONS

Diagnostic Nasal Endoscopy

Allows:

- Direct visualization
- Site identification
- Biopsy

Biopsy

Gold standard for diagnosis.

Imaging

X-Ray

Historical importance only.

May show:

- Opacification
 - Bone destruction
-

CT Scan

Investigation of Choice for Bony Anatomy

Shows:

- Bone erosion
 - Tumour extent
 - Orbital invasion
 - Skull base destruction
-

MRI

Investigation of Choice for Soft Tissue Spread

Shows:

- Perineural spread
 - Intracranial extension
 - Orbital involvement
-

PET-CT

Used for:

- Metastasis detection
 - Recurrence
 - Follow-up
-

Histopathology

Definitive diagnosis.

Immunohistochemistry

Useful in:

- Olfactory neuroblastoma
-

- Lymphoma
- SNUC
- Melanoma

CT VS MRI

FEATURE	CT	MRI
Bone erosion	Excellent	Poor
Soft tissue	Moderate	Excellent
Orbit	Good	Excellent
Intracranial spread	Moderate	Excellent
Perineural spread	Poor	Excellent

SECTION 15 | STAGING

TNM STAGING

Maxillary Sinus

T1

- Limited to mucosa

T2

- Bone erosion

T3

- Invades posterior wall/floor/orbit

T4

- Skull base/intracranial extension

Ethmoid Sinus

Based on:

- Orbital invasion
- Skull base invasion
- Intracranial extension

AJCC Stage Grouping

Stage I ? IV

Used for treatment planning and prognosis.

SECTION 16 | MANAGEMENT

PRINCIPLES

Treatment depends upon:

- Histology
- Stage

- Site
- Operability

SURGERY

Endoscopic Resection

Suitable for:

- Early tumours
- Selected sinonasal malignancies

Medial Maxillectomy

Removal of:

- Medial wall of maxillary sinus

Used in:

- Inverted papilloma
- Selected malignancies

Partial Maxillectomy

Limited tumour resection.

Total Maxillectomy

Entire maxilla removed.

Radical Maxillectomy

Includes:

- Orbit
- Adjacent soft tissue

If involved

Craniofacial Resection

Indications:

- Skull base invasion
 - Cribriform involvement
-

Orbital Exenteration

Indications:

- Extensive orbital invasion
 - Loss of vision
 - Extraocular muscle involvement
-

RADIOTHERAPY

Indications

- Advanced tumours
 - Positive margins
 - Inoperable disease
-

IMRT

Current standard

Advantages:

- Better tumour targeting
 - Less toxicity
-

CHEMOTHERAPY

Neoadjuvant

Tumour reduction before surgery

Concurrent Chemoradiotherapy

Advanced SCC

Palliative Chemotherapy

Metastatic disease

Common Drugs

- Cisplatin
 - Carboplatin
 - 5-FU
 - Taxanes
-

TARGETED THERAPY

Selected advanced tumours

Cetuximab

(EGFR inhibitor)

IMMUNOTHERAPY

Pembrolizumab

Nivolumab

For recurrent/metastatic disease

SECTION 17 | RECONSTRUCTION AFTER MAXILLECTOMY

Obturator Prosthesis

Immediate Obturator

Placed during surgery

Interim Obturator

After wound healing

Definitive Obturator

Permanent prosthesis

Free Flap Reconstruction

Options:

- Fibula flap
 - Radial forearm flap
 - Anterolateral thigh flap
-

Rehabilitation

Goals:

- Speech restoration
 - Swallowing restoration
 - Cosmetic rehabilitation
-

SECTION 18 | FOLLOW-UP

Endoscopic Surveillance

Every 3–6 months initially

Radiological Surveillance

CT/MRI/PET-CT

Recurrence Detection

Most recurrences occur within:

First 2 years

SECTION 19 | COMPLICATIONS

Orbital

- Proptosis
 - Diplopia
 - Blindness
-

Intracranial

- Meningitis
 - Brain abscess
 - CSF leak
-

Local

- Facial deformity
 - Palatal fistula
 - Trismus
-

Metastatic

- Lung
 - Liver
 - Bone
-

SECTION 20 | PROGNOSIS

Good Prognostic Factors

- Early stage
- Complete excision
- Negative margins

Poor Prognostic Factors

- Orbital invasion
- Intracranial extension
- Nodal metastasis
- Distant metastasis
- Adenoid cystic perineural spread

Survival

5-year survival:

Approximately

40–70%

depending upon stage.

SECTION 21 | MASTER COMPARISON TABLES

21.1 BENIGN VS MALIGNANT PARANASAL SINUS TUMOURS

FEATURE	BENIGN TUMOURS	MALIGNANT TUMOURS
Growth	Slow	Rapid
Pain	Usually absent	Common
Bone destruction	Rare	Common
Epistaxis	Mild	Frequent
Orbital involvement	Late	Early
Intracranial extension	Rare	Possible
Metastasis	Absent	Present
Prognosis	Excellent	Variable

21.2 MAXILLARY VS ETHMOID SINUS CARCINOMA

FEATURE	MAXILLARY	ETHMOID
Frequency	Most common	Second most common
Initial symptom	Nasal obstruction	Nasal obstruction
Facial swelling	Common	Uncommon
Dental symptoms	Common	Rare
Orbital symptoms	Late	Early
Intracranial spread	Late	Earlier

FEATURE	MAXILLARY	ETHMOID
Prognosis	Better	Slightly poorer

21.3 INVERTED PAPILLOMA VS NASAL POLYP

FEATURE	INVERTED PAPILLOMA	NASAL POLYP
Laterality	Usually unilateral	Usually bilateral
Epistaxis	Common	Rare
Bone destruction	May occur	Uncommon
Malignant potential	Present	Absent
MRI	Cerebriform pattern	Absent
Treatment	Surgical excision	Medical + surgery

21.4 OHNGREN SUPRASTRUCTURE VS INFRASTRUCTURE

FEATURE	SUPRASTRUCTURE	INFRASTRUCTURE
Location	Above Ohngren line	Below Ohngren line
Orbital involvement	Common	Less common
Skull base involvement	Common	Rare
Surgical difficulty	Greater	Less
Prognosis	Poor	Better

21.5 CT VS MRI IN SINONASAL TUMOURS

FEATURE	CT	MRI
Bone erosion	Excellent	Poor
Soft tissue extent	Moderate	Excellent
Orbit	Good	Excellent
Intracranial extension	Moderate	Excellent
Perineural spread	Poor	Excellent
Surgical planning	Excellent	Complementary

21.6 OLFACTORY NEUROBLASTOMA VS SNUC

FEATURE	OLFACTORY NEUROBLASTOMA	SNUC
Origin	Olfactory epithelium	Undifferentiated epithelium
Growth	Relatively slower	Very aggressive
Histology	Homer-Wright rosettes	Pleomorphic cells
Prognosis	Better	Poor
Treatment	Surgery + RT	CRT ± Surgery

SECTION 22 | HIGH-YIELD EXAM PEARLS

ANATOMY PEARLS

- ? Maxillary sinus is the commonest site of PNS malignancy.
- ? Ethmoid sinus tumours commonly present with orbital symptoms.
- ? Sphenoid sinus lesions may involve cranial nerves II, III, IV, V and VI.
- ? Posterior wall of maxillary sinus is related to pterygopalatine fossa.
- ? Roof of maxillary sinus forms floor of orbit.

ETIOLOGY PEARLS

- ? Wood dust exposure strongly associated with adenocarcinoma.
- ? Leather workers have increased risk of adenocarcinoma.
- ? Smoking is associated with SCC.
- ? Inverted papilloma is the most important premalignant sinonasal lesion.

PATHOLOGY PEARLS

- ? Most common malignancy = Squamous cell carcinoma.
- ? Most common benign tumour = Osteoma.
- ? Adenoid cystic carcinoma spreads by perineural invasion.
- ? Olfactory neuroblastoma shows Homer-Wright rosettes.
- ? Inverted papilloma shows endophytic growth pattern.

RADIOLOGY PEARLS

- ? Ground glass appearance = Fibrous dysplasia.
- ? Cerebriform pattern on MRI = Inverted papilloma.
- ? Cribriform plate destruction suggests olfactory neuroblastoma.
- ? CT best for bone erosion.

? MRI best for soft tissue spread.

SURGERY PEARLS

? Endoscopic medial maxillectomy is treatment of choice for inverted papilloma.

? Craniofacial resection used for skull base involvement.

? Orbital exenteration indicated only when orbit extensively involved.

? Maxillectomy may require obturator rehabilitation.

MANAGEMENT PEARLS

? Early lesions ? surgery.

? Advanced lesions ? surgery + radiotherapy.

? IMRT is current radiotherapy standard.

? Immunotherapy useful in recurrent/metastatic disease.

COMMON MCQs

Q. Most common malignant tumour of paranasal sinuses?

A. Squamous cell carcinoma.

Q. Most common site of PNS malignancy?

A. Maxillary sinus.

Q. Most common benign tumour of PNS?

A. Osteoma.

Q. Characteristic MRI feature of inverted papilloma?

A. Cerebriiform pattern.

Q. Histological hallmark of olfactory neuroblastoma?

A. Homer-Wright rosettes.

Q. Ground glass appearance is seen in?

A. Fibrous dysplasia.

Q. Premalignant sinonasal lesion?

A. Inverted papilloma.

Q. Commonest occupational association with adenocarcinoma?

A. Wood dust exposure.

Q. Tumour famous for perineural spread?

A. Adenoid cystic carcinoma.

Q. Classification used for olfactory neuroblastoma?

A. Kadish classification.

COMMON VIVA QUESTIONS

Q. What is Ohngren's line?

A. Imaginary line from medial canthus to angle of mandible dividing maxillary sinus into suprastructure and infrastructure.

Q. Why is suprastructure prognosis poor?

A. Early orbital and skull base involvement.

Q. What is Lederman classification?

A. Division into anterior and posterior lesions based on prognosis.

Q. What is treatment of inverted papilloma?

A. Endoscopic medial maxillectomy.

Q. Which sinus tumour commonly causes proptosis?

A. Ethmoid sinus carcinoma.

Q. What is the origin of olfactory neuroblastoma?

A. Olfactory neuroepithelium.

Q. What is the radiological appearance of fibrous dysplasia?

A. Ground glass appearance.

Q. Which tumour commonly spreads along nerves?

A. Adenoid cystic carcinoma.

Q. What is orbital exenteration?

A. Removal of orbital contents for extensive orbital invasion.

Q. Which investigation is best for bone destruction?

A. CT scan.

ONE-LINERS

- Commonest PNS malignancy = SCC.
 - Commonest site = Maxillary sinus.
 - Most important premalignant lesion = Inverted papilloma.
 - MRI cerebriform pattern = Inverted papilloma.
 - Ground glass CT = Fibrous dysplasia.
 - Homer-Wright rosettes = Olfactory neuroblastoma.
 - Perineural spread = Adenoid cystic carcinoma.
 - Kadish staging = Olfactory neuroblastoma.
 - Poor prognosis = Suprastructure maxillary tumour.
 - Best investigation for bone erosion = CT.
-

SECTION 23 | IMPORTANT DIAGRAMS / FIGURES

Anatomy Diagrams

Figure 1

- Maxillary sinus anatomy
- Ethmoid sinus anatomy
- Frontal sinus anatomy

Figure 2

- Sphenoid sinus anatomy
- Orbit-sinus relations
- Skull base relations

Figure 3

- Pterygopalatine fossa
- Infratemporal fossa
- Cranial nerve relations

Tumour Spread Diagrams

Figure 4

- Local spread pathways
- Orbital extension
- Intracranial extension

Figure 5

- Perineural spread
 - Lymphatic spread
 - Hematogenous spread
-

Classification Diagrams

Figure 6

- Ohngren's line
- Suprastructure
- Infrastructure

Figure 7

- Lederman classification
 - Anterior lesions
 - Posterior lesions
-

Disease Diagrams

Figure 8

- Inverted papilloma
- Endophytic growth
- Malignant transformation

Figure 9

- Olfactory neuroblastoma
- Cribriform plate involvement

- Intracranial extension

Figure 10

- Fibrous dysplasia
- Ground glass bone
- Facial asymmetry

Figure 11

- Juvenile ossifying fibroma
- Bone expansion
- Orbital displacement

Surgical Diagrams

Figure 12

- Medial maxillectomy
- Partial maxillectomy
- Total maxillectomy

Figure 13

- Radical maxillectomy
- Craniofacial resection

- Orbital exenteration

Figure 14

- Obturator prosthesis
 - Free flap reconstruction
 - Rehabilitation
-

Radiology Figures

Figure 15

- CT maxillary carcinoma
- Bone destruction
- Orbital invasion

Figure 16

- MRI orbital extension
- MRI intracranial extension
- MRI perineural spread

Figure 17

- MRI cerebriform pattern
- Fibrous dysplasia CT

- PET-CT metastasis

SECTION 24 | IMPORTANT RADIOLOGY IMAGES

Students must recognize:

1. CT maxillary sinus carcinoma.
2. CT ethmoid sinus carcinoma.
3. CT orbital invasion.
4. CT skull base destruction.
5. MRI intracranial extension.
6. MRI perineural spread.
7. MRI cerebriform pattern of inverted papilloma.
8. MRI olfactory neuroblastoma.
9. Ground glass appearance of fibrous dysplasia.
10. PET-CT showing nodal metastasis.
11. PET-CT recurrence.
12. Post-maxillectomy imaging.

SECTION 25 | IMPORTANT MICROBIOLOGY / HISTOPATHOLOGY SLIDES

Squamous Cell Carcinoma

Key Finding:

- Keratin pearls
- Intercellular bridges

Exam Importance:

- Commonest malignancy
-

Verrucous Carcinoma

Key Finding:

- Broad pushing margins
- Well differentiated squamous epithelium

Exam Importance:

- Low metastatic potential
-

Adenocarcinoma

Key Finding:

- Gland formation
- Mucin production

Exam Importance:

- Wood dust association
-

Adenoid Cystic Carcinoma

Key Finding:

- Cribriform pattern
- Swiss cheese appearance

Exam Importance:

- Perineural invasion
-

Sinonasal Undifferentiated Carcinoma

Key Finding:

- Pleomorphic undifferentiated cells
- Necrosis

Exam Importance:

- Highly aggressive tumour
-

Olfactory Neuroblastoma

Key Finding:

- Homer-Wright rosettes
-

Exam Importance:

- Diagnostic hallmark
-

Inverted Papilloma

Key Finding:

- Endophytic growth

Exam Importance:

- Premalignant lesion
-

Fibrous Dysplasia

Key Finding:

- Chinese letter trabeculae

Exam Importance:

- Ground glass CT correlation
-

Osteoma

Key Finding:

- Dense mature lamellar bone

Exam Importance:

- Commonest benign tumour
-

Chondrosarcoma

Key Finding:

- Malignant cartilage cells

Exam Importance:

- Rare malignant tumour
-

Rhabdomyosarcoma

Key Finding:

- Strap cells
- Cross striations

Exam Importance:

- Common paediatric sarcoma
-

Lymphoma

Key Finding:

- Monomorphic lymphoid cells

Exam Importance:

- Differential diagnosis

Mucosal Melanoma

Key Finding:

- Melanin pigment
- Pleomorphic melanocytes

Exam Importance:

- Poor prognosis

SECTION 26 | IMPORTANT CLINICAL PHOTOGRAPHS

1. Cheek swelling due to maxillary carcinoma.
2. Facial asymmetry.
3. Palatal bulge.
4. Loose upper molar teeth.
5. Trismus.
6. Proptosis due to ethmoid tumour.
7. Diplopia.
8. Cervical nodal metastasis.

9. Endoscopic sinonasal tumour.
10. Inverted papilloma endoscopic appearance.
11. Obturator prosthesis.
12. Post-maxillectomy cavity.
13. CT maxillary carcinoma.
14. MRI orbital invasion.
15. MRI intracranial extension.
16. PET-CT metastasis.

LAST-MINUTE REVISION BOX

- ? Most common PNS malignancy = SCC.
 - ? Most common site = Maxillary sinus.
 - ? Most important premalignant lesion = Inverted papilloma.
 - ? Cerebriform MRI = Inverted papilloma.
 - ? Ground glass CT = Fibrous dysplasia.
 - ? Homer-Wright rosettes = Olfactory neuroblastoma.
 - ? Perineural spread = Adenoid cystic carcinoma.
 - ? Poor prognosis = Suprastructure lesions.
 - ? CT = Bone destruction.
 - ? MRI = Soft tissue extension.
 - ? Kadish staging = Olfactory neuroblastoma.
 - ? Endoscopic medial maxillectomy = Treatment of inverted papilloma.
-

5-MINUTE RAPID REVISION TABLE

TOPIC	HIGH YIELD FACT
Commonest site	Maxillary sinus
Commonest malignancy	SCC
Premalignant lesion	Inverted papilloma
MRI cerebriform pattern	Inverted papilloma
Ground glass CT	Fibrous dysplasia
Rosettes	Olfactory neuroblastoma
Perineural spread	Adenoid cystic carcinoma
Poor prognosis	Suprastructure tumour
Bone destruction	CT scan
Soft tissue spread	MRI
Occupational association	Wood dust ? Adenocarcinoma
Staging	Kadish classification

TOP EXAM QUESTIONS

1. Discuss carcinoma maxillary sinus.
2. Explain Ohngren's classification.
3. Describe inverted papilloma.

4. Olfactory neuroblastoma.
 5. Fibrous dysplasia.
 6. Classification of sinonasal tumours.
 7. Occupational carcinogens causing sinonasal cancer.
 8. CT and MRI findings in PNS tumours.
 9. Management of maxillary sinus carcinoma.
 10. Reconstruction after maxillectomy.
-

END OF CHAPTER 40

NEOPLASMS OF PARANASAL SINUSES

MedMentor EDU ENT Notes