

# DISEASES OF EXTERNAL NOSE AND NASAL VESTIBULE

---

M

ENT Study Notes — Premium Edition

## Chapter

### DISEASES OF EXTERNAL NOSE AND NASAL VESTIBULE

MBBS | NEET-PG | INI-CET | Viva Voce

*Based on: Dhingra / Ramalingam / Logan Turner*

# SECTION 1 | INTRODUCTION & OVERVIEW

---

## 1.1 Overview of External Nasal Diseases

The external nose and nasal vestibule are exposed to environmental pathogens, trauma, and inflammatory conditions. A thorough understanding of diseases in this region is essential for clinical practice and forms a high-yield topic in MBBS and NEET-PG examinations.

### Scope of Diseases

- **Congenital disorders — structural anomalies present from birth**
- Inflammatory and infective conditions — vestibulitis, furunculosis, granulomatous diseases
- Traumatic conditions — nasal fractures, septal hematoma, septal abscess
- Nasal deformities — congenital and acquired
- Granulomatous diseases — infective and non-infective
- Benign lesions — rhinophyma, papilloma, hemangioma
- Premalignant and malignant lesions — BCC, SCC, melanoma
- Cosmetic and iatrogenic conditions

## 1.2 Clinical Importance

- **The nasal vestibule is lined by skin (not mucosa) — contains hair follicles, sebaceous glands**
- The external nose is made of bone superiorly and cartilage inferiorly
- Danger triangle of face: area between nose and corners of mouth — infections here can spread to cavernous sinus via facial veins
- Nasal skeleton: nasal bones + upper lateral cartilages + lower lateral cartilages (alar cartilages) + septum

## 1.3 Surgical Relevance

- **Rhinoplasty — cosmetic and functional correction**
- Septorhinoplasty — septal correction combined with rhinoplasty
- Reconstruction — for post-traumatic or post-oncological defects
- Drainage procedures — septal hematoma, septal abscess, furunculosis

- Fracture reduction — closed or open reduction of nasal bones

**IMPORTANT:** The nasal vestibule is part of the **EXTERNAL** nose (lined by skin). The danger triangle of face makes infections of this region **DANGEROUS** due to risk of cavernous sinus thrombosis.

## SECTION 2 | CONGENITAL DISORDERS

---

### 2.1 Congenital Nasal Deformities

#### Proboscis Lateralis

- **Rare congenital malformation — a tubular appendage arising from medial canthus or lateral nasal wall**
- Results from failure of fusion of nasal processes during embryological development
- Associated with: ipsilateral choanal atresia, microphthalmia, agenesis of nasal ala
- **Management:** Surgical excision and reconstruction

? **COMMON EXAM QUESTION: Proboscis lateralis — failure of fusion of medial and lateral nasal processes**

#### Bifid Nose

- **Vertical groove or cleft dividing the nasal tip**
- Due to failure of fusion of the two nasal processes in midline
- May vary from a subtle groove to complete division of nose
- Associated with: frontoethmoidal encephaloceles, hypertelorism, orbital dystopia
- **Management:** Surgical correction — rotation flaps, Z-plasty

#### Arhinia

- **Extremely rare — complete absence of the external nose**
- Associated with choanal atresia, hyposmia, anosmia
- Prosthetic rehabilitation or complex surgical reconstruction required

#### Cleft Nose Deformity

- **Associated with cleft lip and palate**
- Unilateral cleft lip causes: alar base displaced laterally, columella deviated, tip asymmetry
- Corrected during cleft lip repair (primary rhinoplasty) or deferred to definitive rhinoplasty

## 2.2 Congenital Midline Lesions

These lesions occur in the midline of the nose due to embryological remnants. They are important because of intracranial extension.

**KEY CONCEPT: All congenital midline nasal lesions require CT/MRI to exclude intracranial communication BEFORE surgery.**

### Nasal Dermoid Cyst / Sinus

- **Most common congenital midline nasal lesion**
- Arises from entrapment of ectodermal elements along the prenasal space during embryogenesis
- Present as firm, non-pulsatile midline swelling, usually over nasal dorsum
- Dermoid sinus: pit or opening — may exude sebaceous material
- 15–45% have intracranial extension ? into anterior cranial fossa

Clinical Features:

- Painless midline nasal pit or swelling
- May have hair protruding from pit (pathognomonic)
- Recurrent infections if sinus tract is present

Investigations:

- MRI — gold standard (defines intracranial extension)
- CT — shows bony changes, enlarged foramen cecum

Management:

- Complete surgical excision — must remove entire cyst wall to prevent recurrence
- Intracranial extension requires combined craniofacial approach

**? FAVORITE EXAM: Hair protruding from nasal pit = nasal dermoid. MRI before surgery.**

### Nasal Glioma

- **Heterotopic glial tissue (brain tissue outside cranium) — NOT a true tumor**
- No CSF communication in majority (unlike encephalocele)

Types:

- **Extranasal (60%): firm, bluish, non-compressible swelling at nasal root or glabella**

- Intranasal (30%): smooth sessile polyp in nasal cavity
- Mixed (10%)

Key Features:

- Non-compressible, non-pulsatile — distinguishes from encephalocele
- Furstenberg test NEGATIVE — no expansion on jugular vein compression

Management: Surgical excision

**? VERY HIGH-YIELD: Furstenberg test — nasal glioma (NEGATIVE) vs encephalocele (POSITIVE)**

## Encephalocele

- **Herniation of meninges ± brain tissue through a skull defect**
- Contains CSF — pulsatile, compressible, increases with Valsalva

Classification (Sincipital):

- Nasofrontal — at frontonasal suture
- Nasoethmoidal — between nasal bone and upper lateral cartilage
- Naso-orbital — between nasal bone and lacrimal bone

Clinical Features:

- Soft, compressible, pulsatile midline swelling
- Furstenberg test POSITIVE — enlarges on jugular vein compression
- Transillumination positive
- Hypertelorism may be present

Investigations:

- MRI — demonstrates brain tissue and CSF content
- CT — shows skull defect
- NEVER biopsy or puncture — risk of meningitis

Management:

- Combined neurosurgical + ENT approach
- Repair of dural defect + excision of sac

**? IMPORTANT: Never biopsy a pulsatile nasal mass without prior MRI**

## 2.3 Choanal Atresia

- **Failure of canalization of the posterior nasal aperture (choanae)**
- Incidence: 1 in 5000–8000 live births; more common in females
- Bilateral atresia: presents at birth with respiratory distress (neonates are obligate nasal breathers)
- Unilateral atresia: presents later with unilateral purulent nasal discharge

Types:

- **Bony (90%): most common**
- Membranous (10%)

CHARGE Association (must know):

- C — Coloboma
- H — Heart defects
- A — Atresia choanae
- R — Retardation of growth
- G — Genital hypoplasia
- E — Ear anomalies

Management:

- Bilateral: emergency — oral airway / McGovern nipple at birth
- Surgical: transnasal endoscopic approach is gold standard

**? COMMON MCQ: Bilateral choanal atresia — neonatal emergency; cyclic cyanosis relieved by crying**

Feature	Nasal Glioma	Encephalocele
Origin	Heterotopic glial tissue	Herniated brain/meninges
Pulsatility	Non-pulsatile	Pulsatile

Compressibility	Non-compressible	Compressible
Furstenberg test	NEGATIVE	POSITIVE
CSF connection	Absent (usually)	Present
Transillumination	Negative	Positive
Management	Surgical excision	Combined craniofacial approach

## SECTION 3 | INFLAMMATORY & INFECTIVE DISORDERS

---

### 3.1 Vestibulitis

- **Definition: Inflammation of the nasal vestibule (skin-lined entrance to nasal cavity)**

#### Etiology

- **Nose picking (most common cause) — trauma to skin with secondary bacterial infection**
- Chronic nasal discharge (rhinitis, sinusitis) — maceration of skin
- Excessive blowing of nose
- Organism: Staphylococcus aureus (most common)
- Herpes simplex virus (viral vestibulitis)

#### Clinical Features

- **Tenderness, redness, swelling of vestibule**
- Crusting around nasal entrance
- Fissuring of skin
- In chronic cases: hair loss (alopecia of nasal hairs)

#### Management

- **Remove predisposing cause (treat underlying rhinitis/sinusitis)**
- Local antibiotic ointment: Mupirocin (Bactroban) or Fucidic acid
- Systemic antibiotics in severe/spreading infection
- Antiviral: Acyclovir for herpetic vestibulitis

### 3.2 Furunculosis

**DANGER: Furunculosis in the nasal vestibule lies within the DANGER TRIANGLE OF FACE — can cause cavernous sinus thrombosis via spread through facial veins.**

#### Definition

Staphylococcal infection of a hair follicle in the nasal vestibule forming an acute painful abscess.

## Danger Triangle of Face

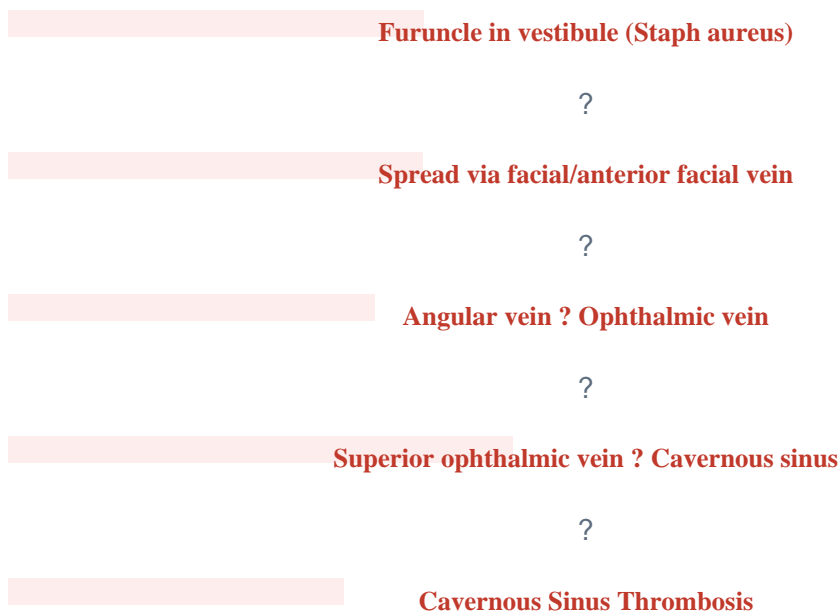
- **Area bounded by: corners of mouth and bridge of nose**
- Facial veins in this area are valveless
- Infection can spread retrograde ? angular vein ? ophthalmic vein ? cavernous sinus
- Result: cavernous sinus thrombosis (life-threatening)

## Clinical Features

- **Acute onset: severe pain, throbbing, tenderness over nasal tip/vestibule**
- Red, indurated swelling in vestibule
- Tender tragus-equivalent: tender nasal tip
- Constitutional symptoms: fever, malaise
- Yellow pustule at the center (pointing)

## Septic Thrombophlebitis and Cavernous Sinus Spread

Route of spread:



## Features of Cavernous Sinus Thrombosis

- **High-grade fever, rigors, toxemia**
- Proptosis (protrusion of eyeball)
- Chemosis (conjunctival edema)

- Periorbital edema
- Ophthalmoplegia — cranial nerve palsy (III, IV, VI)
- Pain on eye movement
- Papilledema ? loss of vision
- Bilateral spread via intercavernous sinus

## Management of Furunculosis

- **NEVER squeeze or incise a furunculosis of the nasal vestibule — risk of spreading infection**
- Rest, hot fomentations, analgesics
- Systemic antibiotics — Cloxacillin/Flucloxacillin (anti-staphylococcal)
- Add rifampicin for MRSA
- Incision and drainage: only when there is frank pointing abscess with fluctuation
- For cavernous sinus thrombosis: IV antibiotics, anticoagulants (controversial), ophthalmology consultation

? **VERY HIGH-YIELD: Furunculosis — DO NOT squeeze. Give antibiotics. Risk = Cavernous Sinus Thrombosis.**

## 3.3 Nasal Sycosis

- **Chronic folliculitis of nasal vestibule hair follicles**
- Etiology: Staphylococcus aureus (chronic infection)
- Clinical: multiple small pustules around nasal hairs, crusting, itching
- Management: prolonged topical mupirocin, systemic anti-staphylococcal antibiotics

## 3.4 Vestibular Eczema

### Etiology

- **Contact dermatitis (most common) — nickel in spectacle frames, topical medicaments**
- Atopic dermatitis — eczematous diathesis
- Seborrhoeic dermatitis — associated with dandruff
- Chronic nasal discharge as an irritant

### Clinical Features

- **Erythema, scaling, fissuring, lichenification of vestibular skin**
- Intense pruritus (itching)

- Chronic course with exacerbations
- Secondary bacterial infection common

## Management

- **Identify and remove allergen/irritant**
- Mild topical corticosteroid (hydrocortisone 1%)
- Emollients for skin barrier protection
- Antibiotics for secondary infection

## 3.5 Cellulitis & Impetigo

### Cellulitis

- **Diffuse spreading infection of dermis and subcutaneous tissue**
- Organisms: Streptococcus pyogenes, Staphylococcus aureus
- Clinical: diffuse redness, warmth, edema, systemic upset
- Management: systemic antibiotics — Co-amoxiclav or Flucloxacillin
- Complication: spread to orbital cellulitis, cavernous sinus thrombosis

### Impetigo

- **Superficial bacterial infection of skin**
- Organisms: Group A Streptococcus, Staphylococcus aureus
- Clinical: golden-yellow crusted vesicles/bullae around nostrils
- Highly contagious — common in children
- Management: Topical mupirocin; systemic antibiotics for extensive disease

## 3.6 Viral Infections

### Herpes Simplex (HSV-1)

- **Grouped vesicles on erythematous base around nasal vestibule**
- Intense burning pain preceding vesicles (prodrome)
- Recurrent episodes — reactivated by stress, fever, UV light
- Management: Topical/systemic Acyclovir

### Herpes Zoster (Ramsay Hunt Syndrome)

- **Reactivation of varicella-zoster virus in geniculate ganglion (CN VII)**
- Affects external ear + may involve nasal tip (through nasociliary branch of V1)
- Features: ear pain, vesicles on auricle/EAC, facial palsy, SNHL, vertigo
- Management: Systemic Acyclovir + prednisolone

### 3.7 Diphtheritic Lesions

- **Nasal diphtheria: *Corynebacterium diphtheriae* infection**
- Forms grayish-white pseudomembrane in nasal vestibule
- Unilateral serosanguineous discharge (pathognomonic)
- Organism: Gram-positive rod, Gram-stain + Loeffler serum medium culture
- Management: Diphtheria antitoxin + systemic penicillin

? **COMMON MCQ: Nasal diphtheria — unilateral blood-stained discharge + grayish membrane = *Corynebacterium diphtheriae***

## SECTION 4 | TRAUMA OF THE EXTERNAL NOSE

---

### 4.1 Nasal Bone Fracture

- **Most common facial bone fracture**
- Nasal bones are thin and easily fractured
- Upper 1/3 of nose: bony; Lower 2/3: cartilaginous (cartilage more flexible, less likely to fracture)
- Common mechanisms: sports injuries, assault, road traffic accidents, falls

#### Classification

By skin integrity:

- **Open fracture: overlying skin torn, bone exposed**
- Closed fracture: skin intact (more common)

By pattern:

- Lateral (sideways blow): deviation of nasal bones to one side (most common)
- Frontal impact: depressed nasal fracture — saddle deformity
- Comminuted: multiple small fragments

#### Pediatric Nasal Fracture

- **More cartilaginous skeleton — less likely bony fracture but cartilage injury common**
- Growth centers may be damaged ? long-term nasal deformity
- Trauma to nose in children can cause septal damage ? deviated nasal septum
- Treat conservatively when possible; defer definitive septorhinoplasty until after growth completion

#### Septal Cartilage Dislocation

- **Septal cartilage dislocated from maxillary crest or vomerine groove**
- Causes deviated nasal septum and nasal obstruction
- May occur with or without nasal bone fracture

#### Clinical Features of Nasal Fracture

- **Pain, tenderness, swelling over nasal bones**

- Crepitus on palpation (pathognomonic)
- Epistaxis — nasal bleeding
- External deformity — deviation, depression, broadening
- Nasal obstruction
- Periorbital edema and ecchymosis ('raccoon eyes' in frontal impact)
- CSF rhinorrhea if cribriform plate involved

## Investigations

- **X-ray nasal bones (lateral view) — useful but misses many fractures**
- CT facial skeleton — gold standard; shows all fractures, extent, intracranial involvement
- Important: clinical diagnosis is primary; X-ray has 25% false negative rate

## Management — Timing is Critical

**Acute Phase (0–3 hours): Control epistaxis, assess for other injuries**

?

**Swelling Phase (3–12 hours): Examination difficult; conservative management**

?

**Optimal Window (7–10 days): Reduction of fracture — swelling subsided, bones mobile**

?

**If missed window (>3 weeks): Formal septorhinoplasty required**

## Closed Reduction

- **Performed under local or general anaesthesia**
- Walsham's forceps: for lateral nasal bone fractures — one blade inside nose, one outside
- Asch's forceps: for bilateral fractures and septal dislocations
- Splinting with external plaster of Paris cast for 2 weeks
- Nasal packing to support internally

## Le Fort Fractures — Nasal Involvement

Le Fort Level	Fracture Line	Nasal Involvement
Le Fort I	Horizontal — above teeth	Minimal nasal involvement
Le Fort II	Pyramidal — through nasal bones	Nasal bones fractured; CSF rhinorrhea
Le Fort III	Craniofacial separation	Complete nasal skeleton disruption

? COMMON MCQ: Le Fort II fractures involve nasal bones. CSF rhinorrhea suggests cribriform plate involvement.

## 4.2 Septal Hematoma

**CRITICAL COMPLICATION:** Septal hematoma must be drained within 24–48 hours. If untreated ? septal abscess ? cartilage necrosis ? saddle nose deformity.

### Pathogenesis

Nasal trauma ? Blood accumulates between septal cartilage and perichondrium

?

Perichondrium stripped from cartilage ? cartilage loses blood supply

?

If untreated: infection ? septal abscess

?

Septal abscess ? proteolytic enzymes destroy cartilage

?

## Clinical Features

- **Bilateral nasal obstruction (hallmark — distinguishes from simple deviation)**
- Tender swelling on septum — bluish/red bulge
- Soft, fluctuant, cherry-red bilateral swelling of nasal septum
- Nasal speech, pain
- Anterior rhinoscopy: smooth symmetrical bilateral swelling of septum

## Management

- **Urgent incision and drainage under local/general anaesthesia**
- Horizontal incision at inferior border of hematoma
- Evacuation of clot
- Through-and-through sutures or quilting sutures to reappose perichondrium to cartilage
- Nasal packing after drainage
- Antibiotics to prevent infection

## 4.3 Septal Abscess

### Etiology

- **Infected septal hematoma (most common cause)**
- Direct infection through nasal trauma, septal surgery, or furuncle extension
- Organisms: Staphylococcus aureus (most common), Streptococcus, anaerobes

### Clinical Features

- **All features of septal hematoma PLUS signs of infection:**
- High fever, severe pain, constitutional symptoms
- Soft, fluctuant bilateral septal swelling
- Skin redness and edema
- Nasal tip becomes red, tender

### Management

- **Emergency incision and drainage**
- Through-and-through drainage of both sides

- Systemic IV antibiotics — Cloxacillin + Metronidazole
- Septal reconstruction if cartilage destroyed (deferred until infection resolves)
- Complications if untreated: saddle nose, intracranial spread — meningitis, brain abscess

Feature	Septal Hematoma	Septal Abscess
Etiology	Trauma — blood collection	Infected hematoma
Onset	Acute post-trauma	24–48 h after hematoma
Fever	Absent / low-grade	High-grade fever
Pain	Mild to moderate	Severe, throbbing
Swelling	Smooth, bluish-red	Red, tender, fluctuant
Urgency	Urgent drainage	Emergency drainage + IV antibiotics
Complication	Abscess if untreated	Saddle nose, meningitis, brain abscess

## 4.4 CSF Rhinorrhea

- Leak of cerebrospinal fluid through nasal cavity

Traumatic causes:

- **Anterior cranial fossa fracture — cribriform plate (most common site)**
- Le Fort II and III fractures
- Frontal sinus fracture with posterior wall involvement
- Iatrogenic — FESS, septoplasty, neurosurgical procedures

Diagnosis:

- Beta-2 transferrin test — gold standard (uniquely present in CSF)
- Halo sign: watery ring forms around bloody discharge on filter paper
- CT cisternography — identifies site of leak
- Glucose test (obsolete — not reliable)

Management:

- Head elevation, avoid nose blowing, avoid sneezing
- Lumbar drain to reduce ICP
- Prophylactic antibiotics (controversial)
- Spontaneous closure in majority within 2 weeks
- If persistent: endoscopic repair with fascial graft or free mucosal graft

? **COMMON MCQ: Beta-2 transferrin = gold standard test for CSF rhinorrhea**

## 4.5 Nasal Packing Complications

- **Hypoxia and respiratory compromise — especially in elderly, COPD**
- Toxic shock syndrome (TSS): Staphylococcal exotoxin; fever, rash, hypotension
- Otitis media — ET dysfunction from packing pressure
- Sinusitis — blocked sinus ostia
- Pressure necrosis of septum or alar cartilage
- Aspiration of pack material

? **IMPORTANT: Nasal packing should not be left >48–72 hours. BIPP packing can be left longer.**

## SECTION 5 | NASAL DEFORMITIES

---

### 5.1 Congenital Deformities

- **Cleft nose** — associated with cleft lip (unilateral or bilateral)
- Bifid nose — midline cleft; failure of fusion of nasal processes
- Proboscis lateralis — tubular appendage replacing nasal structure
- Arhinia — absent nose

### 5.2 Acquired Deformities

#### Saddle Nose Deformity

- **Depression of nasal dorsum giving saddle appearance**

Causes (must know all):

- Trauma — most common (septal hematoma ? cartilage necrosis)
- Septal abscess
- Syphilis — classic cause (luetic saddle nose)
- Wegener granulomatosis
- Leprosy
- Relapsing polychondritis
- Cocaine abuse — nasal septal perforation ? saddle nose
- Post-rhinoplasty complication

Management:

- Treat underlying cause
- Rhinoplasty — augmentation with cartilage/bone graft or alloplastic implant

? **COMMON MCQ: Saddle nose causes** — Trauma > Syphilis > Wegener > Cocaine abuse > Leprosy

#### Hump Nose (Rhinokyphosis)

- **Prominence on nasal dorsum — bony and/or cartilaginous**

- Most common congenital cause: excessive dorsal septal cartilage + nasal bones
- Also acquired: post-traumatic malunion
- Management: Rhinoplasty — hump reduction by rasping (bony) or cartilage trimming

### **Crooked / Twisted Nose**

- **Deviated nose — asymmetric nasal skeleton**
- Causes: trauma (most common), congenital, previous rhinoplasty
- Associated with deviated nasal septum (DNS) causing nasal obstruction
- Management: Septorhinoplasty

### **Boxer's Nose**

- **Broad, flattened nasal tip with thickened skin**
- Due to repeated nasal trauma (boxing, wrestling)
- Associated with septal deviation and alar cartilage disruption
- Management: Rhinoplasty + septal correction

### **Post-traumatic Deformity**

- **Result of inadequately treated nasal fractures**
- Types: deviated nose, saddle nose, hump deformity, broadened nose
- Management: Septorhinoplasty after complete healing (minimum 6 months post-injury)

# SECTION 6 | GRANULOMATOUS DISORDERS

---

## 6.1 Infective Granulomatous Diseases

### Rhinoscleroma

- **Chronic specific granulomatous infection of nose (and upper respiratory tract)**
- Organism: *Klebsiella rhinoscleromatis* (gram-negative encapsulated bacillus)
- Endemic in Eastern Europe, Africa, Central America, India

Stages (must know all 3):

- **Stage 1 — Catarrhal (Atrophic): nasal discharge, crusting, foul smell; resembles atrophic rhinitis**
- Stage 2 — Proliferative (Granulomatous): firm, rubbery, blue-pink submucosal nodules; classical stage; 'Hebra nose' (thickening of alae and upper lip)
- Stage 3 — Fibrotic (Sclerotic): dense fibrosis ? nasal stenosis, choanal stenosis, tracheal stenosis

Histopathology (very high-yield):

- **Mikulicz cells: large vacuolated histiocytes containing organisms**
- Russell bodies: eosinophilic plasma cell inclusions
- Lymphocytes, plasma cells, epithelioid cells

Diagnosis:

- Biopsy — essential (shows Mikulicz cells + Russell bodies)
- Culture on MacConkey agar
- Complement fixation test

Management:

- Prolonged antibiotics — Streptomycin + Tetracycline OR Ciprofloxacin
- Surgical: debulking of granuloma, dilatation of stenosis

**? VERY HIGH-YIELD: Mikulicz cells + Russell bodies = Rhinoscleroma. *Klebsiella rhinoscleromatis*.**

### Lupus Vulgaris (Nasal Tuberculosis)

- **Most common form of skin tuberculosis affecting the nose**
- Organism: *Mycobacterium tuberculosis*
- Usually affects anterior nasal septum and columella

Clinical Features:

- Apple-jelly nodules (pathognomonic) — red-brown soft nodules on diascopy (pressing glass)
- Ulceration with undermined edges
- Destruction of nasal cartilage — saddle nose

Histopathology:

- Tuberculous granuloma: epithelioid cells + Langerhans giant cells + central caseation

Management:

- Anti-tubercular therapy (ATT): HRZE regimen — standard 6-month course

**? IMPORTANT: Apple-jelly nodules on diascopy = Lupus vulgaris (Nasal TB)**

## Tuberculosis of Nose

- **Primary nasal TB: rare, ulcerated mass with regional lymphadenopathy**
- Secondary nasal TB: extension from pulmonary disease
- Affects mainly the anterior nasal septum
- Diagnosis: Biopsy (granuloma + AFB), Mantoux test, culture
- Management: Anti-TB therapy

## Leprosy (Nasal Involvement)

- ***Mycobacterium leprae* — bacillus with predilection for cooler tissues**
- Nose is earliest site of leprosy infection in many patients

Types and nasal involvement:

- **Lepromatous leprosy: extensive — nodules, papules on alae nasi, nasal mucosa; saddle nose from cartilage destruction**
- Tuberculoid leprosy: minimal nasal involvement

Features:

- Nasal stuffiness ? bloody discharge ? crusting
- Leonine facies in advanced disease
- Loss of lateral incisor teeth, perforation and collapse of nasal septum

- Saddle nose deformity

Histopathology: Foamy Virchow cells (macrophages loaded with lepra bacilli)

Diagnosis: Slit-skin smear, nasal smear, skin biopsy; Lepromin test

Management: Multi-drug therapy (MDT) — Dapsone + Rifampicin + Clofazimine

## Syphilitic Deformity

- **Congenital syphilis: saddle nose + bulldog jaw + Hutchinson teeth (classic triad)**
- Tertiary syphilis: gumma formation in nose ? necrosis ? septal perforation ? saddle nose
- Classic saddle nose with painless destruction
- Diagnosis: VDRL, TPHA, FTA-ABS
- Management: Penicillin; rhinoplasty for deformity correction after treatment

## 6.2 Noninfective Granulomatous Diseases

### Wegener Granulomatosis (Granulomatosis with Polyangiitis — GPA)

- **Systemic necrotizing granulomatous vasculitis**
- Classic triad: Upper respiratory tract + Lungs + Kidneys

Nasal Features:

- **Persistent nasal crusting, foul-smelling bloody discharge**
- Saddle nose deformity (due to septal destruction)
- Nasal obstruction, epistaxis

Systemic Features:

- Pulmonary: haemoptysis, nodules on CXR
- Renal: glomerulonephritis, hematuria, renal failure
- Joints, skin, eyes (scleritis)

Investigations:

- **c-ANCA (anti-PR3) — highly specific; positive in >90% active generalized disease**
- p-ANCA (anti-MPO) — may be positive
- CXR: bilateral nodular infiltrates with cavitation
- Biopsy: necrotizing granuloma + vasculitis + tissue necrosis
- Renal biopsy: focal segmental glomerulonephritis

Management:

- Induction: Cyclophosphamide + Prednisolone
- Maintenance: Azathioprine / Methotrexate + low-dose steroids
- Rituximab: alternative to cyclophosphamide
- Nasal irrigation with saline, topical mupirocin for crusting

? **VERY HIGH-YIELD: Wegener = c-ANCA positive + saddle nose + pulmonary + renal involvement**

## Sarcoidosis

- **Systemic non-caseating granulomatous disease of unknown etiology**
- Affects nose in 20% of cases

Nasal Features:

- Nasal polyps, nasal obstruction
- Lupus pernio: violaceous skin lesions on alae nasi (pathognomonic)
- Yellow sub-mucosal nodules in nasal cavity
- Crusting and epistaxis

Systemic Features:

- Bilateral hilar lymphadenopathy (BHL) on CXR — classic finding
- Erythema nodosum, uveitis, parotitis, hepatosplenomegaly

Investigations:

- Serum ACE (angiotensin-converting enzyme) — elevated
- Serum calcium — elevated (hypercalcemia)
- 24-hr urine calcium — elevated
- CXR: bilateral hilar lymphadenopathy
- Biopsy: non-caseating epithelioid granulomas (no central necrosis)
- Kveim test (now rarely used)

Management:

- Systemic corticosteroids — first-line
- Methotrexate, Hydroxychloroquine for chronic disease

? **COMMON MCQ: Sarcoidosis — non-caseating granuloma + elevated ACE + bilateral hilar lymphadenopathy**

## Midline Lethal Granuloma / NK/T-Cell Lymphoma

- **Aggressive midline destructive process of nasal cavity and face**
- Now understood to be: Extranodal NK/T-cell lymphoma (nasal type) — EBV-related
- Old terminology: midline lethal granuloma, Stewart granuloma, Wegener (limited)

Clinical Features:

- Progressive destruction of midline facial structures: nose, palate, orbit
- Foul-smelling bloody discharge
- Facial ulceration and tissue necrosis
- No systemic organ involvement (unlike Wegener)

Investigations:

- Biopsy: NK/T-cell lymphoma on immunohistochemistry — CD56+ cells, EBV positive
- c-ANCA negative (distinguishes from Wegener)
- CT/MRI: bone destruction

Management:

- Radiotherapy — primary treatment for localized disease
- Chemotherapy: L-asparaginase based regimens

**? VERY HIGH-YIELD: Midline destructive lesion — NK/T-cell lymphoma. CD56+, EBV+, c-ANCA negative. Radiotherapy primary treatment.**

Feature	Rhinoscleroma	Lupus Vulgaris	Wegener GPA
Organism / Etiology	Klebsiella rhinoscleromatis	Mycobacterium tuberculosis	Unknown — A
Key Lesion	Blue-pink nodules (Hebra nose)	Apple-jelly nodules	Necrotizing ulc
Histology	Mikulicz cells, Russell bodies	Caseating granuloma, Langerhans cells	Necrotizing gra

Specific Test	Culture on MacConkey agar	Mantoux, AFB stain	c-ANCA
Saddle nose	Late (fibrotic stage)	Yes (cartilage destruction)	Common
Treatment	Streptomycin + Tetracycline	ATT (6 months)	Cyclophosphamide

## SECTION 7 | BENIGN LESIONS OF EXTERNAL NOSE

### 7.1 Rhinophyma

- **Hypertrophic nodular enlargement of nose due to sebaceous gland hyperplasia and fibrosis**
- Stage IV rosacea — end-stage of acne rosacea
- Predominantly affects men >50 years
- Classic appearance: bulbous, lobulated, reddish-purple enlarged nasal tip with dilated pores

Rosacea — Stages:

- Stage 1: Flushing and persistent erythema
- Stage 2: Papules and pustules (acne rosacea)
- Stage 3: Phymatous changes — rhinophyma
- Stage 4: Ocular involvement (not linear — any stage)

Histopathology:

- Sebaceous gland hyperplasia
- Perifollicular fibrosis
- Lymphoplasmacytic infiltrate
- Demodex mites in follicles

Management:

- Medical: Isotretinoin (Vitamin A analog) — for early rosacea
- Surgical shaving / dermabrasion / CO2 laser ablation — first-line for rhinophyma
- Electrocautery, tangential excision

? **COMMON MCQ: Rhinophyma = Stage IV rosacea. CO2 laser / surgical shaving = treatment.**

### 7.2 Sebaceous Cyst

- **Retention cyst of sebaceous gland (epidermoid cyst)**
- Smooth, round, non-tender swelling adherent to overlying skin
- Cheesy material (keratin) inside

- Central punctum characteristic
- Management: Complete surgical excision with cyst wall intact

### 7.3 Squamous Papilloma

- **Most common benign tumor of external nose**
- HPV types 6 and 11 (low-risk HPV)
- Warty, pedunculated, skin-colored lesion
- Management: Excision; CO2 laser; Podophyllin (chemical ablation)

### 7.4 Hemangioma

- **Benign vascular tumor — capillary or cavernous type**
- Involutates spontaneously in majority of childhood hemangiomas by age 7
- Management: Propranolol (first-line for large/problematic hemangiomas); surgical excision; Nd:YAG laser

### 7.5 Keratoacanthoma

- **Rapidly growing squamous lesion that mimics squamous cell carcinoma**
- Appears suddenly, grows rapidly over weeks (alarming) then self-involutes
- Characteristic: crateriform nodule with central keratin plug
- Histologically benign but excision recommended to exclude SCC

**? IMPORTANT: Keratoacanthoma — rapid growth then involution; central keratin plug; hard to distinguish from SCC clinically — always excise**

## SECTION 8 | PREMALIGNANT & MALIGNANT LESIONS

---

### 8.1 Basal Cell Carcinoma (BCC)

- **Most common malignancy of external nose (and skin in general)**
- Arises from basal cells of epidermis — does NOT arise from squamous cells
- Locally invasive, RARELY metastasizes (< 0.1%)
- Risk factors: UV radiation, fair skin, Gorlin syndrome, previous radiation

Types:

- **Nodular BCC (most common): pearly, translucent nodule with telangiectasia and rolled edges**
- Morpheaform (sclerosing) BCC: flat, indurated, poorly defined margins — most aggressive locally
- Superficial BCC: flat, scaly plaque
- Pigmented BCC: brown-black, may mimic melanoma

Histopathology:

- Palisading of basal cells at periphery of tumor islands
- No intercellular bridges
- Stromal retraction artifact

Specific to Nose:

- Nasal tip and alar region most commonly involved
- Rodent ulcer: ulcerated BCC with rolled edges — classic appearance

Management:

- Mohs micrographic surgery — gold standard for nasal BCC (best margin control)
- Surgical excision with 3–5 mm margins
- Radiotherapy for elderly/inoperable
- Vismodegib (hedgehog pathway inhibitor) for advanced/unresectable BCC

**? COMMON MCQ: BCC — most common skin malignancy. Rodent ulcer. Palisading. Mohs surgery.**

## 8.2 Squamous Cell Carcinoma (SCC)

- **Second most common skin malignancy of external nose**
- Arises from squamous epithelium; metastasizes to regional lymph nodes in 5–10%
- Risk factors: UV radiation, chronic inflammation, Bowen's disease, HPV (16, 18)

Clinical Features:

- Indurated ulcer with everted/raised edges and hard base
- Surrounding erythema
- Regional lymph node metastasis

Histopathology:

- Intercellular bridges (desmosomes)
- Keratin pearls (squamous eddies)
- Individual cell keratinization

Management:

- Surgical excision with wider margins (1 cm)
- Mohs surgery for nasal tip/alar SCC
- Neck dissection for nodal metastasis
- Radiotherapy: adjuvant or primary

## 8.3 Melanoma

- **Malignant tumor of melanocytes — highly aggressive**
- Can arise from pre-existing naevus (mole) or de novo
- ABCDE rule: Asymmetry, Border irregular, Color varied, Diameter >6mm, Evolution

Types:

- Superficial spreading melanoma (most common)
- Lentigo maligna melanoma
- Nodular melanoma (worst prognosis)
- Amelanotic melanoma (no pigment — difficult to diagnose)

Management:

- Wide local excision — margins based on Breslow thickness

- Sentinel lymph node biopsy
- Immunotherapy: Nivolumab, Pembrolizumab (PD-1 inhibitors)
- BRAF inhibitors: Vemurafenib (if BRAF V600E mutation positive)

**? IMPORTANT: Breslow thickness determines margins. BRAF status determines targeted therapy.**

Feature	BCC	SCC
Origin	Basal cells of epidermis	Squamous cells
Metastasis	Extremely rare (< 0.1%)	5–10% regional nodes
Appearance	Pearly nodule, rolled edges, telangiectasia	Indurated ulcer, everted edges
Classic name	Rodent ulcer	None specific
Histology	Palisading basal cells, no bridges	Keratin pearls, intercellular bridges
Most aggressive type	Morpheaform BCC	Poorly differentiated SCC
Surgery	Mohs (gold standard)	Wide excision + Mohs option
Prognosis	Excellent	Good if localized

## SECTION 9 | COSMETIC & IATROGENIC CONDITIONS

---

### 9.1 Rhinoplasty Complications

- **Rhinoplasty: surgical reshaping of the nose — cosmetic and/or functional**

Early complications:

- **Epistaxis — intraoperative or post-operative**
- Infection — cellulitis, abscess
- Hematoma/bruising
- Septal hematoma
- Unfavorable scarring

Late complications:

- Overcorrection or undercorrection
- Saddle nose deformity — over-resection of septal cartilage
- Pinched tip — excessive tip suturing
- Inverted-V deformity — loss of upper lateral cartilage support
- Skin necrosis
- Asymmetry, contour irregularities
- Nasal obstruction — internal valve collapse, alar collapse

### 9.2 Septorhinoplasty Complications

- **Same as rhinoplasty PLUS:**
- Septal perforation — over-aggressive septal resection
- DNS recurrence
- Decreased nasal tip support

### 9.3 Nasal Piercing Complications

- **Infection — Staphylococcus, Pseudomonas, Candida**
- Perichondritis — cartilaginous piercing infection
- Contact dermatitis — nickel allergy
- Keloid formation
- Granuloma formation
- Embedding of jewelry

### 9.4 Silicone Granuloma

- **Foreign body granuloma following silicone injection or implant**
- Injection rhinoplasty (banned in most countries)
- Features: chronic swelling, redness, skin induration, nodules — may present years later
- Histology: lipogranuloma — vacuoles of silicone surrounded by foreign body giant cells
- Management: surgical excision (difficult — silicone diffuses widely)

### 9.5 Cocaine Nose Deformity

- **Chronic intranasal cocaine use causes ischemic necrosis of septal mucosa**
- Vasoconstriction ? ischemia ? cartilage necrosis ? septal perforation ? saddle nose
- Features: nasal septal perforation, epistaxis, nasal obstruction, saddle nose
- Workup: ANCA negative; must exclude Wegener, syphilis, TB
- Management: cessation of cocaine; septal button prosthesis; rhinoplasty for deformity

? **COMMON MCQ: Cocaine ? septal perforation + saddle nose. ANCA negative (unlike Wegener).**

## SECTION 10 | CLINICAL EXAMINATION

---

### 10.1 Inspection

- **External appearance of nose — symmetry, deformity, skin changes**
- Nasal tip: position, rotation, projection, alar symmetry
- Dorsum: hump, saddle, broadening, deviation
- Columella: position, length
- Skin: erythema, nodules, ulcers, scars, pigmentation
- Nasal base view: alar symmetry, vestibule opening

### 10.2 Palpation

- **Nasal bones: tenderness, crepitus (fracture), mobility**
- Nasal tip: firm vs soft, supratip depression or fullness
- Swellings: consistency, fluctuation, transillumination, compressibility, pulsatility
- Regional lymph nodes: submandibular, parotid, cervical

### 10.3 Anterior Rhinoscopy

- **Nasal speculum + head light**
- Examine: vestibular skin, nasal hairs, inferior turbinate, septal mucosa, mucopus
- Look for: vestibulitis, furunculosis, polyps, foreign body, crusting, perforations
- First position: head vertical — inferior turbinate and floor of nose
- Second position: head tilted back — middle turbinate and middle meatus

### 10.4 Nasal Endoscopy

- **0° and 30° rigid nasal endoscope**
- Systematic examination: floor ? inferior turbinate ? septum ? middle meatus ? olfactory cleft

- Allows direct visualization of: nasal polyps, tumors, CSF leak, choanal atresia
- Biopsy can be taken under endoscopic guidance

## 10.5 Examination of Vestibule

- **Palpate: tenderness (furunculosis), induration**
- Visualize: hair follicles, pustules, crusting, fissuring, vesicles
- Tip of nose: gentle palpation for fluctuation (abscess)

# SECTION 11 | INVESTIGATIONS

## 11.1 Imaging

### X-ray Nasal Bone (Lateral View)

- **Shows: nasal bone fractures, soft tissue swelling**
- Limitations: 25% false negative; cannot show intracranial involvement
- Supplemented/replaced by CT in significant trauma

### CT Facial Skeleton

- **Gold standard for nasal fractures and facial injuries**
- Shows: extent of fracture, septal deviation, intracranial involvement
- Coronal and axial cuts essential
- CT without contrast sufficient for trauma; with contrast for vascular lesions

### MRI

- **Best for: congenital midline nasal lesions (dermoid, encephalocele) — defines intracranial extension**
- Best for soft tissue characterization of tumors
- CSF cisternography for CSF rhinorrhea localization

## 11.2 Endoscopy

- **Diagnostic nasal endoscopy: required for all nasal masses, polyps, CSF leaks**

- Combined with biopsy for histopathological diagnosis

## 11.3 Laboratory Investigations

- **Nasal swab — culture and sensitivity for infective conditions**
- ANCA (c-ANCA and p-ANCA) — for Wegener granulomatosis
- Serum ACE — for sarcoidosis
- VDRL/TPHA — for syphilis
- Mantoux test, AFB smear, culture — for tuberculosis
- Beta-2 transferrin — for CSF rhinorrhea
- Biopsy — mandatory for all granulomatous and malignant lesions
- FNAC — for lymph node assessment in malignancies

## SECTION 12 | MANAGEMENT

### 12.1 Medical Management

#### Antibiotics

Condition	Drug of Choice
Vestibulitis / Vestibular eczema (secondary infection)	Topical mupirocin (Bactroban)
Furunculosis	Cloxacillin / Flucloxacillin (anti-staphylococcal)
Cavernous sinus thrombosis	IV Cloxacillin + Metronidazole; anticoagulants
Rhinoscleroma	Streptomycin + Tetracycline / Ciprofloxacin
Nasal TB (lupus vulgaris)	HRZE regimen — 6 months ATT
Leprosy	Dapsone + Rifampicin + Clofazimine (MDT)
Nasal diphtheria	Diphtheria antitoxin + Penicillin
Nasal sycosis	Prolonged mupirocin + systemic anti-staphylococcal

## Anti-inflammatory Treatment

- **Topical corticosteroids: vestibular eczema, rosacea**
- Systemic corticosteroids: Wegener (with cyclophosphamide), sarcoidosis
- Isotretinoin: early rosacea

## 12.2 Surgical Management

### Incision and Drainage

- **Furunculosis: only when pointing (frank abscess with fluctuation)**
- Septal hematoma: urgent I&D with quilting sutures
- Septal abscess: emergency bilateral drainage + IV antibiotics

### Closed Reduction of Nasal Fracture

- **Optimal window: 7–10 days post-injury (swelling subsided, bones still mobile)**
- Instruments: Walsham's forceps (lateral fractures), Asch's forceps (bilateral/septal)
- Followed by external splint for 2 weeks
- If delayed >3 weeks: formal septorhinoplasty required

### Septorhinoplasty

- **Combined septal correction + external nasal reshaping**
- Indications: DNS with external deformity, post-traumatic deformity, cosmetic correction
- Approaches: closed (endonasal) or open (external — columellar incision)
- Minimum age: 17–18 years (after nasal skeleton matures)

### Rhinoplasty Indications

- **Cosmetic: hump nose, broad nose, bulbous tip, saddle nose, crooked nose**
- Functional: nasal obstruction due to alar collapse, internal valve collapse
- Post-traumatic deformity
- Post-oncological reconstruction

## 12.3 Reconstruction Procedures

### Local Flaps

- **Bilobed flap** — for small alar or tip defects
- Rhomboid flap — for lateral nasal wall defects
- Advancement flap — linear defects

### Forehead Flap

- **Pedicled flap based on supratrochlear artery**
- Gold standard for large nasal reconstruction (>1.5 cm defects)
- Two-stage procedure: pedicle division at 3–4 weeks
- Provides excellent skin match — forehead skin similar to nasal skin

### Nasolabial Flap

- **Pedicled flap from nasolabial fold**
- Used for: alar reconstruction, columellar reconstruction
- Superiorly or inferiorly based depending on use
- Disadvantage: trapdoor deformity

## SECTION 13 | COMPLICATIONS

---

### 13.1 Infective Complications

#### Cavernous Sinus Thrombosis

- **Complication of: furunculosis, cellulitis, septal abscess**
- Features: high fever, proptosis, chemosis, ophthalmoplegia, papilledema
- Management: IV antibiotics, anticoagulants (heparin), ophthalmology review
- Mortality: significant even with treatment

#### Intracranial Spread

- **Meningitis, epidural abscess, subdural empyema, brain abscess**
- Routes: hematogenous via cavernous sinus, direct through skull base, via cribriform plate
- CSF rhinorrhea risk: meningitis through retrograde CSF contamination

#### Osteomyelitis

- **Nasal bone osteomyelitis: extension from furuncle, cellulitis, or malignant OE**
- Frontal osteomyelitis: Pott's puffy tumor from frontal sinus disease

## 13.2 Structural Complications

### Septal Perforation

- **Causes:** septal hematoma/abscess, cocaine abuse, Wegener, TB, syphilis, trauma, post-surgery
- Symptoms: whistling noise on inspiration, epistaxis, crusting, nasal obstruction
- Management: septal button prosthesis (conservative); surgical repair using mucosal flaps

### Saddle Nose Deformity

- **Causes:** untreated septal hematoma/abscess, Wegener, syphilis, leprosy, cocaine, over-resection
- Management: rhinoplasty with dorsal augmentation using cartilage/rib graft or alloplastic implant

### Cosmetic Deformity

- **Post-traumatic deformity** — malunited fractures
- Post-rhinoplasty complications — over/under-correction
- Scarring — keloid, hypertrophic scar

## SECTION 14 | HIGH-YIELD EXAM PEARLS

### 14.1 Anatomy Must-Know Facts

The nasal vestibule is lined by SKIN (not mucosa) and contains hair follicles (vibrissae) and sebaceous glands.

- **Danger triangle of face = nose to corners of mouth — infections here risk cavernous sinus thrombosis**
- Nasal skeleton: upper 1/3 = bone; lower 2/3 = cartilage
- Nasal blood supply: Kiesselbach plexus on anteroinferior septum = Little's area (most common site of epistaxis)
- Nasal tip support: alar cartilages (lower lateral cartilages)
- NEVER biopsy a pulsatile midline nasal mass without prior MRI

### 14.2 Disease One-Liners (Common MCQs)

One-liner Clue	Diagnosis
Hair protruding from nasal pit + midline nasal swelling	Nasal dermoid cyst/sinus
Pulsatile, compressible, Furstenberg test positive	Encephalocele
Non-pulsatile, non-compressible, Furstenberg test negative	Nasal glioma

Cyclic cyanosis in neonate, relieved by crying	Bilateral choanal atresia
Bilateral nasal obstruction after nasal trauma	Septal hematoma
Mikulicz cells + Russell bodies on biopsy	Rhinoscleroma ( <i>Klebsiella rhinoscleromatis</i> )
Apple-jelly nodules on diascopy	Lupus vulgaris (nasal TB)
c-ANCA positive + saddle nose + renal involvement	Wegener granulomatosis (GPA)
Elevated ACE + bilateral hilar lymphadenopathy + non-caseating granuloma	Sarcoidosis
CD56+ EBV+ cells, c-ANCA negative, midline destruction	NK/T-cell lymphoma (nasal)
Bulbous lobulated reddish nasal tip in elderly male	Rhinophyma (rosacea stage IV)
Rodent ulcer with rolled edges, palisading cells, RARELY metastasizes	Basal cell carcinoma
Indurated ulcer with everted edges, keratin pearls, can metastasize	Squamous cell carcinoma
Rapidly growing crater with central keratin plug, then involutes	Keratoacanthoma
Septal perforation + saddle nose + ANCA negative + cocaine use	Cocaine nose
Saddle nose + Hutchinson teeth + bulldog jaw	Congenital syphilis

### 14.3 Must-Know Management Points

- **Furunculosis: NEVER squeeze — systemic antibiotics (Cloxacillin)**
- Septal hematoma: urgent I&D + quilting sutures within 24–48 h
- Nasal fracture optimal timing for reduction: 7–10 days post-injury
- CSF rhinorrhea test: Beta-2 transferrin (gold standard)
- Nasal dermoid: MRI first, then excision (intracranial extension in 15–45%)
- Rhinoscleroma: Streptomycin + Tetracycline / Ciprofloxacin (prolonged)
- Wegener: Cyclophosphamide + Prednisolone; c-ANCA monitors disease activity
- BCC: Mohs micrographic surgery (gold standard for nose)
- Rhinophyma: CO2 laser / surgical shaving
- Forehead flap: gold standard for large nasal reconstruction
- Choanal atresia: bilateral = neonatal emergency; surgery via transnasal endoscopic approach

### 14.4 Histopathology High-Yield

Condition	Key Histology Finding
Rhinoscleroma	Mikulicz cells (vacuolated histiocytes) + Russell bodies
Lupus vulgaris (nasal TB)	Caseating granuloma + Langerhans giant cells
Wegener GPA	Necrotizing granuloma + vasculitis
Sarcoidosis	Non-caseating granuloma (no necrosis) + Schaumann bodies

Leprosy (lepromatous)	Foamy Virchow cells — macrophages with bacilli
BCC	Palisading basal cells, no intercellular bridges, stromal retraction
SCC	Keratin pearls + intercellular bridges
Rhinophyma	Sebaceous gland hyperplasia + perifollicular fibrosis
NK/T-cell lymphoma	CD56+ EBV+ cells, angiocentric infiltrate
Silicone granuloma	Lipogranuloma — vacuoles with foreign body giant cells

## 14.5 Viva Questions

1. What is the danger triangle of face? Why is furunculosis here dangerous?
2. Differentiate nasal glioma from encephalocele.
3. What is the Furstenberg test?
4. What is the optimal timing for reduction of nasal fracture?
5. What happens if a septal hematoma is not treated?
6. Name the histological features of rhinoscleroma.
7. How do you differentiate Wegener granulomatosis from NK/T-cell lymphoma?
8. What are the causes of saddle nose deformity?
9. What is the gold standard investigation for CSF rhinorrhea?
10. What are the components of CHARGE syndrome?
11. Describe Mohs micrographic surgery — when is it used in ENT?
12. What are the complications of untreated septal hematoma?

## SECTION 15 | IMPORTANT TABLES — INDEX

### Disease Comparison Tables (within chapter):

- Table 1: Nasal Glioma vs Encephalocele — Section 2.2
- Table 2: Rhinoscleroma vs Lupus Vulgaris vs Wegener GPA — Section 6
- Table 3: Septal Hematoma vs Septal Abscess — Section 4.3
- Table 4: BCC vs SCC of nose — Section 8
- Table 5: One-liner MCQ table — Section 14.2
- Table 6: Histopathology high-yield — Section 14.4

### Additional Tables Required:

#### Open vs Closed Nasal Fracture

Feature	Open Fracture	Closed Fracture
Skin integrity	Skin torn, bone exposed	Skin intact
Infection risk	High	Low
Management	Debridement + antibiotics + reduction	Closed reduction
Frequency	Less common	More common

## Granulomatous Disease Comparison

Feature	Wegener GPA	Sarcoidosis	NK/T-Cell L
ANCA	c-ANCA positive	Negative	Negative
Histology	Necrotizing granuloma + vasculitis	Non-caseating granuloma	CD56+ EBV+
Systemic	Lungs + Kidneys	BHL, skin, eyes, liver	Local midline
Marker	c-ANCA / PR3	ACE + calcium	EBV, CD56
Treatment	Cyclophos + steroids	Corticosteroids	Radiotherapy

## SECTION 16 | IMPORTANT DIAGRAMS & FIGURES

---

### 16.1 Congenital Lesion Figures

#### Image Set 1

- **Proboscis lateralis** — tubular appendage at medial canthus
- Bifid nose — midline cleft with two separate nasal tips
- Nasal dermoid sinus — pit on nasal dorsum with protruding hair

#### Image Set 2

- Nasal glioma — firm bluish non-pulsatile swelling at nasal root
- Encephalocele — pulsatile soft swelling expanding on Valsalva
- Choanal atresia — CT coronal view showing bony atresia plate

### 16.2 Infection / Spread Figures

#### Image Set 3

- Furunculosis of nasal vestibule — indurated tender pustule
- Danger triangle of face — schematic showing facial venous anatomy
- Cavernous sinus thrombosis pathway — flowchart diagram

#### Image Set 4

- Septic thrombophlebitis spread — facial vein to ophthalmic vein to cavernous sinus
- Vestibulitis — erythema and crusting of vestibule
- Nasal sycosis — multiple pustules around nasal hairs

### 16.3 Trauma Figures

#### Image Set 5

- Nasal bone fracture — lateral X-ray and CT comparison
- Septal hematoma — anterior rhinoscopy view showing bilateral bulge
- Septal abscess — red fluctuant bilateral bulge with systemic signs

### Image Set 6

- Le Fort I, II, III fractures — schematic with nasal involvement highlighted
- Septal cartilage dislocation from maxillary crest
- Closed reduction steps — Walsham's and Asch's forceps technique

## 16.4 Deformity Figures

### Image Set 7

- Saddle nose deformity — lateral profile with dorsal depression
- Crooked/twisted nose — frontal view deviation
- Boxer's nose — broad, flat tip with thickened skin

### Image Set 8

- Rhinophyma — lobulated reddish enlargement of nasal tip (stages I–IV)
- Rosacea progression — flushing ? papules ? rhinophyma
- Septal perforation — endoscopic view through perforation

## 16.5 Granulomatous Disease Figures

### Image Set 9

- Rhinoscleroma — Hebra nose; blue-pink nodular thickening
- Lupus vulgaris — apple-jelly nodules on nasal ala
- Leprosy nasal deformity — leonine facies, collapsed nasal bridge

### Image Set 10

- Wegener granulomatosis — crusting and septal destruction
- Sarcoidosis lupus pernio — violaceous indurated plaques on alae
- Midline destructive lesion — progressive nasal/palatal destruction

## 16.6 Tumour Figures

### Image Set 11

- Basal cell carcinoma — pearly nodule, telangiectasia, rodent ulcer
- Squamous cell carcinoma — indurated ulcer with everted edges
- Melanoma of nose — pigmented irregular lesion (ABCDE features)

## 16.7 Surgical / Reconstruction Figures

### Image Set 12

- Rhinoplasty approaches — open (columellar incision) vs closed
- Forehead flap — pedicle based on supratrochlear artery; two stages
- Nasolabial flap — superiorly based for alar reconstruction

### Image Set 13

- Septal abscess drainage — bilateral I&D with quilting sutures
- Local flap reconstruction — bilobed flap for alar defect
- Septorhinoplasty approaches — open approach with columellar scar

# SECTION 17 | IMPORTANT MICROBIOLOGY & HISTOPATHOLOGY SLIDES

---

## 17.1 Infective Conditions

### Image Set 14

- Staphylococcus aureus — Gram stain: grape-like clusters of Gram-positive cocci (furunculosis)
- Rhinoscleroma — H&E: Mikulicz cells (large vacuolated macrophages with organisms) + Russell bodies (plasma cell inclusions)
- Tuberculous granuloma — H&E: central caseation + Langerhans giant cells + epithelioid cells

### Image Set 15

- Wegener necrotizing granuloma — H&E: geographic necrosis + palisading histiocytes + vasculitis
- Sarcoid granuloma — H&E: non-caseating epithelioid granuloma + Schaumann bodies + asteroid bodies
- Leprosy histology — Lepromatous: Foamy Virchow cells with Fite stain showing AFB (lepra bacilli)

## 17.2 Tumours

### Image Set 16

- BCC histology — H&E: islands of basaloid cells with peripheral palisading + stromal retraction artifact
- SCC histology — H&E: keratin pearls (squamous eddies) + intercellular bridges + individual cell keratinization
- Rhinophyma histopathology — H&E: sebaceous gland hyperplasia + perifollicular fibrosis + lymphoplasmacytic infiltrate + Demodex mites

### Image Set 17

- NK/T-cell lymphoma — immunohistochemistry: CD56+ (NK marker), CD3+ (T-cell marker), EBV EBER positive, angiocentric infiltrate
- Syphilitic granuloma — H&E: plasma cell-rich infiltrate + obliterative endarteritis + spirochetes on Warthin-Starry stain

- Rosacea histology — H&E: perivascular lymphocytic infiltrate + Demodex mites + sebaceous hyperplasia in rhinophyma

## SECTION 18 | IMPORTANT CLINICAL PHOTOGRAPHS

---

### 18.1 Infective Conditions

#### Image Set 18

- Furunculosis of vestibule — pointing pustule on indurated nasal tip
- Nasal sycosis — follicular pustules around nasal vibrissae
- Vestibular eczema — fissuring, scaling, erythema of vestibular skin

### 18.2 Trauma

#### Image Set 19

- Septal hematoma — anterior rhinoscopy: smooth bilateral bulge, cherry-red
- Saddle nose deformity — lateral profile: concave nasal dorsum
- Open nasal fracture — exposed nasal bone with overlying skin laceration

### 18.3 Tumours and Deformities

#### Image Set 20

- Rhinophyma stages — progression from early rosacea to bulbous rhinophyma
- Basal cell carcinoma — classic rodent ulcer: pearly, rolled edge, central depression
- Nasal fracture deformity — deviated nose post-trauma

#### Image Set 21

- Forehead flap reconstruction — pre-op defect, flap raised, final result
- Septal perforation — diagnostic nasal endoscopy showing perforation
- Diagnostic nasal endoscopy — systematic view: inferior turbinate, middle meatus, olfactory cleft

*MedMentor EDU | Best of luck in your exams!*