

Rhinitis

Prof. Dr. Samy Elwany

Rhinitis

- **Definition**

- Inflammation of the nasal mucosa.

- **Classification**

- A. Acute rhinitis**

- a. Non-allergic:**

- 1. Infective:**

- Viral: Common cold (coryza or flu), rhinitis associated with influenza or other viral infections.
 - Bacterial: Usually occurs as a secondary infection following unresolved viral rhinitis.

- 2. Non-infective:**

- Vasomotor rhinitis.
 - Rhinitis due to chemical irritation.

- b. Allergic** e.g. Hay fever.

B. Chronic rhinitis:

a. Non-allergic:

1. Non-specific:

- Chronic catarrhal rhinitis.
- Chronic hypertrophic rhinitis.
- Chronic atrophic rhinitis.
- Rhinitis medicamentosa (drug-induced rhinitis).

2. Specific:

- Scleroma.
- Rare types: Syphilis, tuberculosis, lupus and, leprosy.

b. Allergic: Perennial allergic rhinitis.

Common Cold (Coryza)

- Common cold is **acute viral rhinosinusitis** and is currently the commonest cause of nasal obstruction.
- **Pathology:**
 - **Rhinovirus**.
 - Droplet infection.
 - The disease **is self-limiting** and spontaneous resolution usually takes place within 7-10 days unless secondary bacterial infection occurs.

- **Clinical picture**

1. **Stage of invasion** (few hours):
Sneezing, burning sensation in the nasopharynx, nasal obstruction, and headache.
2. **Stage of secretion** (few days):
Low grade fever, malaise, arthralgia, nasal obstruction, and profuse watery rhinorrhea.
3. **Stage of resolution:** Resolution within 5-7 days is the natural course of an uncomplicated disease.

Symptoms lasting beyond 7 days, or worsening instead of improving suggest that **secondary bacterial infection** is being established.

Common Cold (Flu)



Common Cold (Coryza)

- **Complications**
 1. Acute sinusitis.
 2. Acute otitis media.
 3. Chest infection.
- **Treatment**
 1. **Supportive treatment**: bed rest, analgesics, nasal decongestants (local i.e. drops and systemic), and occasionally steam inhalations.
 2. **Antibiotics** should be reserved for treatment of secondary bacterial infections.

Chronic Catarrhal and Hypertrophic Rhinitis

- **Definition**

- Chronic catarrhal or hypertrophic rhinitis is a chronic nonspecific inflammation of the nasal mucosa characterized by mucosal congestion and edema and swelling or hypertrophy of the inferior turbinates.
- It may be caused by **many etiologic factors**.
- It is an important cause of chronic nasal obstruction.

- In the **early stage** the pathological changes are reversible (*chronic catarrhal rhinitis* or *simple chronic rhinitis*).
- **Later on** fibrosis starts in the submucosa and the pathological changes are no longer reversible (*chronic hypertrophic rhinitis*).

- **Clinical picture**

- A. **Symptoms:**

1. **Nasal obstruction:** This is the predominant symptom. It is usually bilateral or alternating between the two sides.
2. **Mucoid nasal and post nasal discharge.**
3. **Hyposmia** (may be – proportionate to nasal obstruction).

Chronic Hypertrophic Rhinitis



B. Signs:

1. In the early stages the inferior turbinates are swollen and the mucosa appears smooth and slightly congested.
2. Later on the inferior turbinates become hypertrophied and the mucosa appears irregular (velvet appearance) and slight congested due to the underlying fibrosis. In longstanding cases the posterior ends of the inferior turbinates may have a mulberry appearance.

Chronic Hypertrophic Rhinitis

- **Treatment:**

- A. Conservative treatment:**

1. Avoidance of a possible precipitating factor e.g. smoke and dust.
2. Saline nasal douches.
3. Topical steroid inhalations.
4. **Vasoconstrictor nasal drops** should NOT be routinely used as they may aggravate the condition on the long run.

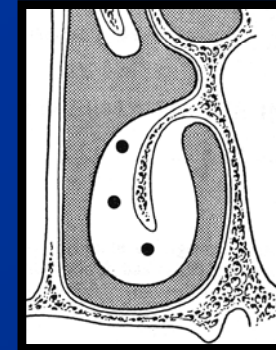


B. Surgical treatment:

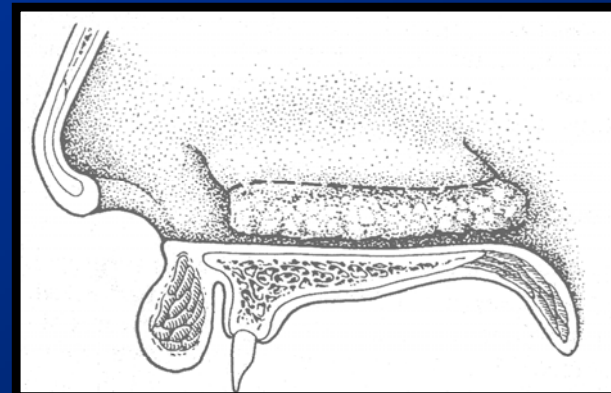
- Surgical reduction of the size of the inferior turbinate may be indicated to relieve annoying nasal obstruction NOT relieved by prolonged medical treatment.

Chronic Hypertrophic Rhinitis

Submucosal diathermy

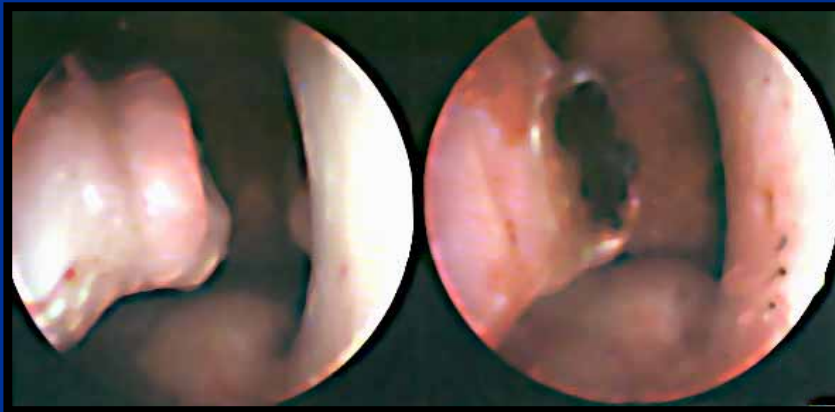


Partial Turbinectomy



Chronic Hypertrophic Rhinitis

Laser Turbinotomy



Primary Atrophic Rhinitis (Ozaena)

- **Definition**

- Primary atrophic rhinitis is a clinical condition characterized by atrophy of the nasal mucosa, offensive odor, roomy nasal cavities , crust formation, and anosmia.

- **Incidence**

- The disease is more common in females around the age of puberty.

- **Etiology**

- The etiology of the disease is still unknown and various theories (hormonal, infective...etc) have been proposed.
- Bacteriologic cultures from the nasal cavity frequently reveal *bacillus foetidis ozaenae* which is thought to be responsible for the offensive odor which is not perceived by the patient due to atrophy of the olfactory nerve fibers.

Primary Atrophic Rhinitis (Ozaena)

- **Clinical picture**

1. The typical patient is a young adult female presenting **anosmia**, and an offensive odor which is **NOT** perceived by the patient due to the associated anosmia.
2. Nasal obstruction (sometimes)

3. **Mild epistaxis** due to separation of crusts.

4. **Anterior rhinoscopy shows:**

2. Roomy nasal cavities.
3. Yellowish or greenish crusts.
4. Pale atrophic mucosa and inferior turbinates.



Primary Atrophic Rhinitis (Ozaena)

- **Treatment**

1. Frequent cleaning of the nose by saline washes is practically the safest and most effective symptomatic treatment.
2. Lubricant drops e.g. menthol paraffin drops and 25% glucose in glycerin may be also used.
3. Surgical treatment is also of limited value.

Secondary Atrophic Rhinitis

- **Causes:**

1. Excessive surgical resection of the inferior turbinates.
2. Radiotherapy of the head.
3. Marked deviation of the nasal septum (on the roomy side).
4. Granulomata e.g. Scleroma.

- **Treatment:**

1. Treatment or avoidance of the cause.
2. Nasal washes.

Rhinitis Medicamentosa

- **Definition**

- Rhinitis due to inappropriate use of vasoconstrictor nasal drops to relieve nasal congestion. Rhinitis medicamentosa may develop as early as 7 days of medication use.

- **Pathophysiology**

- As the effect of vasoconstrictor drops wears off, secondary vasodilatation occurs causing the sense of obstruction to return (**vicious circle**).

Rhinitis Medicamentosa



- **Clinical features**

1. Rebound nasal obstruction following the use of vasoconstrictor nasal drops.
2. Red edematous nasal mucosa.

- **Treatment**

1. Withdrawal of the offending nasal drops.
2. Saline washes.
3. Topical steroid preparations



SCLEROMA

SCLEROMA

Background

- **Scleroma = Hard swelling**
- **Synonyms:** Mickulicz disease, rhinosclerosis.
- Chronic specific inflammation of the upper respiratory tract caused by **Frisch bacillus** or *Klebsiella rhinoscleromatis* and is characterized, in the typical case, with granulomatous lesions with characteristic hardness hence the name “scleroma”.

Background

- The disease almost always commences in the nose (**Rhinoscleroma**) and later extends into nasopharynx & oropharynx , the larynx, trachea, bronchi, and other areas. (*)
- For this reason , the disease was sometimes designated as **Respiratory Scleroma** , rather than rhinoscleroma. (**)

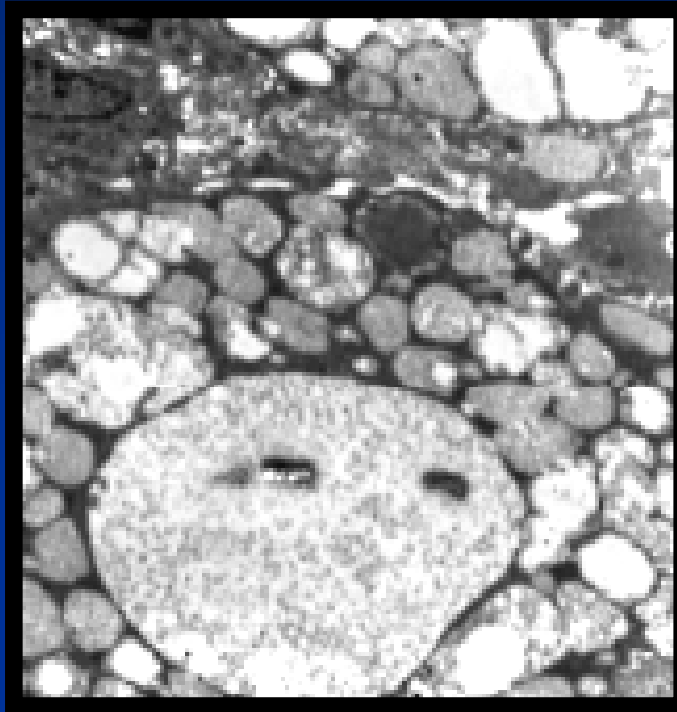
Incidence

- The disease is endemic in some areas in Egypt .It is also seen in central and south-eastern Europe, North Africa, the Indian subcontinent, Indonesia and Central and South America (**scleroma belt**).
- **Epidemiologic associations:** Poor hygiene, bad crowded living conditions, and malnutrition.

Incidence

- It may occur in **all races** and **either sex**.
- Typically it starts in patients aged **10-30 years**.
- Slightly more common in **females** .

Bacteriology



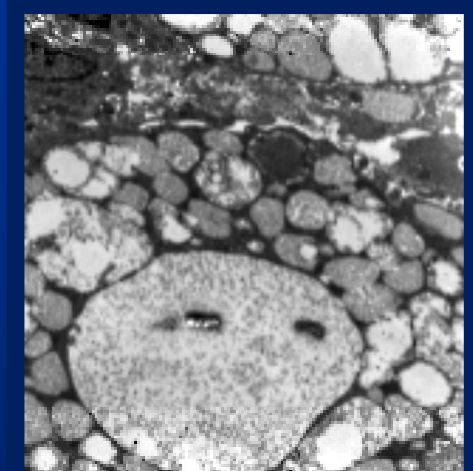
- Caused by gram-negative encapsulated , coccobacillus, **Klebsiella rhinoscleromatis** (Frisch bacillus).
- The organism resides intra-cellularly and can be difficult to isolate in the laboratory. (*)

Pathogenesis

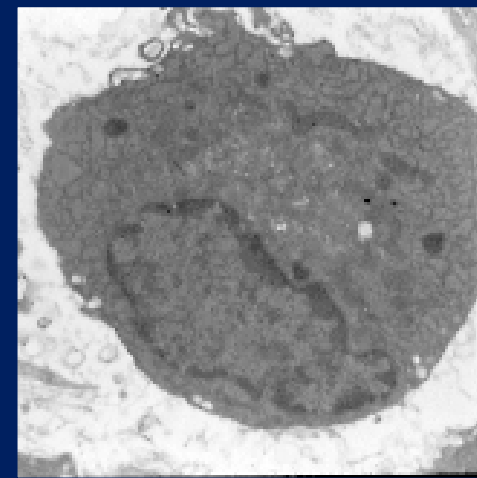
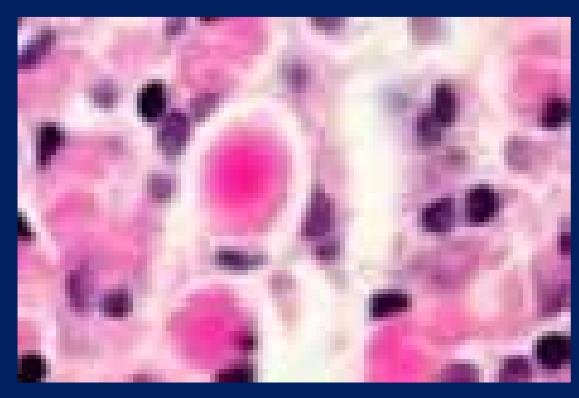
- The disease is not highly contagious. It is probably transmitted by droplets or by contamination of material that is subsequently inhaled.
- Cellular immunity is impaired in scleroma patients but humoral immunity is preserved.
- The disease usually begins in areas of epithelial transition such as the vestibule of the nose and the subglottic region.

Histopathology

- 3 stages or types: **Granulomatous**, **Atrophic**, and **Fibrotic**
- In the active granulomatous stage, the submucosa appears infiltrated by lymphocytes, plasma cells as well as two characteristic components:
 - Mickulicz cells*** which are derived from histiocytes and appear as large vacuolated foam cells containing the scleroma bacilli



Histopathology



- ***Russel bodies*** which are eosin-staining degenerated plasma cells. The precursors of Russell bodies are called ***Mott cells***.

Clinical picture

- Most often the presentation **is non-specific** resembling chronic rhinitis.
- The most common complaint is nasal obstruction.

- **Three clinical types (stages)** have been described. These types are frequently inter-mixed together:
 - **Granulomatous type:** This is the classical presentation where the nasal cavity shows **firm pale pink granulomatous masses**. The granulomatous masses coalesce together and may extend to the external nose and upper lip (**Hebra nose**).



Clinical Picture

- **Atrophic type:** The mucosa appears pale, atrophic and the nasal cavity appears roomy and contains crusts.
- **Fibrotic type:** The nasal cavities are narrowed or may be obliterated by firm unyielding concentric fibrous stenosis and adhesions. External deformities are commonly present.



Extensions of the disease

- The disease may extend to involve the nasopharynx, oropharynx and palate (**pharyngoscleroma**), larynx (**laryngoscleroma**), trachea and bronchi.
- It may also extend to the lacrimal apparatus (**dacryoscleroma**) and middle ear (**tympanoscleroma**).

Laryngoscleroma

- Usually secondary to nasal involvement (15 – 40%). Occasionally primary.
- More common in females.
- Usually affect the subglottic region.

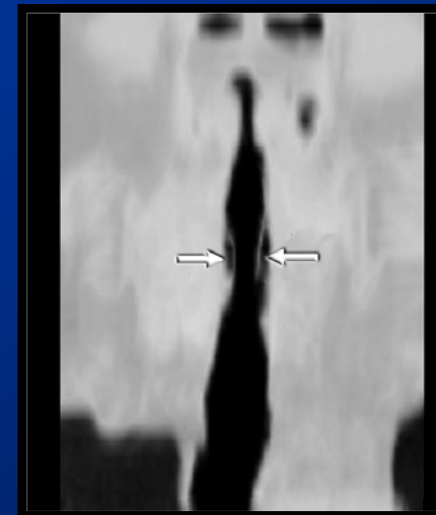
Clinical picture of laryngoscleroma:

■ Symptoms:

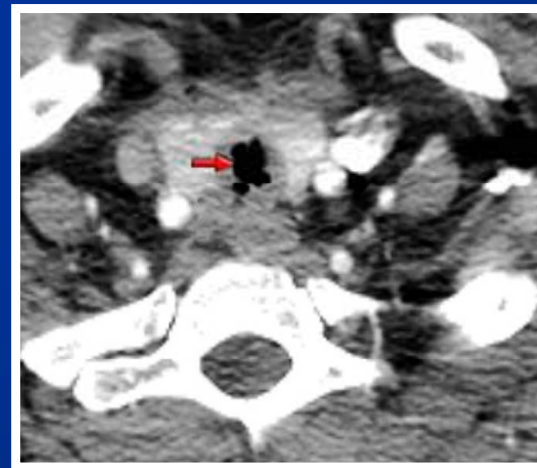
1. Stridor; inspiratory or biphasic.
2. May be hoarseness.

■ Signs:

1. The lesions appear as pale pink subglottic cushions on one or both sides. Greenish yellow crusts may be also seen.



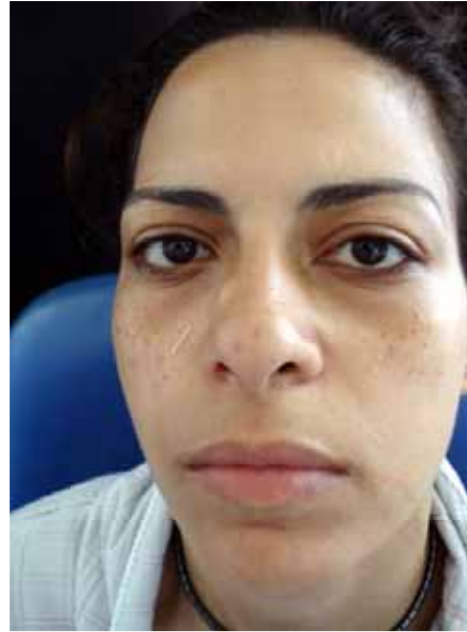
- In the **fibrotic stage**, contraction of the fibrous tissue may produce concentric stenosis or multi-level webs.



Involvement of other Regions



PHARYNX



EXTERNAL NOSE



LACRIMAL SYSTEM

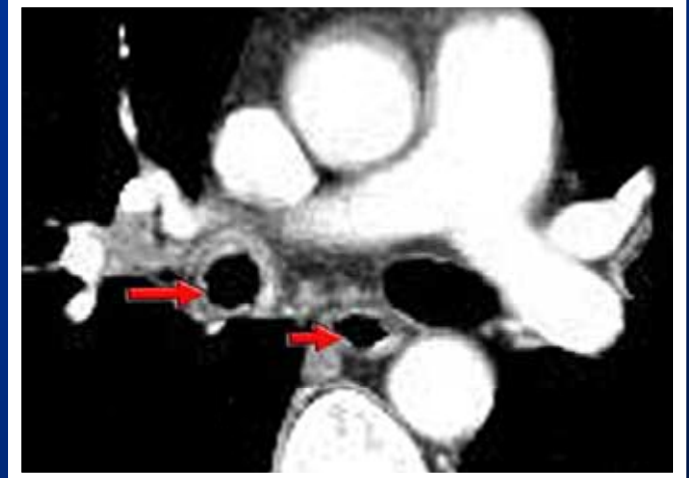
Involvement of other Regions



ORAL CAVITY



TRACHEA



BRONCHI

Diagnosis

1. Biopsy is the **best choice** to demonstrate the characteristic histological features.
2. Bacteriological identification of the organism is usually **NOT** necessary.
3. Multislice CT scans are useful especially for larynx and trachea (crypt-like irregularities).

Differential diagnosis

- Infectious granulomatous diseases : tuberculosis, syphilis , leprosy, and fungal infections.
- Lymphomas and neoplasms.

Treatment

- Once the diagnosis has been confirmed by biopsy , prolonged antibiotic treatment must be started.

■

The traditional antibiotics used were **streptomycin** (ototoxic) and **tetracycline** (useful for young patients).

- Better results are obtained now with oral therapy with quinolones (ciprofloxacin). and **rifampicin** (both inhibit bacterial DNA synthesis).

Treatment

- **Surgical debulking** may be done for granulomatous lesions.
- In late cases where disease has been eradicated, further **plastic and reconstructive nasal surgery** may be required.

Treatment of Laryngoscleroma

1. Steroids and humidified inhalations may be needed to alleviate stridor.
2. Tracheostomy may be needed for severe stridor.
3. Carbon dioxide Laser vaporization may be performed for granulomatous lesions and webs.

Treatment of laryngoscleroma

- Endoscopic dilatation +/- stenting.
- External procedures may be needed to deal with stenotic areas. These are usually difficult for long stenotic segments.