NASAL MANIFESTATIONS OF SYSTEMIC DISEASES

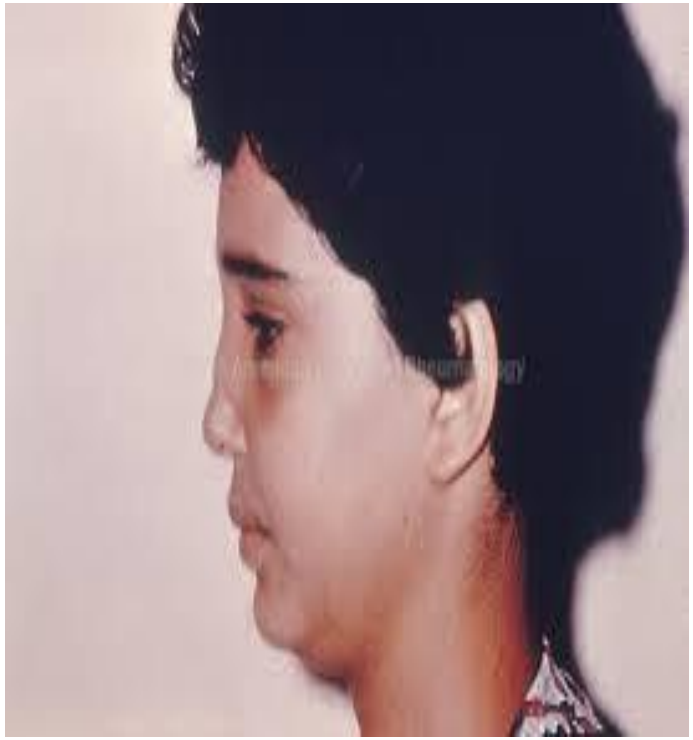
DR. SHARIF ALMATRAFI , R2 .

9 MARCH 2016

OBJECTIVES

- WEGENER’S GRANULOMATOSIS .
- T-CELL LYMPHOMA.
- CHURG-STRAUSS SYNDROME.
- RHINOSCLEROMA.
- TUBERCULOSIS.
- LEPROSY.
- SYPHILIS.

WEGENER'S GRANULOMATOSIS



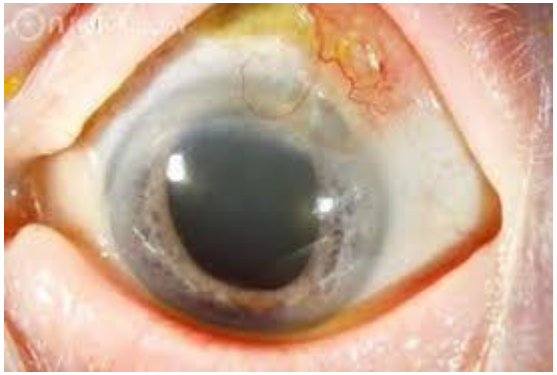
WEGENER'S GRANULOMATOSIS (WG)

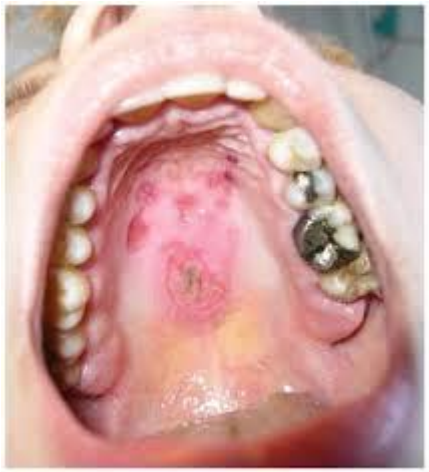
Granulomatosis with polyangiitis (GPA) , is a rare multisystem autoimmune disease of unknown etiology.

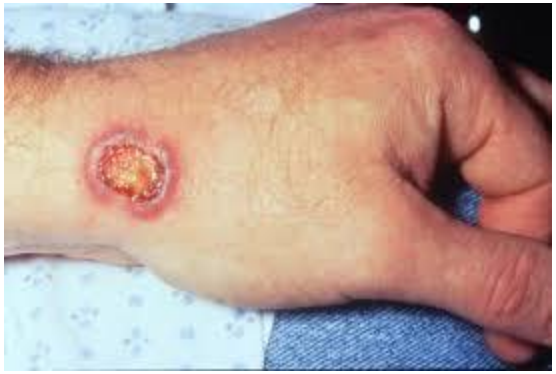
- necrotizing granulomatous inflammation and vasculitis in small- and medium-sized blood vessels.

Table 1. Clinical manifestations in GPA.

Organ	Clinical manifestation
Generic	General malaise, myalgia, arthralgia, anorexia, weight loss and pyrexia
Skin	Leucocytoclastic vasculitis, digital infarcts, purpura, cutaneous ulcers and gangrene
Oral cavity	Oral ulcers, oral granulomatous lesions, gingival hyperplasia with strawberry-like aspect, swallow
Eye	Episcleritis, scleritis, conjunctivitis, keratitis, uveitis, retinal vasculitis, retinal arterial or venous thrombosis, retinal exudates, retinal haemorrhages, blurred vision, blindness, proptosis and orbital granulomatous masses, epiphora
Nose and paranasal sinus	Persistent-recurrent nasal discharges, blood-stained nasal discharge, epistaxis, crusting, mucosal ulceration, nasal bridge collapse, nasal granulomatous lesions, parasinus and sinus inflammation, regional tenderness
Ear	Sensorineural hearing loss and conductive hearing loss
Upper airway	Subglottic or tracheal stenosis
Lower airway	Cough, breathlessness, stridor, wheeze, small air way obstruction, pulmonary nodules, cavitating lung lesions, pleuritis, pleural effusions, pulmonary infiltrates, pulmonary haemorrhage, alveolar capillaritis and respiratory failure
Cardiovascular	Small vessel vasculitis, occlusive vascular disease, pericarditis, pericardial effusions, cardiomyopathy, valvular heart disease, ischaemic heart disease, heart failure
Gastrointestinal	Acute abdomen secondary to peritonitis or bowel ischaemia which may be secondary to mesenteric vasculitis
Kidney	Diffuse pauci-immune crescentic necrotising glomerulonephritis, haematuria, proteinuria, cellular casts on urine cytology, renal impairment manifested as acute kidney injury, chronic kidney disease or end-stage renal failure
Central and peripheral nervous system	Headache, meningitis, seizures, cerebrovascular accidents, spinal cord lesions, cranial nerve palsies, sensory or motor peripheral neuropathy, mononeuritis multiplex, sensorineural hearing loss, cerebral mass lesions
Musculoskeletal	Inflammatory arthritis, erosive or deforming, arhtralgia, myalgia, arthralgia







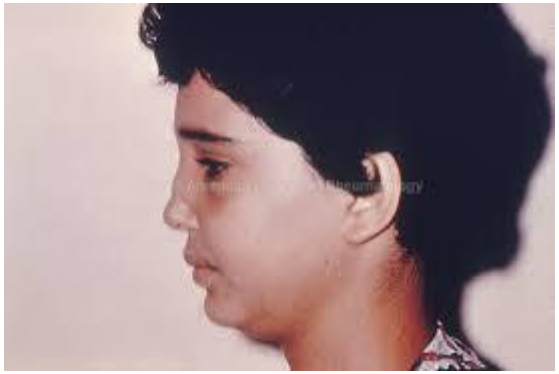


Table 2
Clinical features of Wegener Granulomatosis (adapted after McCaffrey[1])

WG type	Clinical features
Type 1	• upper airway symptoms • few systemic findings. • several weeks of symptoms after a respiratory tract infection unresponsive to antibiotics. • associated with nasal pain and serosanguineous rhinorrhea and crusting.
Type 2	• initial presentation similar to type 1 • systemic features • prolonged upper respiratory tract infection with nasal discharge, nasal pain, tenderness, serosanguineous discharge, ulceration and crusting. • pulmonary involvement associated with cough, hemoptysis and cavitary lesions on chest x-ray.
Type 3	• widely disseminated form with: ▪ upper and lower airway involvement, ▪ cutaneous lesions, ▪ progressive renal involvement. • systemic features are more profound with nasal ulcerations and symptoms.

[When rhinosinusitis reveals a systemic disease].

Rogister F, et al. Rev Med Liege. 2015.
Show full citation

Abstract

This retrospective analysis is concerned with 10 patients suffering from granulomatosis with polyangitis (GPA, Wegener's disease), who were followed up in a tertiary care Ear, Nose, and Throat (ENT) department. The inaugural events took place in the ENT field (8 patients), the lung (2 patients), the vestibule (1 patient), or the oral cavity (1 patient). The ENT manifestations during the disease evolution involved the rhinologic (osetocartilaginous--6 cases; mucosal--9 cases), the otologic (3 cases), or the laryngeal area (2 cases). Facial pain was noted in 6 cases and residual

This retrospective analysis is concerned with 10 patients with Wegener's disease , FEB 2015 , by Rogister et al .

The ENT manifestations:

- rhinologic (osetocartilaginous--6 cases; mucosal--9 cases)

- the otologic (3 cases)

- laryngeal area (2 cases).

Lund-Mackay System for Computed Tomography Evaluation of Paranasal Sinuses in Patients with Granulomatosis and Polyangiitis.

Życinska K, et al. Adv Exp Med Biol. 2016.
Show full citation

Abstract

Granulomatosis with polyangiitis (GPA), a disease capable of affecting any organ, most often acts upon the upper respiratory tract. Diagnostic imaging is primarily represented by computed tomography (CT) of paranasal sinuses. The aim of this study was to define the characteristic changes in paranasal CT in patients with GPA and to evaluate diagnostic usefulness of the Lund-Mackey scoring system (L-M System). The study encompassed 43

The study encompassed 43 patients with GPA of the mean age of 47.7 ± 12.8 years .

They found that inflammation occurred mainly in the maxillary sinuses (72 %). The mean L-M score was 5.8 ± 6.1.

DIAGNOSIS

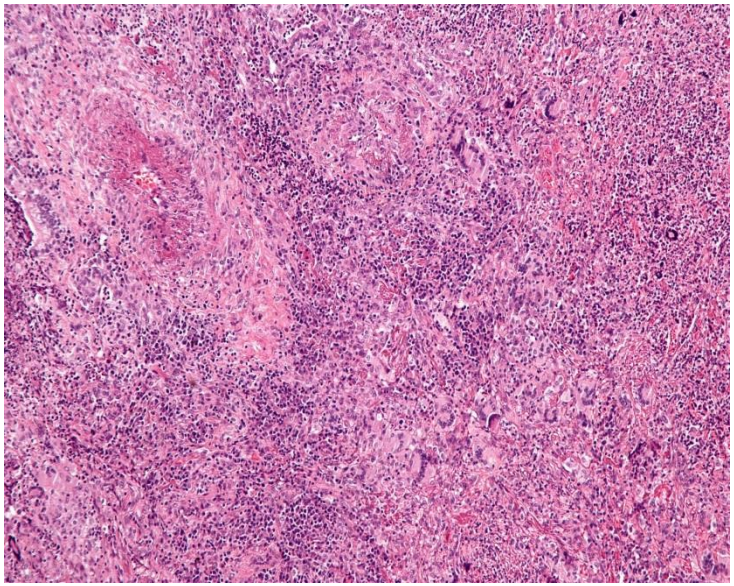
1. CBC: Anemia and high ESR.

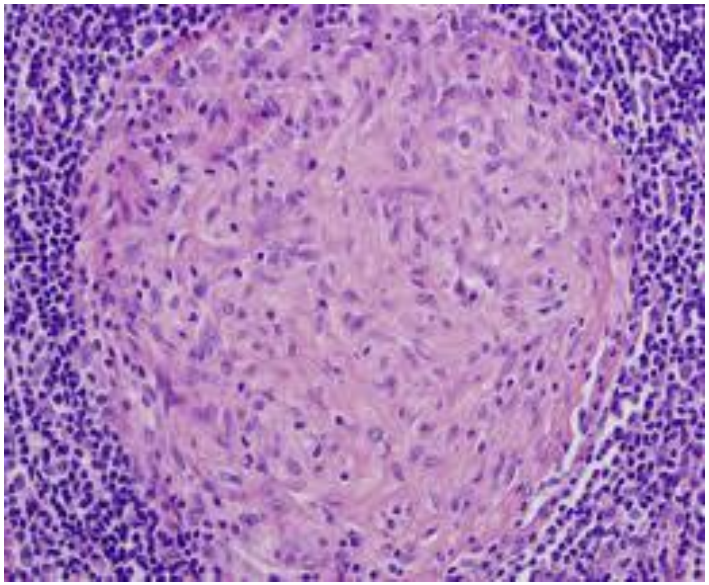
2. Urine: Red cells, casts and albumin in urine and high creatinine levels.

3. X-ray chest: Single or multiple cavity lesions.

5. Cytoplasmic antineutrophilic cytoplasmic antibody (c-ANCA).

4. Biopsy : epithelioid granuloma and necrotizing vasculitis.





TREATMENT

1- Immunosuppressive therapy: Oral cyclophosphamide prednisone , retuximab.

2. Trimethoprim-sulfamethoxazole (Bactrim/Septran): good results with limited disease.

3. Plasma exchange and intravenous immunoglobulin.

Effectiveness of rituximab for the otolaryngologic manifestations of granulomatosis with polyangiitis (Wegener's).

Lally L, et al. Arthritis Care Res (Hoboken). 2014.
Show full citation

Abstract

OBJECTIVE: Ear, nose, and throat (ENT) involvement is the most prevalent manifestation of granulomatosis with polyangiitis (Wegener's) (GPA) and correlates with permanent damage and decreased quality of life. Although prior studies have evaluated the efficacy of rituximab (RTX) for granulomatous features of GPA, none have evaluated its efficacy solely for ENT manifestations. We compared the effectiveness of RTX to other therapies for the ENT manifestations of GPA in a large, well-characterized cohort

retrospective analysis of 975 visits from 99 GPA patients , 2014 Sep , lally et al .

48 subjects had never received RTX and 51 received RTX at least once. There was no active ENT disease during 92.4% of the observational period (days) for subjects receiving RTX, compared with 53.7% of the observational period for subjects not receiving RTX

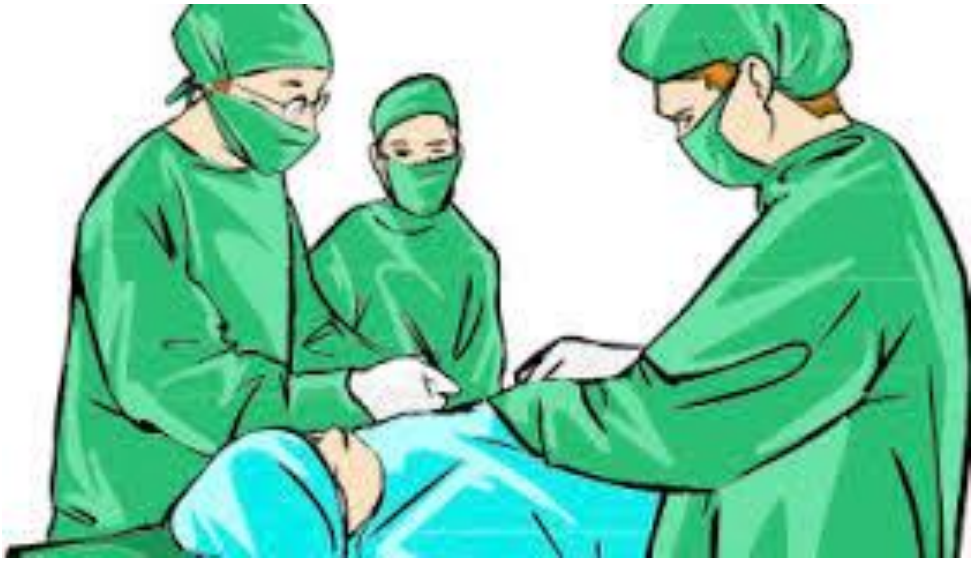
- Conclusion : Patients being treated with RTX were 11 times less likely to have active ENT disease than patients being treated with other therapies.

4- Local treatment :upper airway hygiene, local antibiotics and nasal irrigation (These methods lead to the reduction of nasal bacterial colonization).

- lubricants like glyceryl monoleate (reducing symptoms from dry mucosa).

- large crusts must be mechanically removed..

5- Surgical.



Reconstruction of nasal deformity in Wegener's granulomatosis: contraindication or benefit?

Vogt PM, et al. Aesthetic Plast Surg. 2011.
Show full citation

Abstract

BACKGROUND: Saddle-nose deformity is a well-recognized stigma of patients affected by Wegener granulomatosis (WG). However, plastic surgical repair is seldom performed. In this study, the authors aimed to evaluate their own patients exclusively reconstructed by costal cartilage L-strut of the nose for this specific deformity.

METHODS: During a 5-year-period, four women with an average age of 33 years underwent reconstructive rhinoplasty of their saddle-nose deformity caused by WG, which in

METHODS:

During a 5-year-period, four women with an average age of 33 years underwent reconstructive rhinoplasty of their saddle-nose performed by an L-shaped rib cartilage graft.

- After follow-up period of 42 months for all the patients , the external form and function were preserved.

CONCLUSION:

- External nasal reconstruction for patients affected by WG appears to be safe and effective if the disease is in remission before any operation.

PERIPERERAL T-CELL NEOPLASM (NON-HEALING MIDLINE GRANULOMA, POLYMORPHIC RETICULOSIS)

- A destructive disease of the nose and mid-facial region.
- Absence of pulmonary and renal involvement.

CLINICAL FEATURES

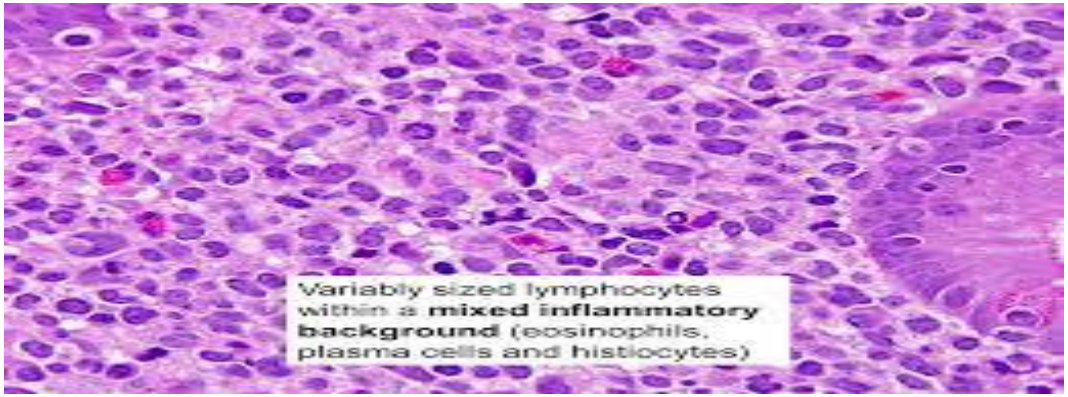
- Unilateral lesions in nose extending to soft tissue of nose, upper lip, oral cavity, maxillary sinus and orbit.

- Lesions are explosive and rapidly progressive.

- Secondary infection of lesions by gram-negative and anaerobic organisms is common.

DIAGNOSIS

1- Biopsy: It will show mixed population of cells (mature lymphocytes, plasma cells and large lymphoreticular cells), which resembles picture of lymphoma.



DIAGNOSIS

2. Immunohistochemical studies: T-cell lineage markers CD3, CD43, CD45RO and natural killer marker CD57.

3. EBV-RNA: Detected by in situ hybridization.

Association of Epstein-Barr virus with sinonasal angiocentric T cell lymphoma.

O'Leary G, et al. J Clin Pathol. 1995.
Show full citation

Abstract

AIM: To investigate whether non-Hodgkin's lymphomas arising in the sinonasal region or Waldeyer's ring contain the Epstein-Barr virus (EBV) genome in lesional tissue.

METHOD: Sections from paraffin wax blocks of 22 lymphoid proliferations arising in the sinonasal region or Waldeyer's ring were studied with EBV encoded RNAs (EBER-1 and -2) using in situ hybridisation.

RESULTS: EBV was detected in nuclei of tumour cells of five of seven T cell lymphomas

1995 , LEARY ET AL

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RESULTS:

- EBV was detected in nuclei of tumour cells of five of seven T cell lymphomas .

TREATMENT

1- Localized lesion: Radiotherapy followed by surgical debridement .

2. Multiorgan disease: Standard leukemia protocol.

TABLE 2 Comparison of Wegener's granulomatosis and peripheral T-cell neoplasms

	Wegener's granulomatosis	*Peripheral T-cell neoplasms*
Distribution of lesion	Focal and localized	Diffuse
Onset	Gradual	Explosive
Progress	Gradual	Rapid
Ear, tracheal, & renal	Involvement common	Involvement very uncommon
Histology	Vasculitis	Polymorphic lymphoid infiltrate
c-ANCA	Diagnostic	Negative
EBV-RNA	Absent	Detected
Immuno-histochemical study	No role	Diagnostic
Treatment	Immuno-suppression	Radiotherapy

SARCOIDOSIS

Sarcoidosis is a chronic systemic granulomatous disease involving almost any organ in the body.

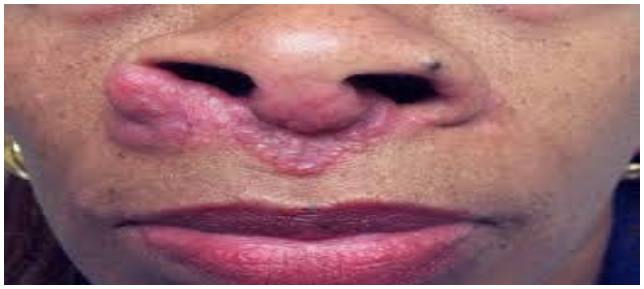
- Nasal involvement : 1-6% of patients .

ORL-HNS

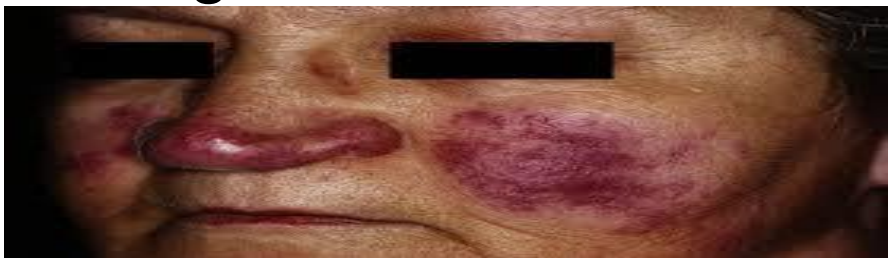
- Salivary glands (parotid swelling)
- Oropharynx (tonsillar hypertrophy),
- Larynx (epiglottic or subglottic swelling).
- Neuropathy (sudden deafness and unilateral or bilateral facial nerve palsy).

NASAL INVOLVEMENT

Externally : papular lesions on the nose that can coalesce to form bluish-red swellings.



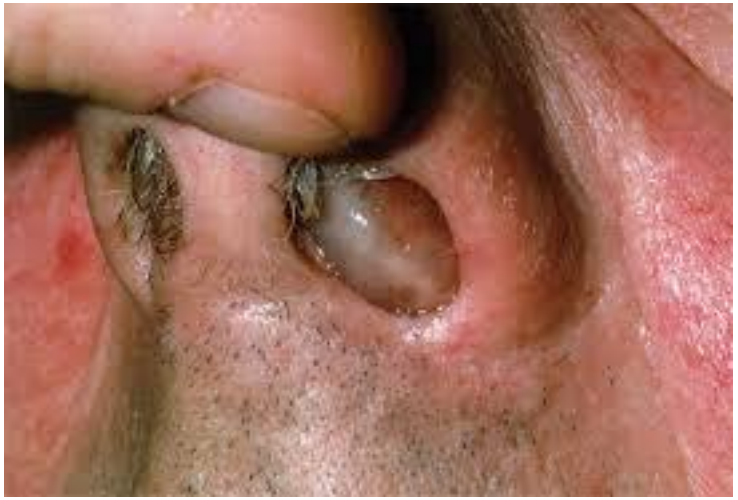
- lupus pernio that describes violaceous cutaneous lesions on the cold-sensitive areas such as the nose, cheeks, ears and fingers.

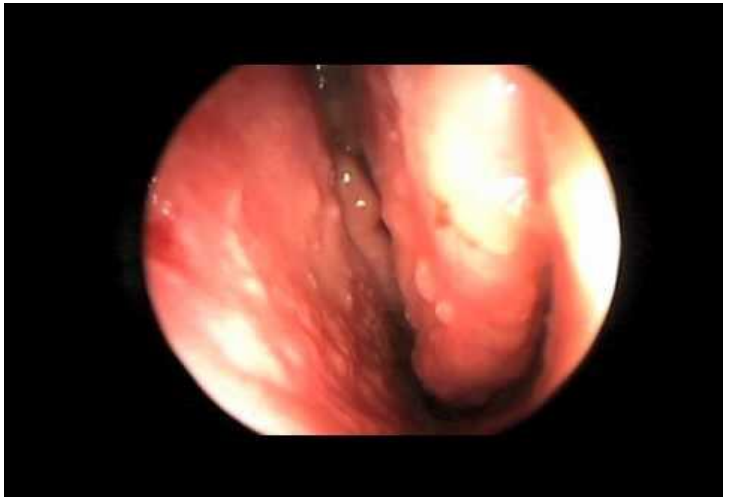


NASAL INVOLVEMENT

Intranasal : diffuse nasal crusting , diffuse mucosal swelling of the septum and inferior turbinate , submucosal nodules.

- nasal polyps that are friable and bleed readily.

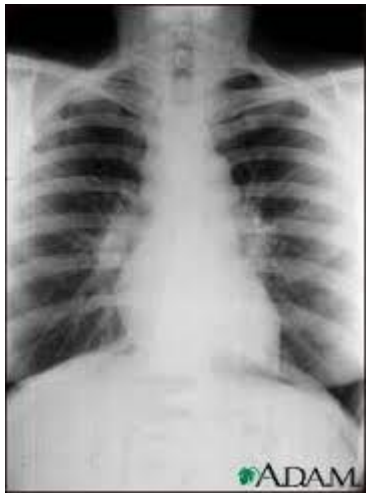


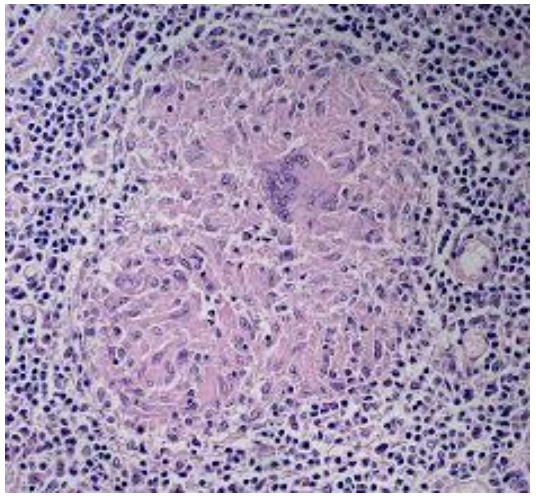


DIAGNOSIS

1- X-ray chest: Diffuse pulmonary infiltrate with hilar adenopathy.

2. Biopsy: Non-caseating granuloma.

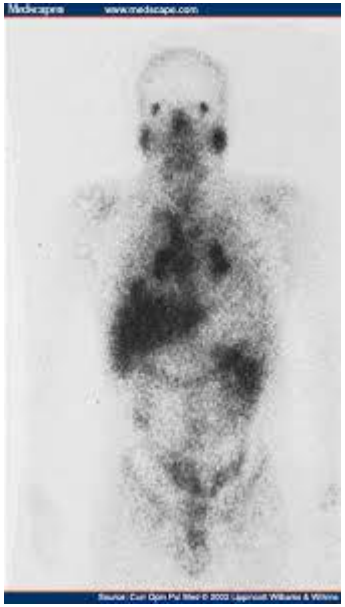




3. Gallium-67 scanning.

4. Angiotensin-converting enzyme: Elevated.

5. Serum and urinary calcium levels.



TREATMENT

1. Systemic steroids.

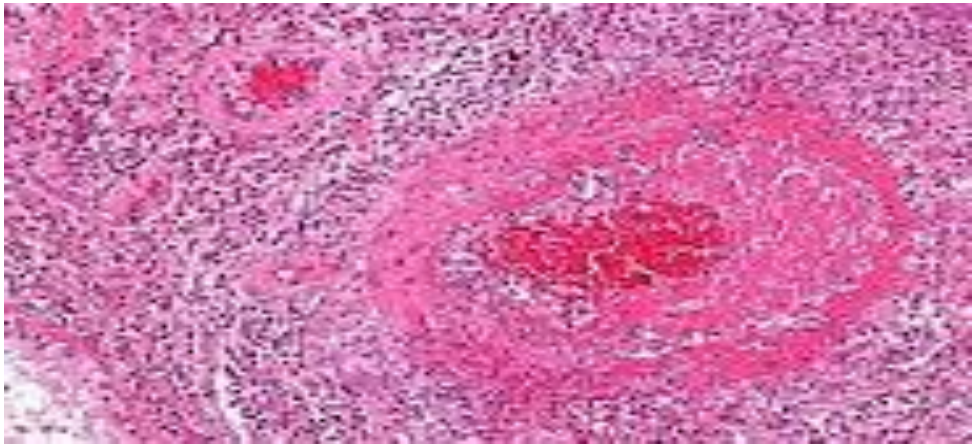
2. Methotrexate: (unresponsive to steroids).

3. Local treatment.

-recurrence is high .

CHURG-STRAUSS SYNDROME

- An eosinophil-rich , granulomatous inflammation and necrotizing vasculitis of the upper respiratory tract, affecting small to medium vessels .



There are three phases:

1. a prodromal phase consists of allergic disease (allergic rhinitis, nasal polyposis)

2. peripheral blood and tissue eosinophilia (eosinophilic pneumonia or gastroenteritis)

3. a life-threatening systemic vasculitis.

Rhinologic symptoms and quality-of-life in patients with Churg-Strauss syndrome vasculitis.

Srouji I, et al. Am J Rhinol. 2008 Jul-Aug.
Show full citation

Abstract

BACKGROUND: The purpose of this study was to investigate the presentation pattern, sinonasal symptoms, and quality of life (QOL) in patients with Churg-Strauss syndrome (CSS) vasculitis.

METHODS: A cross-sectional study was performed. Twenty-five patients with CSS belonging to a patient self-help group participated. Main outcome measures included mode of initial presentation, treatment, rhinologic symptoms, and disease-specific QOL (Sinonasal Outcome Test [SNOT-22] scores)

A cross-sectional study , 25 patients with CSS.

- mode of initial presentation, treatment, rhinologic symptoms, and disease-specific QOL (Sinonasal Outcome Test [SNOT-22] scores) and comparisons were made with general rhinosinusitis.

RESULTS:

80% had active sinonasal symptoms at the time of the study.

28 % reported worsening of their nasal symptoms as the main event leading to their diagnosis.

48 % had undergone nasal surgery.

Nasal symptoms:

nasal obstruction (95%), rhinorrhea (95%), anosmia (90%), and excessive sneezing (80%). Other symptoms included nasal crusting (75%), purulent nasal discharge (65%), and epistaxis (60%).

- SNOT-22 scores were significantly higher than normal.

CONCLUSION:

Sinonasal symptoms are common at initial presentation of CSS, emphasizing the role of otolaryngologists in its diagnosis

- p-ANCA is positive in 70% of patients, while c-ANCA is negative.

TREATMENT

The management of CSS is represented by glucocorticoids as standard treatment. CSS does not respond to cyclophosphamide, as does WG.

Nasal dermoplasty for recurrent polyps in a patient with churg-strauss syndrome.

Anastasopoulos G, et al. Case Rep Otolaryngol. 2015.
Show full citation

Abstract

Nasal dermoplasty for recurrent polyps (NDRP) is a new technique for the surgical treatment of this condition. Churg-Strauss syndrome is characterized by the presence of nasal polyps with a great tendency for relapse after surgical or pharmaceutical treatment. It is the first time that we use NDRP to treat nasal polyps in a patient with Churg-Strauss syndrome. The patient was a 33-year-old female suffering from Churg-Strauss syndrome having had multiple operations in the past for recurrent polyps. NDRP was performed on the left nostril only.

a 33-year-old female suffering from Churg-Strauss syndrome having had multiple operations in the past for recurrent polyps.

NDRP was performed on the left nostril only. The mucosa of the left nasal vault was replaced by a split-thickness skin graft (modified dermoplasty). On the right nostril, polyps were removed and the ostia of the paranasal sinuses were enlarged as in typical endoscopic sinus surgery.

- after eight months after the operation no polyps are detected on the left side while polyps have recurred on the right nasal cavity.

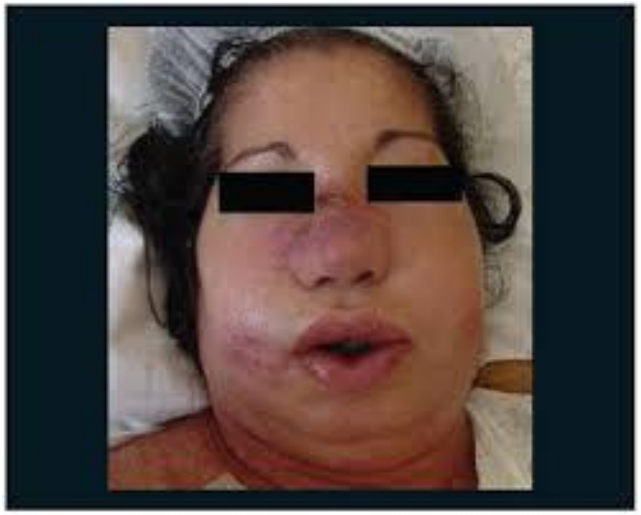
RHINOSCLEROMA

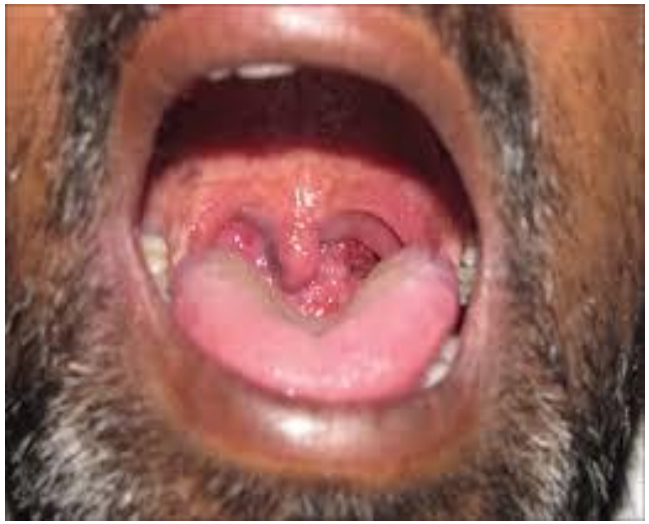
- Chronic granulomatous bacterial disease.

- Endemic in several parts of the world (India).

- The causative microorganism, Klebsiella rhinoscleromatis , is a Gram-negative bacillus.

- The disease begins in the nose but extends to nasopharynx, oropharynx, larynx (mostly subglottic region), trachea and bronchi.





CLINICAL FEATURES

1. Catarrhal: Foul smelling purulent nasal discharge for weeks to months.

2. Atrophic stage: crusting, which resembles atrophic rhinitis.

3. Granulomatous stage: Multiple granulomatous nodules in the nasal mucosa .

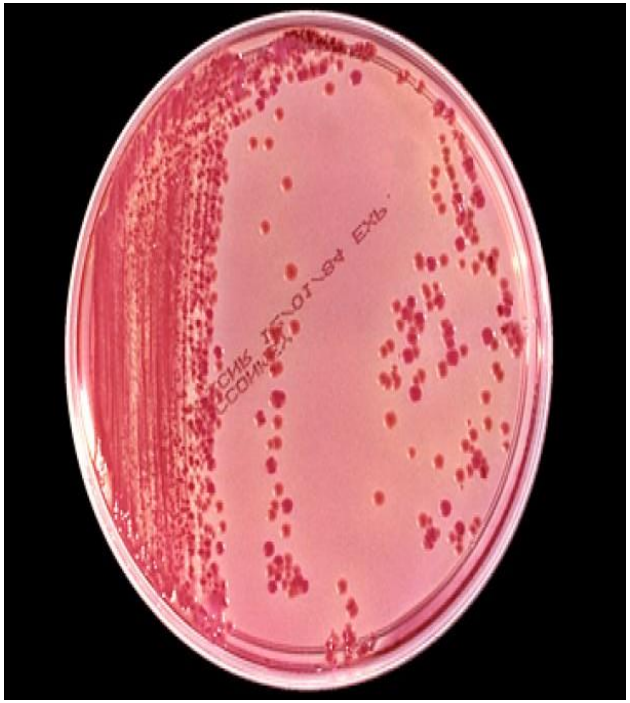
- These painless nodules are non-ulcerative and can be found in pharynx, larynx, trachea and bronchi.

4. Cicatricial stage: Fibrosis leads to stenosis of nares, distortion of upper lip and adhesions in the nose, nasopharynx, oropharynx and larynx.

DIAGNOSIS

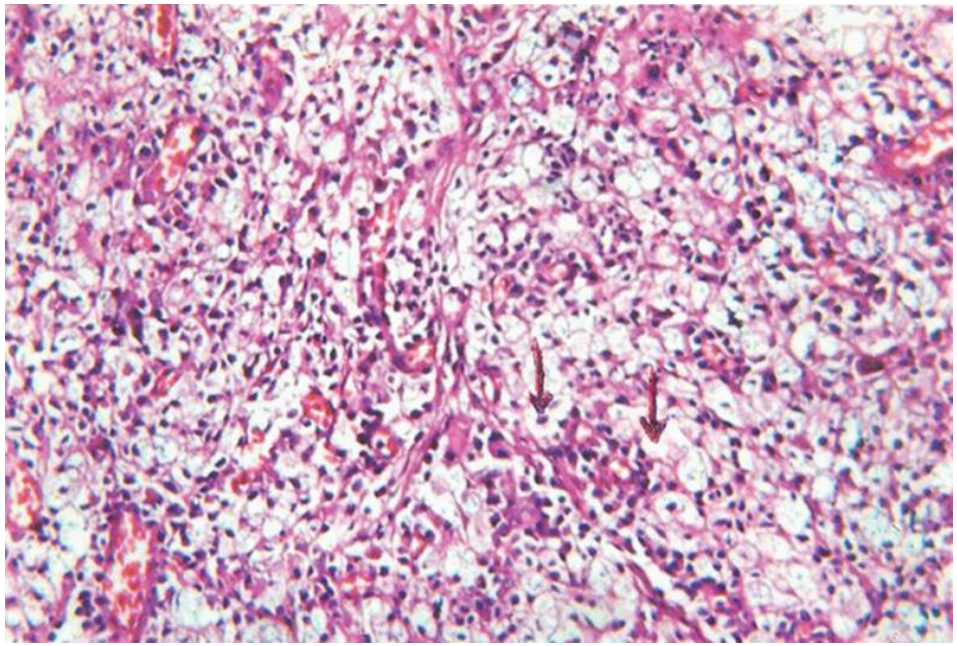
- Biopsy: Submucosa is infiltrated with plasma cells, lymphocytes, eosinophils, Mikulicz cells and Russell bodies.

- Cultures of infected tissue.



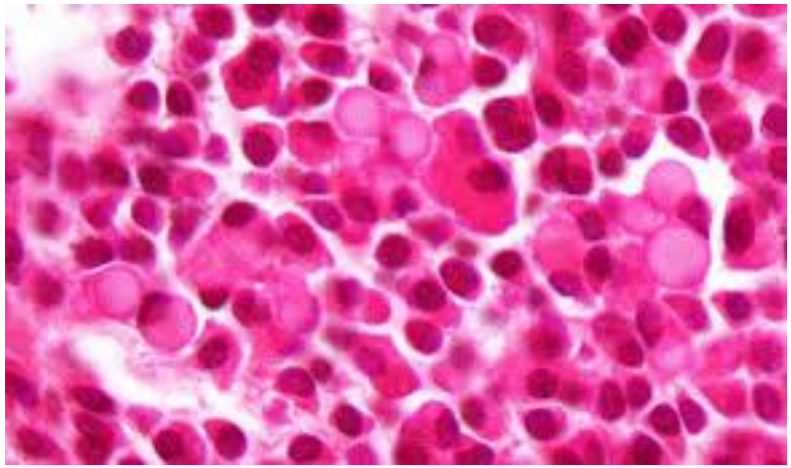
MIKULICZ CELLS

Vacuolated histiocytes containing the causative bacilli.



RUSSELL BODIES

- Homogeneous eosinophilic inclusion bodies (accumulation of immunoglobulins secreted by the plasma cells).



TREATMENT

- Combination of surgical debridement and long term antibiotic therapy

- The antibiotic treatment consists of Streptomycin (1 g/day for 4 weeks) and tetracycline (2 g/ day).

- NO role for radiotherapy or corticosteroids.

A case of rhinoscleroma cured with ciprofloxacin.

Trautmann M, et al. Infection. 1993 Nov-Dec.
Show full citation

Abstract

The diagnosis of rhinoscleroma was confirmed in a 17-year-old female patient from Tehran, Iran, suffering from a roundish tumour of the nose. Prior treatment with streptomycin and tetracycline had been unsuccessful. A three-month course of high-dose oral ciprofloxacin (750 mg b.i.d.) led to prompt cessation of the growth of the granuloma which was removed later by plastic surgery. Although serology alone appeared to have little value for the specific diagnosis of rhinoscleroma, a significant increase of IgG antibodies during treatment with ciprofloxacin confirmed infection by Klebsiella rhinoscleromatis in this case.

17-year-old female patient from Tehran, Iran, with rhinoscleroma

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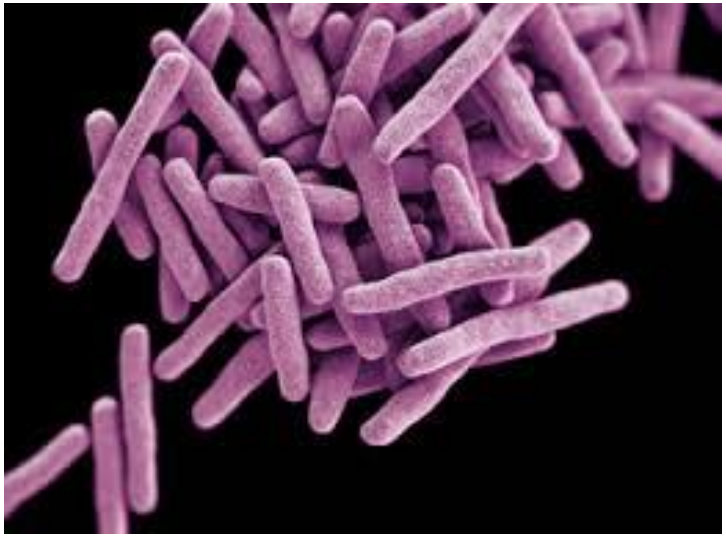
TB

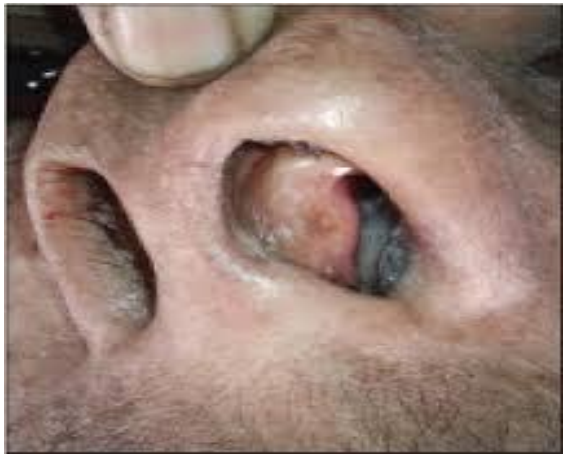
Tuberculosis is a chronic granulomatous infectious disease caused by Mycobacterium tuberculosis and Mycobacterium bovis.



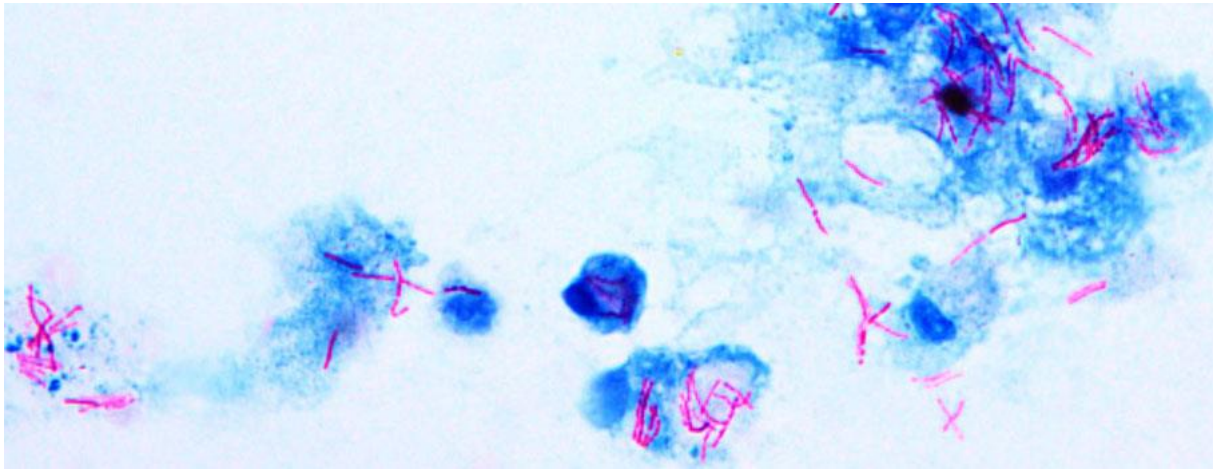
TUBERCULOSIS

- Anterior part of nasal septum and anterior end of inferior turbinate.

- Nodular infiltration → ulceration → perforation of cartilaginous part of nasal septum.



- Diagnosis: Biopsy and special staining for acidfast bacilli, culture of organisms.



- Treatment is antitubercular therapy.

Primary nasopharyngeal tuberculosis mimicking exacerbation of chronic rhinosinusitis.

Prstačić R, et al. J Laryngol Otol. 2011.
Show full citation

Abstract

OBJECTIVE: Nasopharyngeal tuberculosis is a rare condition, even in endemic tuberculosis areas. We report a case of primary nasopharyngeal tuberculosis from a non-endemic area, which presented with symptoms resembling exacerbation of previously diagnosed chronic rhinosinusitis.

CASE REPORT: A 48-year-old man presented with extreme postnasal drip and an unpleasant nasal odour. Endoscopic examination revealed irregular thickening of the left lateral and posterior wall of the nasopharynx, partially

A 48-year-old man presented with postnasal drip and an unpleasant nasal odour.

- Endoscopic examination revealed irregular thickening of the left lateral and posterior wall of the nasopharynx, partially covered with crusts and necrotic tissue.

- Histopathological : giant cell epithelioid granulomas with caseous necrosis.

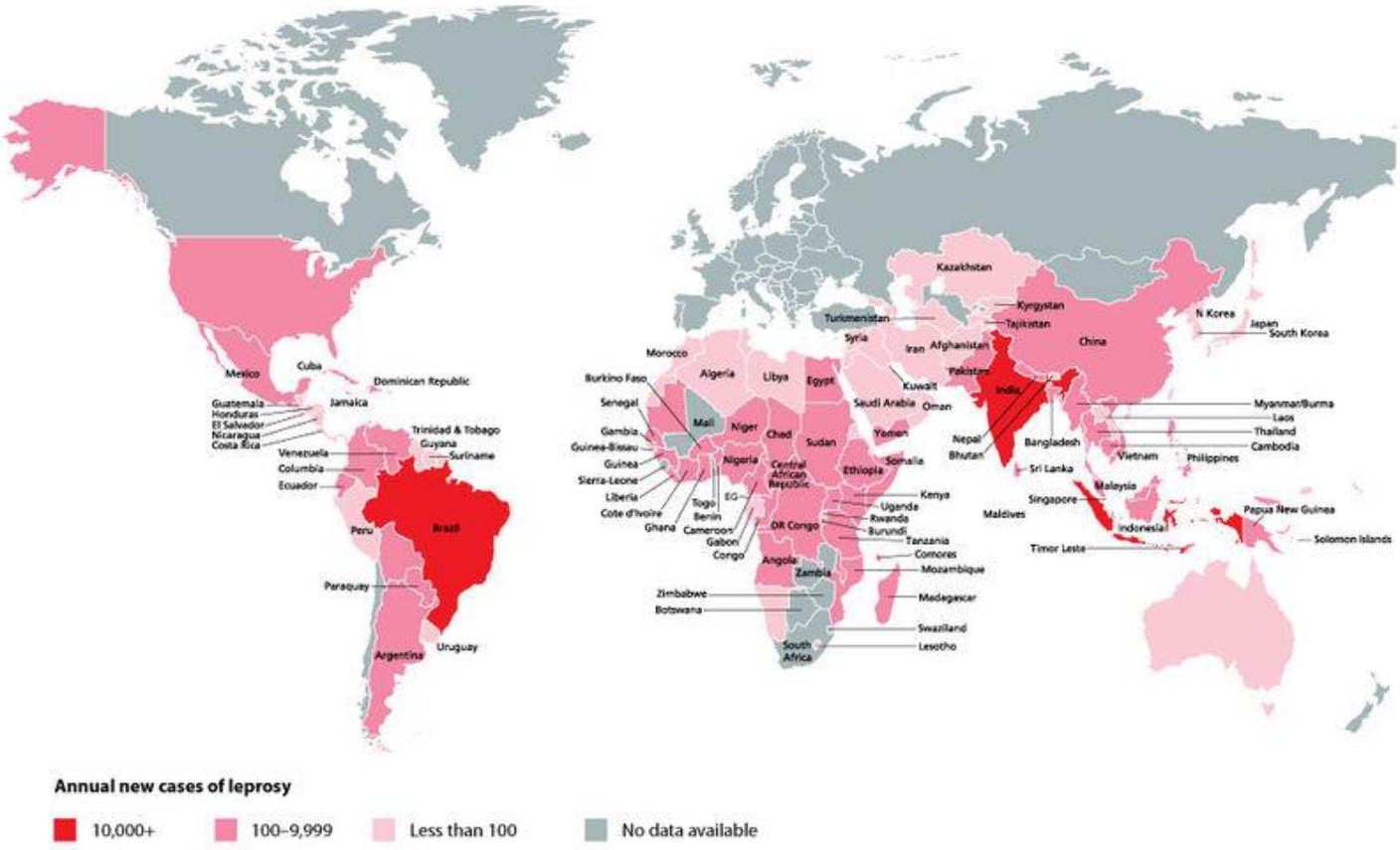
- Direct examination after Ziehl-Neelsen staining was positive for tuberculosis. After six months of antituberculous triple therapy, endoscopic examination revealed a completely normal nasopharynx.

LEPROSY

- Tropics , Mycobacterium leprae.

- The nose is involved more commonly in lepromatous type in comparison to tuberculoid form of leprosy.

- Anterior part of nasal septum and anterior end of inferior turbinate.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Venezuela
Columbia
Ecuador
Trinidad & Tobago
Guyana
Suriname
Peru
Brazil
Paraguay
Argentina
Uruguay
Annual new cases of leprosy
10,000+
100–9,999
Less than 100
No data available

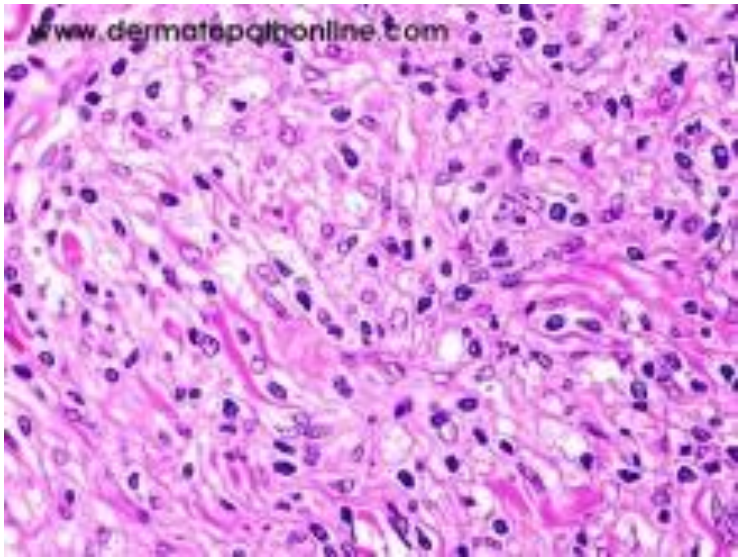
CLINICAL FEATURES

- Excessive nasal discharge with red and swollen mucosa , Crusting and bleeding occurs later , nodular lesions on the septum ulcerate and cause perforation of cartilaginous part of septum.

- Late sequelae: Atrophic rhinitis, depression of nasal bridge.

DIAGNOSIS

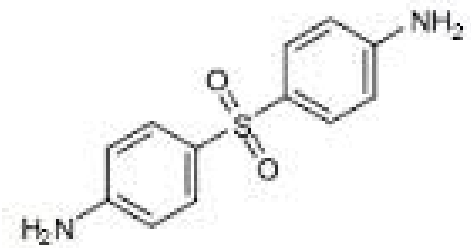
Scrapings of nasal mucosa and biopsy: Acid fast lepra bacilli are present in the foamy appearing macrophages called lepra cells.



TREATMENT

1- Antibiotics: Dapsone, rifampicin and isoniazid.

2. Reconstruction procedures: They are performed when disease is inactive.



Dapson

Reconstruction of moderately depressed nose in leprosy (a long-term follow-up).

Husain S. Indian J Lepr. 2013 Jul-Sep.
Show full citation

Abstract

Fifty seven leprosy patients having moderately collapsed nose were taken for nasal reconstruction. The bone graft was obtained from the second metatarsal of the foot. It was corticoperiosteal and placed in between lining and the nasal skin. 48 patients were reviewed periodically at 3 months, initially for 2 years and irregular visits at 3 to 5 year intervals in last 25 years. The nasal architecture and donor site problems were evaluated. 26 patients were completely satisfied, 14 patients were happy with shape of the nose along with some other problems. 6 cases showed the poor results

57 leprosy patients having moderately collapsed nose were taken for nasal reconstruction.

- The bone graft was obtained from the second metatarsal of the foot, placed in between lining and the nasal skin.

48 patients were followed in 3 to 5 year intervals.

26 patients were completely satisfied, 14 patients were happy with shape of the nose along with some other problems. 6 cases showed the poor results.

Chronic rhinosinusitis in ex-lepromatous leprosy patients with atrophic rhinitis.

Suzuki J, et al. J Laryngol Otol. 2013.
Show full citation

Abstract

AIM: Rhino-sinus mucosal involvement is well documented in untreated lepromatous leprosy, but less understood in ex-leprosy patients (i.e. leprosy patients who have been treated and cured) with atrophic rhinitis.

MATERIALS AND METHODS: Rhino-sinus abnormalities were investigated in 13 ex-lepromatous leprosy patients with atrophic rhinitis, using interviews enquiring about sinonasal symptoms, nasal endoscopy, nasal swab culture and computed tomography. Endoscopic sinus surgery had been performed

Rhino-sinus abnormalities were investigated in 13 ex-lepromatous leprosy patients

All patients had turbinate atrophy (100%) and 6 of the 13 (46.2 %) had septal perforation.

Paranasal sinus involvement was noted in 9 of 12 examined patients (75 %). The most commonly affected sinus was the maxillary sinus 8 of 12(66.7 %).

All three patients treated by endoscopic sinus surgery experienced relapse and required further surgery

SYPHILIS

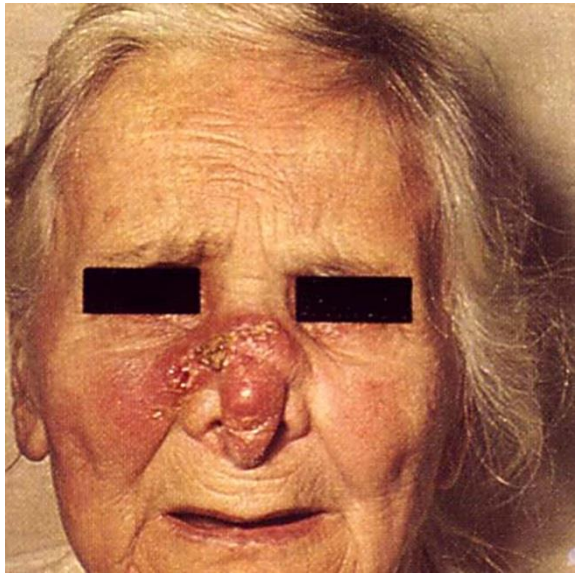
Acquired Syphilis.

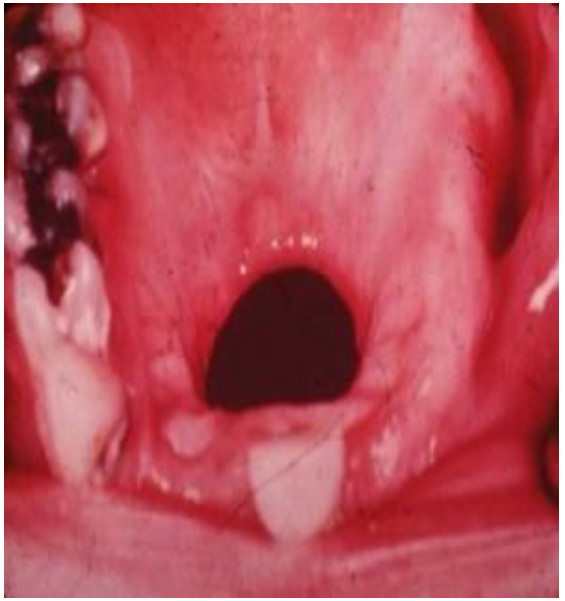
1. Primary: Primary chancre of the vestibule is rare.

2. Secondary: Presents in nose with simple rhinitis with crusting and fissuring in the nasal vestibule.

3. Tertiary: Nose is commonly involved.

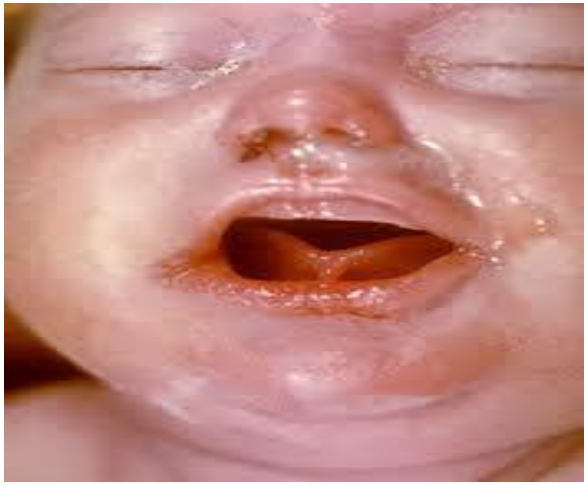
- nasal septum gumma, which destroys both bony and cartilaginous parts of nasal septum (saddle nose deformity and perforation of palate).



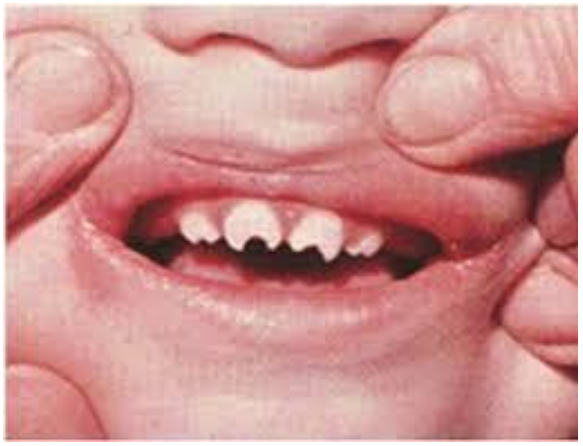


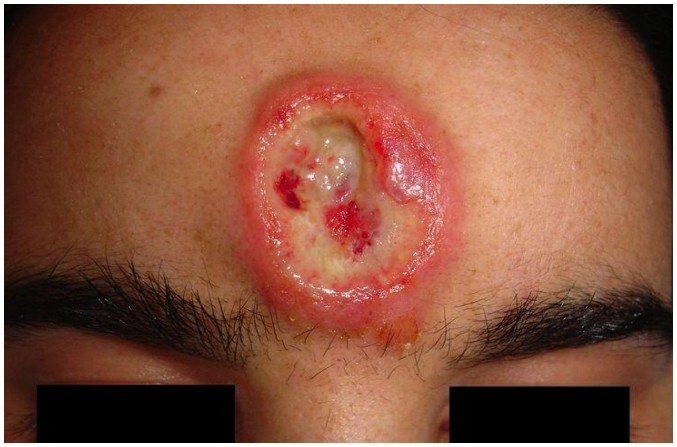
CONGENITAL

1-Early form: In the first 3 months of life, it manifests as “snuffles” and subsequently other findings appear such as purulent nasal discharge, fissuring and excoriations of nasal vestibule and skin of upper lip.



2. Late form: In puberty, clinical features of tertiary syphilis manifest such as gumma and perforation of nasal septum. Other stigmata of syphilis (corneal opacities, deafness and Hutchinson's teeth) are also present.

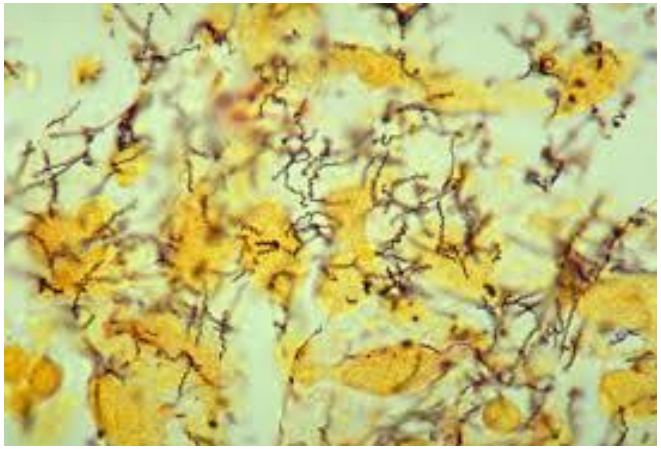




DIAGNOSIS

1- Serological tests: VDRL.

2. Biopsy of the tissue: Special stains demonstrate Trepenoma pallidum.



TREATMENT

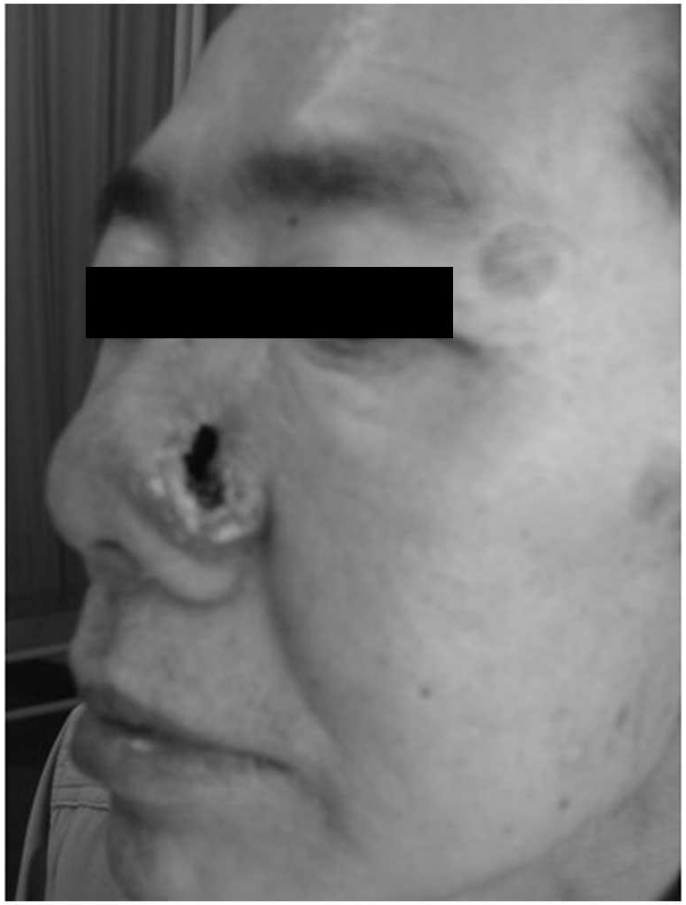
- **Penicillin: Benzathine penicillin.**

- **Nasal alkaline wash , Removal of nasal crusts.**

- **Surgery.**

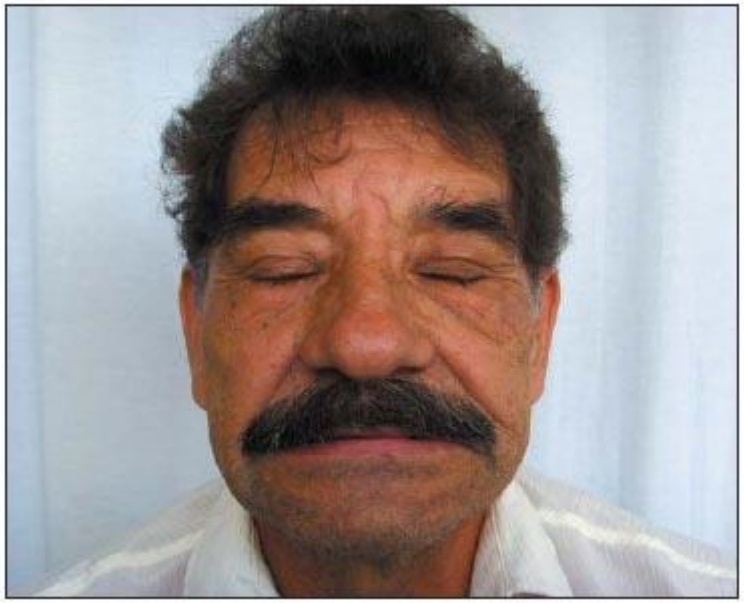
KLEBSIELLA RHINOSCLEROMA

PERIPERERAL T-CELL NEOPLASM (NONHEALING MIDLINE GRANULOMA)

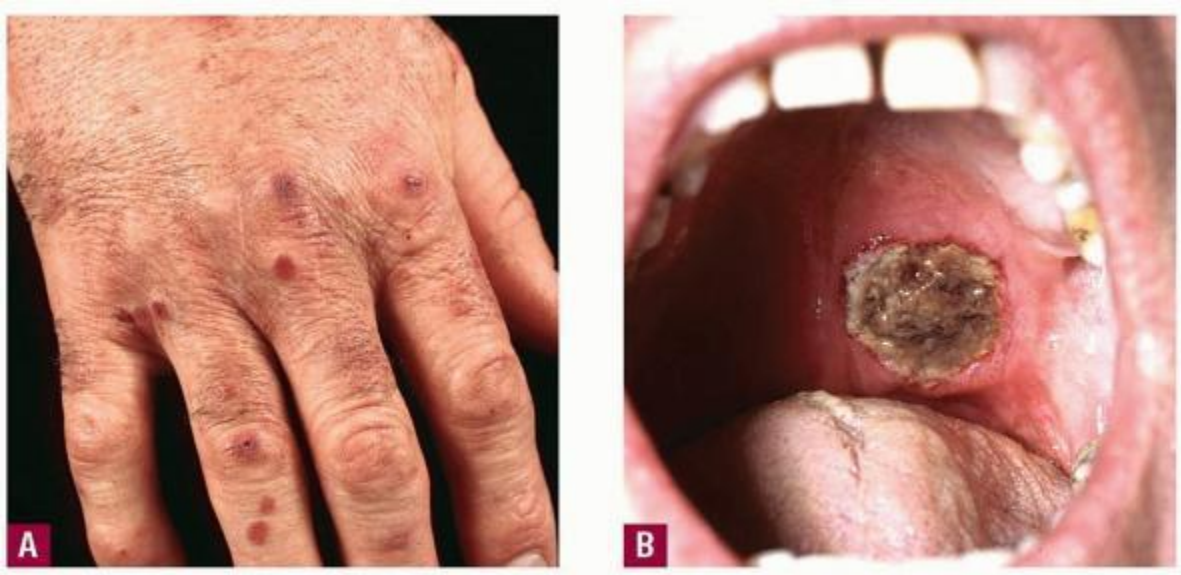


SARCOIDOSIS

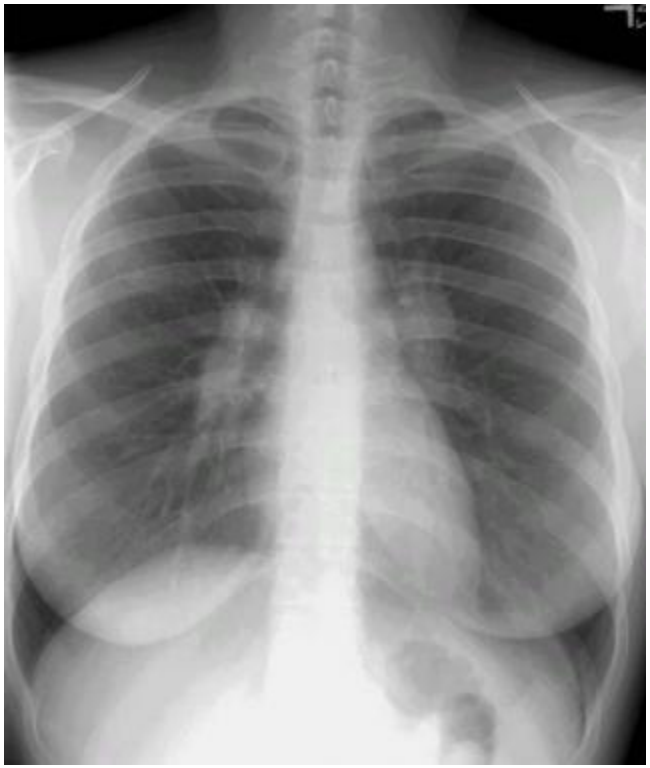
Figure 2. Patient completely recovered from bilateral facial palsy after two months.



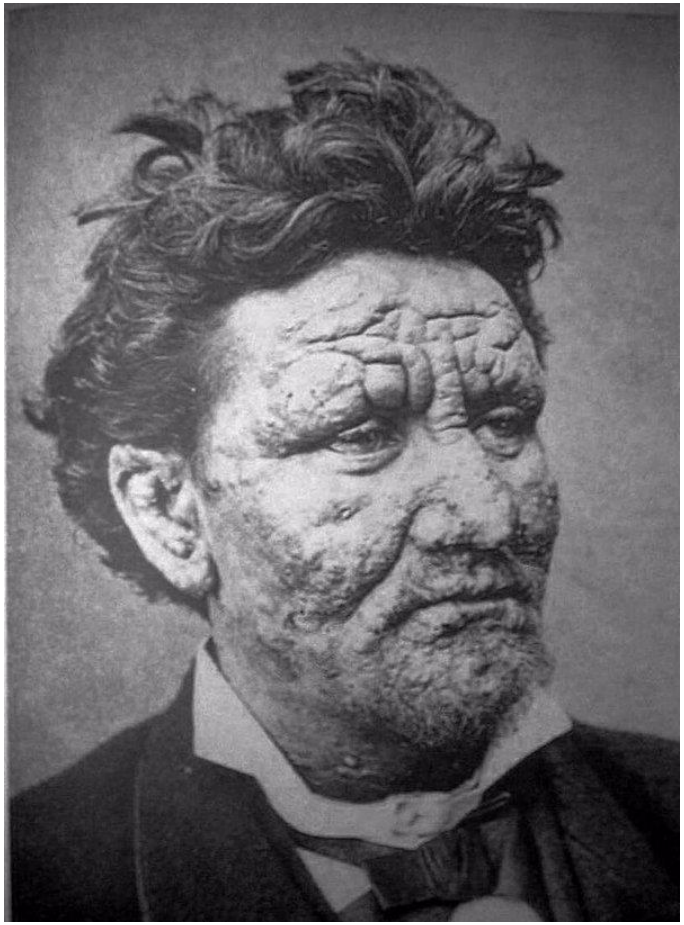
WEGENER GRANULOMATOSIS



SARCOIDOSIS



LEPROSY



DO YOUR BEST !!

TAKE HOME MESSAGES …

- Ent surgeons have an important rule in diagnosing systemic disease.

- Patient focused team approach provides the best care for the patient .

THANK YOU