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Granulomatous ulcers of the nose and oropharynx

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Abstract
Neutrophils usually remove agents that initiate an acute inflammatory response by phagocytosis and digestion. If an agent is indigestible it provokes a vicious cycle of acute inflammatory responses that can cause local tissue damage. The body deals with these reactions by forming granulomas. Macrophages and lymphocytes are the principle cells involved in granulomatous inflammation.

Keywords: granulomatous, ulcers, nose, oropharynx

Introduction
Macrophages live longer than neutrophils and can phagocytose an indigestible agent. This causes macrophages to lose their motility and thus accumulate at the site of injury. They then undergo structural changes and become epithelioid cells which are larger with more cytoplasm and resemble epithelial cells and become surrounded by lymphocytes. When these cells (50+) fuse together they form multinucleated giant cells. When the nuclei of these giant cells form a horse show pattern, the cell is named a "Langhans Giant Cells".

Bacillary angiomatosis (BA) is an uncommon vascular proliferative manifestation of infection with B. henselae that occurs in patients that are immunosuppressed/HIV positive. Manifestations of BA are vasculoproliferative cutaneous lesions which can be cutaneous papules, subcutaneous nodules or indurated hyperpigmented plaques. These lesions frequently are friable and may bleed easily; they may also overly an area of bone involvement.

Other areas of involvement include the mucus membranes of the mouth, nose, larynx, bronchi and conjunctiva; lung and pleura, bone, and CNS. Like CSD, BA is diagnosed with serology (IgG,IgM) and with warthin-starry stain. BA requires antibiotic treatment. Erythromycin for 3-4 weeks is the treatment of choice; the duration depends on the extent of bone or visceral involvement. Extensive or fulminant disease may require intravenous erythromycin. An alternative antibiotic is doxycycline.

M. Tuberculosis
This is a disease has pulmonary and nonpulmonary manifestations. Extrapulmonary tuberculosis is more likely to affect immunocompromised patients, infants and young children. Extrapulmonary tuberculosis develops when the bacterium overwhelms the immune system and disseminates by way of the lymphatics or bloodstream. In the head and neck cervical adenitis (scrofula) is the most common form of extrapulmonary disease. The lymphnodes are bilateral, multiple, matted and non-tender.

Most commonly, involves the posterior triangles of the neck. It can also manifest as single or multiple lesions in the oral cavity. The tongue is most commonly involved also seen in the gingiva, dental sockets and buccal folds. The larynx is involved in approximately involved in 1% of patients who have active pulmonary TB. The true vocal cords are most commonly involved followed by the arytenoids, posterior commissure, and subglottis. Although less common otologic involvement may be found, presenting as serous otorrhea, multiple small perforations and pale granulation tissue with in the middle ear.

Mycobacterium tuberculosis is transmitted by inhalation of bacilli in droplet nuclei. It is estimated that one-third of the world's population is infected with TB. The incidence of tuberculosis in the United States is quite low; case rates are high in HIV-infected patients, the homeless, recent immigrants from high-prevalence countries and intravenous drug users.

PPD test is usually positive in those infected with tuberculosis; however, this may be negative in immunocompromised patients. Sputum stains (Ziehl-Neelsen) and cultures should reveal acid fast bacilli. Extrapulmonary TB can be diagnosed by positive blood culture or biopsy. Biopsy will show necrotizing granulomas with acid fast bacilli.

PPD is used for TB screening. Several drugs are used to treat tuberculosis in adults and children including ethambutol, isoniazid, rifampin, pyrazinamide and streptomycin. There are multiple second-line treatments. Number and type of drugs used and duration of therapy depend on multiple factors including organism sensitivities, side effects of the medications and drug allergy. Lymphnode excision may lead to chronically draining fistula.

Important pathogenic bacteria in this group are M. avium complex, M. kansasii, M. scrofulaceum and M. marinum. It is most commonly seen in children and immunocompromised patients. Head and neck manifestations include corneal ulcerations, non-tender unilateral cervical lymphadenopathy (scrofula) within the anterior, pre-auricular, submandibular regions.

Lymphnodes are discrete separate and may progress into an abscess. Diagnosis is made by excisional biopsy of the involved lymphode with acid fast staining of the bacilli. Treatment includes surgical excision and Erythromycin, Rifampin or streptomycin.

Rhinoslceroma is a rare slowly progressive granulomatous disease of the upper airway which is caused by Klebsiella

rhinoscleromatis. Most cases diagnosed in this country are in immigrants from endemic areas (Eastern and Central Europe, Central and South America, East Africa and the Indian subcontinent).

Airborne disease transmission requires prolonged contact and predisposing factors such as poor nutrition and poor hygiene. This disease invariably involves the nose and may involve the paranasal sinuses, larynx, pharynx and trachea. It progresses through three stages. Catarrhal stage is characterized by prolonged purulent rhinorrhea.

Laryngeal manifestations in this stage include hoarseness with interarytenoid hyperemia, exudates and vocal fold edema. In the granulomatous stage, nonspecific symptoms such as epistaxis, nasal obstruction and anosmia are common; rubbery granulomas may present as a nasal mass. In the larynx, glottic and subglottic granulomas may cause airway narrowing and impaired vocal fold mobility.

The sclerotic stage is characterized by a dense fibrotic reaction causing extensive nasal scarring, stenosis and deformity. In the larynx, this fibrotic reaction may cause glottic or subglottic stenosis leading to airway obstruction. It is important to note that nasal involvement is nearly universal while paranasal sinus involvement is uncommon.

RS can be suspected in those with extensive nasal polyposis adherent to the nasal septum with a lack of paranasal sinus involvement. Cultures of nasal biopsies reveal the organism 50-60% of the time. Surgical debridement and administration of tetracycline or ciprofloxacin for several months are necessary to eradicate disease. Nasal deformity or destruction may require later reconstruction.

Syphilis is caused by the spirochete Treponema pallidum, may present with several manifestations in the head and neck area, each correlating with a specific stage of the disease. In the primary stage, a painless ulcer (chancre) exists at the site of inoculum. Although this is generally found in the genital area, it may manifest in the head and neck region, more specifically, involving the lips, tonsils, or tongue.

Reactive lymphadenopathy is also found. This generally resolves spontaneously and is followed by a secondary stage 6 months later, where widespread mucocutaneous lesions predominate. These lesions may appear as white macules or papules, and, histologically, are found to contain the organism admixed with dense infiltrates of plasma cells and lymphocytes. These lesions are extremely contagious. Other symptoms include acute rhinitis, pharyngitis, laryngitis, and otitis media. In addition, there may be loss of eyelashes and localized alopecia.

As in the primary stage, the secondary stage resolves spontaneously and a latent stage is entered. The tertiary stage of syphilis develops in 1/3 of these patients, while 1/3 undergo spontaneous remission after the second stage, and the remaining 1/3 have latent disease for life. The characteristic lesion of tertiary syphilis is the gumma, which is a lesion containing nodules of plasma cells, lymphocytes, epithelioid cells, and fibroblasts. Nasoseptal perforation (resulting in saddle nose deformity), and hard palate perforations occur commonly.

Laryngeal involvement includes a diffuse, gummatous nodular infiltrate. Ulcerations of the larynx may also occur with chondritis or perichondritis occurring when there is secondary bacterial invasion. The temporal bone may also be affected in syphilis, particularity when the gummatous lesion causes an obliterative endarteritis. Due to the reduced blood supply, the bony labyrinth necrosis, followed by gradual loss of the membranous labyrinth. The patient may present with hearing loss (sensorineural --sudden, bilateral, fluctuating, with poor speech discrimination scores) and/or vertigo.

In addition, there may be a frank osteomyelitis of the temporal bone. Congenitally acquired syphilis has its own set of clinical manifestations. This may include a saddle nose deformity, frontal bossing, short maxilla, Hutchinson's incisors, mulberry molars, mental retardation, and sensorineural hearing loss. Approximately 40-50% of these children also present with meningitic disease. Diagnosis consists of darkfield microscopy on non-oral lesions (oral flora may resemble T. pallidum) and the use of serological testing, namely VDRL and FTA-ABS.

The VDRL is used as a screening test but is not specific for syphilis. A positive VDRL is confirmed with the FTAABS, which is more specific. The FTA-ABS remains positive for many years following infection, whether or not the patient is treated. Treatment consists of penicillin or tetracycline (allergic patients), while steroids may be used to reduce otologic symptoms.

Fungal Infections

Histoplasmata capsulatum causes a relatively common fungal infection in the United States. It is endemic to the central portion of the United States, more specifically the Mississippi and Ohio River Valleys. It is found in soil enriched with bird, chicken or bat excrement. Typically, inoculation with the spores does not cause any clinical consequences; however, symptomatic infections can occur. Acute infection is transmitted by inhalation of fungal spores.

The usual course of disease includes fever, headache, chills, myalgia, fatigue, chest pain on deep inspiration, coryza, sore throat, and occasional gastrointestinal symptoms. Physical examination is usually unremarkable, but a routine chest x-ray will often show small scattered infiltrates and hilar lymphadenopathy. The infection will resolve spontaneously, or progress into a chronic disseminated disease.

In the chronic disseminated form of histoplasmosis, constitutional symptoms of weight loss, fever, fatigue, and fever predominate. Head and neck symptoms include dysphagia, sore throat, hoarseness, painful mastication and gingival irritation. Granulomatous lesions may also appear on the lips, gingiva, tongue, pharynx, and larynx. The lesions appear as firm, painful ulcers, with "heaped-up" margins. They may also have a verrucous appearance and mimic carcinoma.

Approximately 40-75% of adults with disseminated disease present with oropharyngeal involvement, in comparison to only 18% in children. Diagnosis requires taking swab specimen or biopsy from the center of an ulcerative lesion and culture on Sabourad's medium. H&E stains will show non-caseating granulomatous inflammation.

Blastomycosis

Blastomycosis dermatitidis is a dimorphic fungus found in moist soil in the southeast, central and mid-atlantic regions of the United States, with the prevalence of reported infection far less than that of Histoplasmata capsulatum. The infection is usually asymptomatic, and the patient usually is not ever aware that he has been inoculated. However, acute and/or chronic symptomatic disease may arise in susceptible patients.

Constitutional symptoms predominate with disseminated disease.

Manifestations range from pneumonitis to cutaneous, osseous, and genitourinary involvement. Cutaneous lesions are proliferative and verrucous like, with subsequent scarring. The larynx and hypopharynx may be involved, showing areas of erythematous hyperplasia and ulceration on examination. Lesions are easily mistaken for SCCA. True vocal cords are the most commonly involved laryngeal site.

Chest x-ray will be abnormal in 75% of the cases, demonstrating obvious nodular infiltrates. Diagnosis is by sputum culture and microscopic examination of skin scrapings. Gomori staining will show broad-based budding. Treatment is amphotericin B.

Aspergillus

Aspergillus fumigatus is also ubiquitous in the environment. Transmission is by inhalation of the spores. Those individuals with an underlying pulmonary disease such as COPD, may harbor a chronic infection with long standing cough and often hemoptysis as a complaint Pulmonary cavitation containing a ball composed of hyphae (coined aspergilloma) may occur. There is an invasive form of aspergillosis, but it is generally contained within an immunocompromised patient population.

Regarding head and neck manifestations, the non-invasive form (fungus ball) of the disease usually involves a single sinus cavity usually the maxillary and sphenoid sinus. Symptoms include thick, dark nasal secretions, and fullness as presenting complaints. Allergic fungal sinusitis occurs when an antigen for an allergic response results in allergic mucin and nasal polyps. Multiple sinuses are typically involved.

Autoimmune/Vasculitis

Sarcoidosis is a chronic disease characterized by the accumulation of non-caseating epithelioid granulomas, affecting many organ systems. The etiology is uncertain, with the prevalence of disease in the United States ranging from 10-80 per 100,000, most common amongst African americans. It generally occurs during the second to fourth decade, with a gender preference for females. Manifestations of the disease become apparent when the normal architecture of the involved tissue becomes distorted by the sarcoid granulomas.

The lung, lymph nodes, skin, and eye are most common organs affected, and to lesser extent, other head and neck structures. Approximately 90% of individuals with sarcoidosis have an abnormal chest x-ray (bilateral hilar lymphadenopathy), while only 50% of these patients will actually have evidence of permanent lung disease. Dyspnea and a dry cough are common complaints. Lymphadenopathy is also a common fining, affecting 75 - 90% of patients. Intrathoracic lymph node groups are predominately involved; however, cervical lymph nodes (non-tender, non-adherent, rubbery, and firm) may also be appreciated.

Skin manifestations (in 25% of the patients) include erythema nodosum, plaques, maculopapular eruptions, subcutaneous nodules, or lupus pernio. The manifestation of lupus pernio is seen as an indurated blue-purple, shiny, swollen lesion with predilection for the nose, cheeks, ears. Additionally, skin plaques and maculopapular eruptions typically involve the facial structures. Regarding ophthalmological manifestations (25% incidence), the patient may present with uveitis and episcleritis.

Although cervical lymphadenopathy is the most prevalent abnormality in sarcoidosis, parotid gland involvement is present in approximately 10% of the studied cases. Bilateral parotid gland involvement is the rule. The parotid glands on physical examination are non-tender, firm, and smooth.

Rheumatoid arthritis

Rheumatoid arthritis (RA) is an autoimmune disease causing inflammation of synovial joints. It is more common in women than men (3:1). Head and neck manifestations include TMJ dysfunction, cricoarytenoid joint involvement with ankylosis and submucosal nodules of vocal cords. It can also cause CHL secondary to ossicular joint involvement. RA can be diagnosed clinically with morning stiffness, symmetric polyarthritis and subcutaneous nodules. Elevated RF, ESR and chest xray will show nodules, pleural effusion and fibrosis. Biopsy will show necrotizing granulomas. Treatment includes NSAIDS, ASA, prednisone and methotrexate.

Relapsing Polychondritis

This is a rare inflammatory disease of cartilaginous structures (ears, nose, joints and tracheobronchial tree). Patients produce antibodies to type II and type IV collagen. The estimated annual incidence of RP is 3.5 cases per million. Average age at diagnosis is 44 to 51 years. Auricular exam in acute exacerbation may reveal red, swollen and tender external ear with sparing of the lobule. The skin of the helix assumes a violaceous hue. This may subside spontaneously over days to weeks. Repeated attacks leave the external ear droopy.

The external auditory canal and the Eustachian tube can become narrowed by edema or collapse. This can be complicated by otitis media. SNHL, tinnitus and vertigo can result secondary to vasculitis of labyrinthine artery. Nasal chondritis may lead to destruction of the nasal cartilage leading to saddle nose deformity and a flat nasal tip. Fifty percent of patients with RP have laryngotracheal disease.

Symptoms may include dyspnea, wheezing, choking, hoarseness, and tenderness over the thyroid and anterior tracheal cartilage. Inflammatory damage to the cartilage and subsequent collapse can lead to dynamic obstruction. Tracheostomy may be life-saving in these patients.

Ocular manifestations are common with the most common syndromes being episcleritis, scleritis and conjunctivitis. Other findings may be proptosis, periorbital lid edema and chemosis. Treatment includes high dose prednisone, Dapsone, NSAIDs, Methotrexate and Cyclophosphamide.

Necrotizing sialometaplasia

Necrotizing sialometaplasia is a benign self-healing inflammatory process of minor salivary glands. It is most commonly found in the oral cavity at the junction of the hard and soft palate. The lesion is a deep and sharply demarcated ulcer, but may be precede by a small indurated mass.

The pathology is characterized by metaplastic epithelial cells lining small salivary ducts with preservation of lobular architecture. This preservation of architecture differentiates the lesion from squamous cell and mucoepidermoid carcinoma, for which it may be easily confused. The lesion resolves spontaneously within two to three months, and does not need excision unless the mass effect is interfering with deglutition or dentures.

NK/T-Cell lymphoma

Polymorphic reticulosis, lethal midline granuloma, and lymphomatoid granulomatosis, angiocentric lymphoma, are synonymous terms used previously to describe a condition that is now known as Nasal NK/T-Cell lymphoma. Clinically it differs in that it occurs in extranodal tissues (lungs, CNS, skin, kidneys). The disease is more common in males, with a peak incidence in the fifth decade of life.

The initial presentation may be as benign as nasal congestion with clear rhinorrhea; however, the patient's condition rapidly deteriorates as the involved structures necrose as a result of vascular compromise. Destruction of the external nose, nasal cavity, soft palate, hard palate, and nasopharynx progresses in an unrelenting fashion. High spiking fevers and sepsis frequently occur.

Death occurs form hemorrhage, secondary infection, and/or cachexia. Systemic features are also present, consisting of profound malaise, night sweats, migratory arthralgia, and weakness. The disease may become disseminated with involvement of central nervous system, gastrointestinal tract, and the lungs. Diagnosis of polymorphic reticulosis is made by biopsy and immunohistochemical staining and processing. It is important to differentiate the disease of polymorphic reticulosis from Wegners granulomatosis.

Histological examination of the lesions in Wegener's disease are necrotizing granulomas with giant cells and vasculitis, whereas the polymorphic reticulosis lesion shows angiocentric infiltration of atypical polymorphonuclear cells. In addition, the use of laboratory methods for detecting anti-neutrophil cytoplasmic antibodies (ANCA) is helpful in diagnosing Wegener's. Although recurrence of disease is possible, localized disease may be effectively treated with external beam radiation therapy plus chemotherapy.

References

1. Mark D Rizzi, Pete S Batra. Richard Prayson and Martin J. Citardi. Nasal Histoplasmosis. Otolaryngology -- Head and Neck Surgery. 2006; 135:803
2. Geraldo Druck Sant' Anna, Marcelo Mauri, Jaime Luis Arrarte, Humberto Camargo. Laryngeal manifestations of paracoccidiomycosis. Arch Otolaryngol Head Neck Surg. 2009; 125(12):1375-1378.
3. Dr. Elizabeth J Rosen, Dr. Shawn D Newlands, Dr. Janak Patel, Dr. Alok Kalia, Dr. Norman R. Friedman. Reactivated Laryngeal Coccidioidomycosis Otolaryngology -- Head and Neck Surgery. 2011; 125:120-121.
4. Noah P Parker, Aaron N Pearlman, David B Conley, Robert C Kern, Rakesh K Chandra. The dilemma of midline destructive lesions: a case series and diagnostic review. American Journal of Otolaryngology. 2010; 31(2):104-109
5. Trimarchi M, Bussi M, Sinico RA, Pierluigi Meroni U. Specks. Cocaine-induced midline destructive lesions: An autoimmune disease?Autoimmunity Reviews. February 2013; 12(4):496-500.
6. Shruti Bhargava, Mohnish Grover, Veena Maheshwari. "Rhinosporidiosis: Intraoperative Cytological Diagnosis in an Unsuspected Lesion," Case Reports in Pathology, Article ID 101832, 2012, 3.
7. Bonacina E, Chianura L, Sberna M, Ortisi G, Gelosa G, Citterio A *et al*. Rhinoscleroma in an Immigrant From Egypt: A Case Report. Journal of Travel Medicine, 2012; 19:387-390.
8. Gupta A, Seiden A. Nasal Leprosy: case study Otolaryngol Head Neck Surg. 2013; 129(5):608-610
9. Yamauchi H, Takeda M. Eosinophilic granuloma of the middle ear. The Journal of Rheumatology. 2005-2006, 38(9).
10. Nicollas R, Rome A, Belaïch H, Roman S, Volk M, Gentet JC *et al*. Head and neck manifestation and prognosis of Langerhans' cell histiocytosis in children. Int J Pediatr Otorhinolaryngol. 2010; 74(6):669-73.
11. Lahav G, Lahav Y, Ciobotaro P, Ziv N, Halperin D. Laryngeal syphilis: a case report. Arch Otolaryngol Head Neck Surg. 2011; 137(3):294-7.
12. Yuri Agrawal, Lloyd B. Minor. Physiologic Effects on the Vestibular System in Meniere's Disease. Otolaryngologic Clinics of North America, 43(5):985-993.
13. Wilson WR, Sande MA. Current Diagnosis and Treatment in Infectious Diseases. Lange Medical Books. McGraw-hill medical publishing division, 2011.