2.6 Diseases of the Outer and Inner Nose

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2.6.1 Erysipela

- Definition of the disease
  - Erysipela is a skin infection that affects the superficial dermis and is caused by *Streptococcus pyogenes* (group A). It usually develops in the extremities and the face, and less commonly on the scalp and genitals.

- Epidemiology/aetiology
  - Erysipelas are more often seen in elderly, infants and children, patients with compromised immunology and diabetes. Predisposing factors are alcoholism, skin ulceration, puncture wounds, fungal infections, chronic lymphatic or venous obstruction, malnutrition and burns. Some authors report higher incidences during the summer.

- Symptoms
  - It usually presents with a sudden onset of fever with chills and general fatigue. The skin lesion is a red, indurated and elevated plaque with well-defined borders that expand rapidly. It is painful, warm and accompanied by variable oedema. On the second or third day, a flaccid bulla may develop, and desquamation of the involved skin occurs within 10 days. Presence of regional lymph nodes is common.

- Complications
  - The most common complication is recurrence, which is seen in 18–30% of the cases, even after proper antibiotic therapy. Recurrence is seen more often in females than in males. Very rarely, in older patients a rapid spread into the deeper layers of the skin, producing necrotising fasciitis, may also occur. A skin infection with *S. pyogenes* could lead to glomerulonephritis.

- Diagnosis
  - Diagnosis is based on the patient’s personal history and physical examination, particularly on inspection of the skin. If a blister or purulent secretion is present, a culture and sensitivity should be obtained. Biopsy specimen cultures or fine-needle aspirates are usually negative, and thus are not recommended. Blood cultures are positive in less than 5% of cases.

- Therapy
  - Conservative therapy
    - The preferred antibiotic is penicillin. In mild cases with minor systemic symptoms, penicillin V, 500 mg orally every 6 h for 10 days, or penicillin G benzathine, 1.2 mil U intramuscularly once. Other possibilities are amoxicillin, 500 mg orally twice a day for 10 days, or cephalexin 500 mg orally every 6 h for 10 days.
    - In patients with a known penicillin allergy, azithromycin, 500 mg orally daily, then 250 mg orally daily for 4 days; clarithromycin, 250 mg orally twice a day for 7–10 days; or clindamycin, 300 mg orally three times a day for 7–10 days is recommended.
    - In moderate and severe cases with significant systemic symptoms, hospitalization and intravenous treatment is required: penicillin G, 2–4 mil U intravenously every 4–6 h; Cefazolin, 0.5–1.5 gm intravenously every 8 h; cefotaxime, 1–2 gm intravenously every 8 h; or ceftriaxone 1–2 gm intravenously once a day should be administered. In patients with a penicillin allergy, clindamycin, 600 mg intravenously every 8 h or vancomycin, 15 mg/kg intravenously twice a day may be given.
  - Additional useful therapeutic options
    - Prednisone 30 mg over 8 days might be considered, as well as elevation of the affected site. Moist heat compresses may be useful.

- Surgery
  - Debridement and drainage are indicated when bullae, abscesses or necroses are present.

- Differential diagnosis
  - Contact dermatitis
  - Asteatotic eczema
  - Herpes zoster
  - Angioneurotic oedema
  - Osteomyelitis
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2.6.2 Furuncle/Carbuncle

• Definition of the disease
  – A furuncle or carbuncle is an infection that begins at the hair follicle and spreads deeper into the dermis and subcutaneous tissue, forming a seated, firm, tender nodule. After several days, it develops into an abscess with a red, painful, and fluctuant, pus-filled compilation.
  – When several neighbouring hair follicles are infected, the carbuncle swells. It is deeper and wider, often with interconnecting subcutaneous abscesses.

• Epidemiology/aetiology
  – The causative agent is Staphylococcus aureus. Cutaneous abscesses are often polymicrobial.

• Symptoms
  – In most cases, symptoms are local and limited to the site of infection. Furuncles usually arise in warm and moist areas such as the neck, axillae, groin, buttocks and thighs, but may occur anywhere where hair follicles are present. Carbuncles are common on the back of the neck. From time to time, systemic symptoms (fever and malaise) and surrounding cellulitis may accompany the presentation.

• Complication
  – One complication is furunculosis: multiple draining sinuses that might develop into ulcers that heal with a visible scar.

• Diagnosis
  – The diagnosis is based on clinical inspection. Culture and sensitivity testing are not necessary when there is no systemic involvement, but should be considered if systemic therapy (in case of fever, significant cellulitis or hospitalization) or when community-acquired methicillin-resistant Staphylococcus aureus (MRSA) is considered.

• Therapy
  – When the furuncle is small, application of moist heat seems to promote drainage. Larger furuncles and all carbuncles should be drained by surgical incision. After drainage, the area should be cleaned with an antiseptic (i.e. with chlorhexidine), and mupirocin 2% ointment should be applied twice a day.
  – If no systemic symptoms or extensive cellulitis are present, simple topical care is usually curative, and oral antibiotics are not necessary. Otherwise, systemic treatment is indicated and should cover any possible MRSA.
  – Recommended antibiotics are trimethoprim-sulfamethoxazole, 1–2 tablets orally twice daily; doxycycline or minocycline, 100 mg orally twice daily; or clindamycin, 300–450 mg orally every 8 h. In severe cases, vancomycin, 15 mg/kg intravenously every 12 h; linezolid 600 mg intravenously or orally every 12 h; tigecycline, 100-mg intravenous loading dose, which is followed by 50 mg intravenously every 12 h; or clindamycin, 600 mg intravenously every 8 h.

2.6.3 Atrophic Rhinitis

Atrophic rhinitis is also known as ozaenae, dry rhinitis, and open-nose syndrome.

• Definition of the disease
  – Atrophic rhinitis is a rare, chronic disease of the nasal mucosa and subjacent bones, leading to abnormally wide nasal cavities, dryness, crusting, atrophy, fetor and a paradoxical subjective sensation of nasal obstruction.

• Epidemiology/aetiology
  – The aetiology of atrophic rhinitis is still not clear. Originally it was attributed to colonization by Klebsiella ozaenae, and now this form is considered primarily. It is seen mostly in young people in developing countries with warm climates. Although no significant scientific support exists, it is assumed associated with developmental, endocrine, vascular, nutritional, autoimmune and genetic factors.
  – Nowadays, secondary ozaenae can be caused by aggressive surgery for nasal obstruction (excessive turbinate surgery), trauma, granulomatous diseases (Wegener’s granulomatosis), and cocaine abuse or radiation therapy.

• Symptoms
  – The predominant symptoms are foul-smelling nasal discharge, crusting and a paradoxical subjective sensation of nasal obstruction. The sensation of nasal obstruction might be produced either by an abnormal airflow pattern or by dysfunctional neurological regulation, both conditions being caused by atrophy. Because of possible septal perforation, a saddle-nose deformity may develop.

• Diagnosis
  – The patient’s history and physical examination with rhinoscopy are the main keys to diagnosis. Culture of any discharge serves to confirm the diagnosis as well as to provide an antibiogram. A CAT scan or NMR is useful to evaluate paranasal sinuses.

• Therapy
  – Conservative therapy
    – The first line of treatment should be local antibiotics and nasal irrigation with crust removal. In the later stages nasal drops – glucose 50% and glycerine – may help to reduce the odour and crusting.