SCABIES

Background
1. Ectoparasitic infestation caused by arthropod *sarcoptes scabiei var hominis*
2. Intensely pruritic skin infection caused by female mites laying eggs in skin burrow

Pathophysiology
1. Pathology of Disease
   
   o Obligate parasite that burrows into epidermis within 30 minutes of skin contact.
   o Type 1 and type 4 hypersensitivity³
   o Causes superficial and deep and perivasculer inflammatory reactions³
   o Classification
     ■ Classic¹
     ■ Nodular¹
     ■ Vesicular¹
     ■ Crusted (Norwegian)³

2. Transmission
   o Direct skin to skin contact
   o Sexual transmission

3. Incidence, Prevalence:²
   o 300 million cases per year worldwide
   o Increased incidence in humid, tropical climates

4. Risk Factors
   o Higher incidence in homosexuals, oral contraceptive users, alcohol abusers and immunocompromised individuals¹
   o Overcrowding¹
   o Limited access to water¹
   o Immobilization¹
   o Immunocompromise²
   o Alcohol Abusers¹

5. Morbidity / Mortality
   o Not life threatening, but significant morbidity²
   o Discomfort, loss of sleep caused by pruritus
   o Secondary skin infections, leading to impetigo, furuncles, cellulitis, glomerulonephritis, rheumatic heart disease¹
   o Common bacteria: staphylococcus aureus and group A streptococcus²

History
²
1. Present with pruritic skin lesions more symptomatic at night
   o Physical Examination:
     ■ Small erythematos paplovesicular rash, symmetrical with predilection
       for:
       • anterior axillary folds,
       • nipple area in females,
       • periumbilical skin,
- elbows,
- volar wrist surfaces,
- interdigital web spaces,
- belt line,
- thighs,
- buttocks,
- penis,
- scrotum
- ankles

- Lesions typically spare head, face, and neck in adults, but these areas may be affected in infants and immunocompromised individuals.
- Pathognomonic lesions: skin burrows and scabetic nodules.

**Diagnostics**

1. Clinical History and Physical Exam
2. Gold Standard – Direct Visualization of mite
3. Diagnostic Testing
   - 10% KOH
   - Direct burrow test
   - Biopsy
   - PCR

**Differential Diagnosis**

1. Key Differential Diagnoses:
   - Impetigo,
   - folliculitis/furunculosis,
   - tinea corporus,
   - syphilis,
   - insect bites,
   - animal scabies,
   - papular urticaria,
   - allergic reaction/drug rash,
   - psoriasis,
   - eczema,
   - seborrheic
   - dermatitis,
   - systemic lupus,
   - erythematous,
   - bullous pemphigoid,
   - lymphomatoid papulosis,
   - dermatitis herpetiformis,
   - langerhans cell histiocytosis,
   - Sezary syndrome,
   - infantile acropustulosis
Therapeutics

1. Acute Treatment
   o Topical
     ▪ Permethrin, precipitated sulfur, lindane, benzyl benzoate, monosulfiram, crotamiton and malathion³ (PEPID – please link all meds to the PEPID drug database where available)
     ▪ Scabicides (need to first remove crusts/scaling)¹
     ▪ Permethrin (TOC) - single 5% whole body application; bathe 8-14 hrs after initial application³
       - Can be used in infants¹
       - Use mittens to keep infant from rubbing into eyes¹
       - Wash off in 8 hrs⁵,⁴
       - Pregnancy category B⁵
     ▪ Precipitated sulfur in 6% petrolatum- single whole body application³
       - Pts <2yo, pregnant (TOC)¹
     ▪ Lindane 1% - single whole body application; bathe 8-14 hrs after initial application³
       - Neurotoxic complications resulting in convulsions²,⁴
       - Contraindicated in infants and children¹
       - Contraindicated in crusted type
       - Pregnancy category C³
     ▪ Benzyl benzoate 5% - single whole body application³
       - Not safe in pregnancy, lactating women, children less than 2 y/o¹
     ▪ Malathion³
       - Little information pertaining to use in scabies
       - More research needed to recommend use
   o Oral
     ▪ Ivermectin- 200 microgram/kg/dose for 1 po dose³
       - Not in pregnant or lactating women⁴
       - TOC for nodular type
     ▪ 2 oral doses equivalent to 1 application of permethrin³
   o Combination
     ▪ Crusted type requires combination treatment
       - Permethrin 5% topical application x7 days and
       - Oral Ivermectin 200 microgram/kg/dose po once daily on day 1, 2, 8, 9, 15⁵

2. Further Management⁵
   o Prior to treatment remove all bedding, dirty clothing and
     ▪ Wash with hot water
     ▪ Dry on high heat cycles
     ▪ Dry clean or seal in plastic bags for 3 days if not washable.
     ▪ Must vacuum house.
   o Nodular scabies - after successful treatment
     ▪ If nodules persist, may treat with intraleisional triamcinolone 5-10 mg/ml - 0.1 ml per nodule usually sufficient.
Symptomatic treatment with oral antihistamines and topical steroids

**Patient Education**

1. Normal for patients to experience persistence of symptoms for 2-6 wks after successful treatment
2. Pruritus may worsen temporarily after treatment secondary to massive death of mites and release of toxic products.
3. Must treat all close contacts.

**Follow-Up**

1. Follow up at 2 weeks post treatment
   - Recurrence usually secondary to reinfection from untreated contacts.
2. Admit to Hospital
   - Severe secondary complications, such as superimposed bacterial infections
     - Cellulitis and pyoderma require appropriate IV antibiotics.
   - Secondary skin infections, leading to impetigo, furuncles, cellulitis, glomerulonephritis, rheumatic heart disease

**References**

1. Golant AK, Levitt JO. Scabies: A Review of Diagnosis and Management Based on Mite Biology. *Pediatrics in Review* 2012; 33;e1 DOI: 10.1542/pir.33-1-e1

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