

# Scabies & Pediculosis

Digital Lecture Series

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# Scabies

- A very common public health problem affecting 100 million persons annually but highly contagious ectoparasitic infestation of skin by human itch mite (*Sarcoptes scabiei* var *hominis*)
- Belongs to
  - Sub order: Astigmata
  - Family: Sarcoptidae

# Incidence and Prevalence



- Predominantly though a disease of children it affects people of all races and social classes worldwide
- Exact incidence not known and vary from time to time
- Highest prevalence in children <2 years
- **Risk factors**
  - High humidity, low temperature such as tropical and subtropical countries
  - Overcrowding, poor hygiene, homelessness, poor nutrition
  - Infested member in family or sexual partner
  - More in winter and autumn

# Morphology and Life Cycle

- Whitish hemispherical mite
- Female mite (0.4 mm x 0.3 mm) bigger than male (0.2 X 0.15 mm)
- Crawls 2.5 cm/min on warm skin
- **Life cycle-**
  - Only fertilized female can burrow into skin
  - Burrows through stratum corneum up to malpighian layer at the rate 0.5-5 mm/day
  - Lay about 150-180 eggs in lifetime
  - Mite dies after about 30 days
  - Egg → Larvae → Nymph; Undergoes three moults → mature mite

- Favours certain specific areas of skin
- Face not ideal place for colonisation in adults (high density of hair follicles)
- A healthy patient harbours in an average 10-12 mites, maximum up to 50
- In Norwegian scabies it may increase up to 2 million
- Lives till 1-2 months in a person, but outside the body it survives only for 24-36 hours at room conditions
- Dies if exposed to temp. of 50° C for 10 minutes

# Transmission

- Close person to person contact (even for 15-20 minutes)
- Occasionally via fomites (e.g., bedding or clothing)
- In adults scabies is frequently sexually acquired
- Can not be transferred by pets and animals

# Clinical Features



- Incubation period is 3 weeks
- In cases of reinfestation, symptoms develop in 1-3 days
- Intense itching, predominantly at night
- In day time it is tolerable but persistent

- Pruritic, papular or papulo-vesicular lesions, excoriations and burrows
- “Burrow” is the pathognomonic lesion of scabies, a serpentine, thread like, greyish or dark line approximately 5 mm long found where stratum corneum is thin
- Predominantly involves finger webs, wrist, axillae, areola, umbilicus, lower abdomen, genitalia and buttocks forming an imaginary circle - “circle of Hebra”
- In adults usually spares face and scalp
- In infants it involves entire skin



# Clinical Types

- Scabies in children
- Nodular scabies
- Bullous scabies
- Scabies in clean
- Norwegian scabies (crusted scabies)
- Scabies incognito
- Animal transmitted scabies



**Infantile scabies**

# Clinical Types



**Norwegian scabies**



**Nodular scabies**

# Complications

- Ulcerations and impetiginization due to scratching
- Secondary bacterial infection - ecthyma, bullous impetigo
- Sometimes post - streptococcal glomerulonephritis
- Leukocytoclastic vasculitis

# Secondary Infection in Scabies

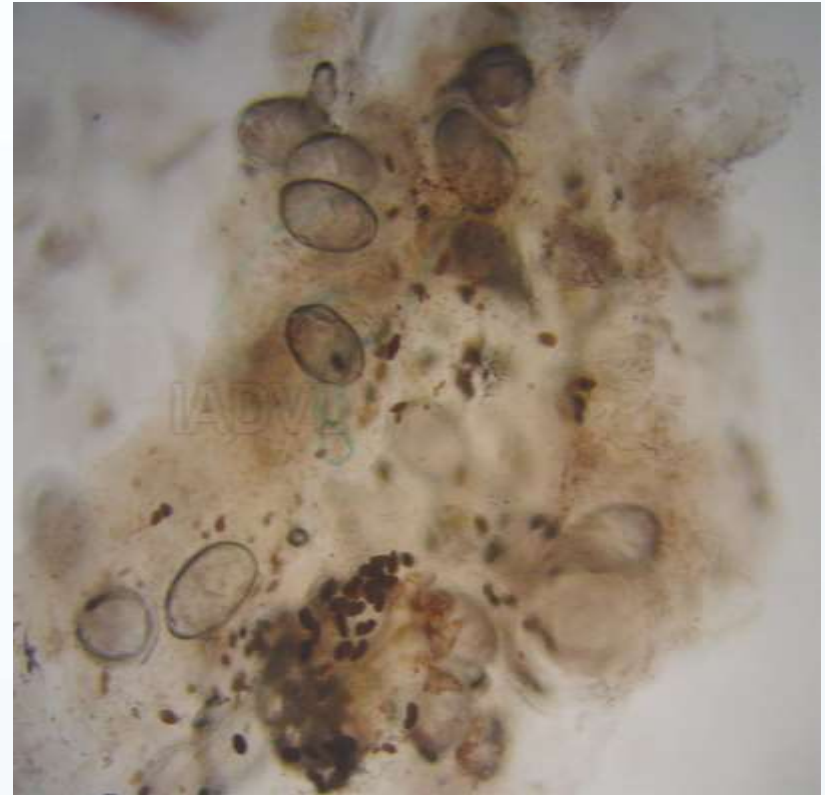


# Investigation

- Usually not necessary, mainly diagnosed clinically
  - Demonstration of egg/scybala/mite under microscope
  - Serological tests
  - Less than 50% accuracy
- Quantification of specific IgE antibodies to a major scabies antigen recombinant rSar s14
- 3 is highly sensitive
- PCR, immunosorbent assays
- Dermatoscopy



**Mite**



**Scybala**

# Differential Diagnosis

- **Classical scabies**

- Insect bite reaction
- Pompholyx
- Atopic dermatitis
- Dermatitis herpetiformis
- Neurotic excoriations

- **Infantile scabies-**

- Infantile acropustulosis
- Eczema herpeticum
- Papular urticaria

- **Crusted scabies**

- Psoriasis
- Seb. dermatitis
- Darier's disease
- Eczema
- Erythroderma

- **Nodular scabies-**

- Histocytosis X
- Arthropod bite
- Pseudolymphoma

– Viral exanthem

- **General guidelines**

- Treat patient along with everyone who lives with him
- Recent sexual partner (if any)
- Topicals to be applied whole body below neck in adults over clean and dry skin and rubbed
- In infants and children face and scalp should be included
- All clothes worn along with bed sheet, pillow cover and bed linen should be washed at a temperature of at least 50°C and sundried in the morning
- Avoid touching mucosa

Report to doctor after 1 week

# Topical Therapy



- **Permethrin (5%)**
- Drug of choice at present
  - Most widely used, safe (even in children as young as 2 month old) and pregnant women
  - Overnight application necessary
  - Repeat the application after 10 days
  - Cure rate of 89%-100%
  - Insignificant irritant potential and adverse effects (2%)
  - MOA: Disable nerve cell Na transport channel and hence paralysis

- **Lindane (GBHC 1%)**
  - Effective and safe with proper application
  - Gives a cure rate of 89%
  - In infants and children application should be restricted to 2 hours
  - Repeat application after 1 week
  - Pregnancy Cat-B
  - MOA: Acts on CNS leading to increase excitability, convulsion and death

# Topical Therapy



- **Benzoyl benzoate 25%**

- Irritating to raw areas and eye
- Below neck 3 times within 24 hours without intervening bath
- Lower cure (10-12.5%) may be used in children

- **Crotamiton 10% (lotion/cream)**

- Lower cure rate and low irritation potential
- Good antipruritic action
- To be applied twice daily for 5 successive nights
- Not approved for use in children

# Topical Therapy



- **Ivermectin solution**

- In a dose of 0.8% weight/volume
- Single, overnight application
- Repeat application advisable after 5 days
- Not safe in children less than 5 years, old age and pregnancy

- **Precipitated sulphur 5-10%**

- Relatively safer in infants and pregnant women
- 3 consecutive applications
- Unpleasant odour and cosmetic quality
- Oldest antiscabetic

# Systemic Therapy

- **Ivermectin**

- Used since 1987 for onchocerciasis and in US for strongyloides
- Derivative of macrocyclic lactones
- Induces parasite paralysis by blocking glutamate gated chloride channel
- Safety not established in children below 15 years and pregnant women
- Dose is 200  $\mu\text{g}/\text{kg}/\text{dose}$
- Two doses 2 weeks apart
- Neurotoxic

# Supportive Treatment



- Anti-histaminics for 2-3 weeks
- Emollients and soothing agents like calamine
- Topical/IL steroid for persistent nodular lesions
- Rarely topical and systemic corticosteroids for allergic manifestations

# For Crusted Scabies

- Same treatment as ordinary scabies, but to be repeated many times
- Thick hyperkeratotic, crusted plaques should be removed by keratolytic agents like 5-10% salicylic acid, 40% urea or by soaking in warm water
- Systemic therapy should be given along with topical
- Refractory cases: Methotrexate
- Nails are cut short and brushed with scabicial agent
- Animal scabies is self limiting, source animal should be adequately treated

# Systemic Antibiotics

- For secondary pyoderma
- Non irritant, non toxic antibacterial agents like ceftrimide/  
chlorohexidine may help for topical use

# Prevention and Control

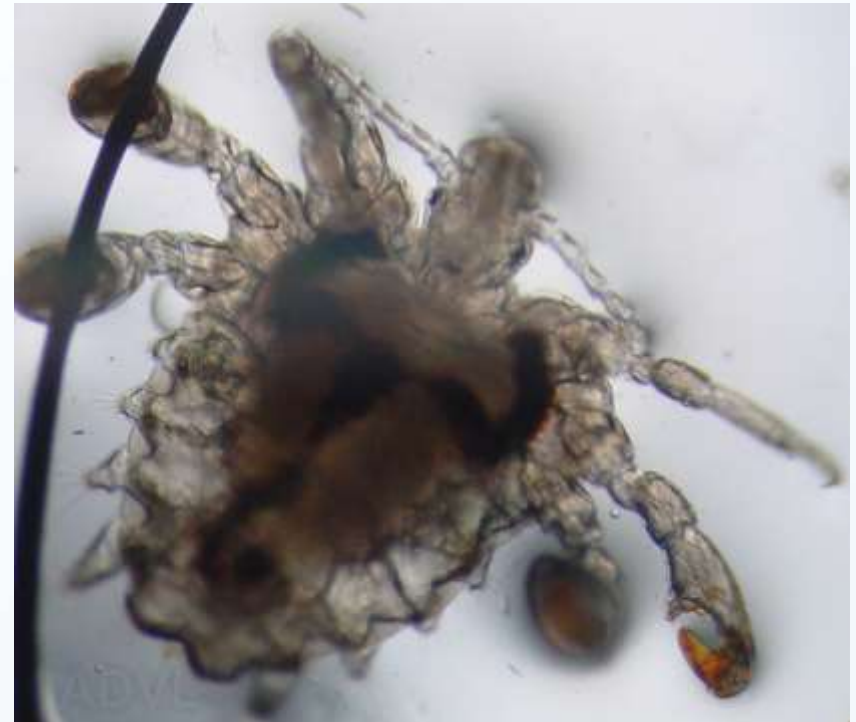


- Simultaneous treatment of all contacts, even if they are asymptomatic
- Avoiding direct skin to skin contact with infected person
- Bedding, clothing wash used at anytime during the 3 days before treatment should be washed and air dried
- Rooms used should be thoroughly cleaned and vacuum cleaned after use
- Environmental disinfection not necessary

# Pediculosis

# Introduction

- Infestation of humans with lice
  - 3 species affect humans
    - *Pediculus humanus capitis*:  
Head louse
    - *Pediculus humanus corporis*: Body louse
    - *Phthirus pubis*: Pubic or crab louse



- **Head louse:**
  - Scalp hair
  - Common in children (3-11 yrs)
  - Head to head contact, sharing combs, brushes and hats
- **Body louse:** Clothes, mainly seams, poor hygiene and unsanitary conditions
- **Pubic louse:**
  - Pubic and axillary hairs, also scalp, eyebrows and eyelashes
  - Any hairy area
  - Intimate contact, sexual intercourse and shared clothes

- **Body and head louse:** Similar, long and slender
- **Pubic louse:** Short and wide body, resembling crab
  - Three pairs of short, jointed legs
  - Require blood for survival, cannot survive away from host
  - Female lays 6 eggs or nits each day
  - Incubation period - 30 days

# Clinical Features



- **Pediculosis capitis**

- Itching and secondary pyoderma are presenting manifestations
- Erythema and intensely pruritic papules
- Nits attached to hair shafts
- Favoured site - behind the ears, occipital region
- Cervical lymphadenopathy common in children

# Clinical Features

- **Pediculosis corporis**

- Itchy papules and excoriations
- Vagabond’s disease
- Lay their nits in seams of clothing

- **Pediculosis pubis**

- Lice and nits seen by patient or family members
- Attached to the base of the hairs
- “Maculae caeruleae” slate coloured macules resulting from, intra cutaneous hemorrhages
- Demonstration of black speck like bodies attached to root of hair at an angle



**P. capitis**



**Vagabond's disease**

## Topical treatment

Drug	Dose	Remark
Malathion 0.5%	12 hrs	Repeat after 7 days
Carbaryl	Lotion: 24 hrs Shampoo: 3-4 mins	Repeat after 7 days
GBH 1%	Lotion: 12 hrs Shampoo: 4-10 mins	2 applications Repeat after 7 days
Permethrin 1%	Lotion: 8-12 hrs Rinse: 10 mins	Repeat after 7 days

- **Oral treatment:** Ivermectin 200 mcg/kg, cotrimoxazole

# Pediculicides

- Permethrin 1% lotion or shampoo (first line treatment)
- Pyrethrin 0.3%
- Piperonyl butoxide 4% shampoo
- Malathion 0.5% lotion
- Spinosad 0.9% suspension
- Benzyl alcohol 5% lotion
- Dimethicone solution
- Ivermectin 0.5% lotion
- Oral ivermectin

# Additional Recommendations



- For pediculosis corporis only washing and rinsing all clothes in hot water followed by hot ironing the seams is required
- Repeated application of petrolatum on eyelashes and eyebrows, then remove the lice with tweezers
- Contacts should be checked and treated
- Combs, hair brushes and clothes should not be shared

1. This scabies presents with involvement of face, palms and sole
  - A. Genital scabies
  - B. Scabies in adult
  - C. Infantile scabies
  - D. Norwegian scabies
  
2. The complication of infected scabies is
  - A. Hepatitis
  - B. Post streptococcal glomerulonephritis
  - C. Xerosis

**D. Morbilliform rash**

3. Body lice serves as vector for all these disease except

- A. Endemic typhus
- B. Relapsing fever
- C. Rocky mountain spotted fever
- D. Trench fever

4. How many species of lice affect humans?

- A. 1
- B. 3
- C. 4

D. 2

5. Nits or eggs are seen attached to

- A. Hair shaft
- B. Scalp
- C. Nails
- D. Cloth

6. Treatment of pediculosis corporis

- A. Hot ironing of clothes
- B. Permethrin 1%
- C. Malathion 0.5%
- D. Carbaryl

# Photo Quiz



Q. Identify the causative organism

# Photo Quiz



Q. Identify the lesion and diagnose the condition

**Thank You**