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Department of Health Research
Ministry of Health and Family Welfare, Government of India

INDIAN COUNCIL OF MEDICAL RESEARCH
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Standard Treatment Workflow (STW)

BACTERIAL SKIN INFECTIONS

ICD-10-L01, L73.9, L08, L02, L03, A46, L00

GENERAL PRINCIPLES OF MANAGEMENT

- Skin hygiene, advise on handwashing/ local hygiene, avoidance of oil application, adequate nutrition
- For recurrent/ severe lesions: evaluate for nasal carriage, diabetes, underlying skin conditions (scabies, atopic dermatitis)
- In immunocompromised/ diabetics: consider the need for gram negative coverage

1. IMPETIGO

CLINICAL FEATURES

Wet yellow brown crusts overlying red inflamed skin

- **Types** Non bullous (NBI; commoner), bullous (BI)
- **Affected age group** usually children
- **Common sites** Face (perinasal, perioral) > extremities; extensive with scabies/ atopic eczema

MANAGEMENT

- Topical antibiotics for 5 days
- Oral antibiotics for extensive involvement or numerous lesions, lymphadenopathy or in outbreaks to prevent transmission

2. ECTHYMA

CLINICAL FEATURES

- Black thick crust (eschar) with underlying ulcer & surrounding redness & edema

MANAGEMENT

- Treat with oral antibiotics for 7 days
- Gentle crust removal may be attempted after soakage with sterile saline; topical antibiotics over the exposed ulcer

3. FOLLICULITIS

CLINICAL FEATURES

Hair follicle centred pustule/ papule
Rule out non bacterial causes: oils, chemicals, waxing, epilation, occlusive dressing
RECURRENT FOLLICULITIS Recurrent infection or outbreak in multiple members of family may indicate nasal *Staphylococcus aureus* carriage or human-pet transmission

MANAGEMENT

- Topical antibiotics for 5 days
- Oral antibiotics for multiple lesions
- Anti-inflammatory: Paracetamol 500mg/ Ibuprofen 400mg SOS for pain relief

4. FURUNCLE

CLINICAL FEATURES Painful follicle centric nodule/ pus point/ impending bulla/ ulcer with marked surrounding erythema, edema and induration

5. CARBUNCLE

CLINICAL FEATURES Confluence of multiple closely spaced furuncles + pus draining from multiple follicular orifices
Commonly nape of neck> breasts, buttocks in uncontrolled diabetes

6. CUTANEOUS ABSCESS

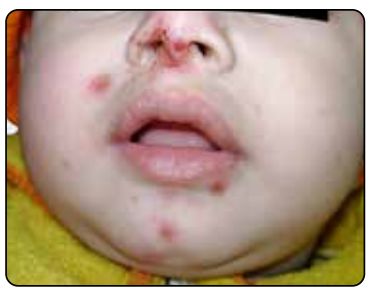
CLINICAL FEATURES Painful, warm, red fluctuant skin swelling

MANAGEMENT

- **SMALL** → Oral antibiotics + Topical antibiotics: to reduce contamination of surrounding skin
- **LARGE** → **INCISION AND DRAINAGE**
  - Incision and drainage/ debridement
  - Ancillary antibiotics if systemic inflammatory signs, associated septic phlebitis, multiple/ large abscesses, prominent cellulitis & immunocompromised state

HOSPITALIZATION AND IV TREATMENT FOR SEVERELY ILL PATIENTS

- Inj Ceftriaxone 2g BD OR Inj Amoxicillin-clavulanate 1.2gm TDS
- Alternatively - Inj Clindamycin 600-900mg TDS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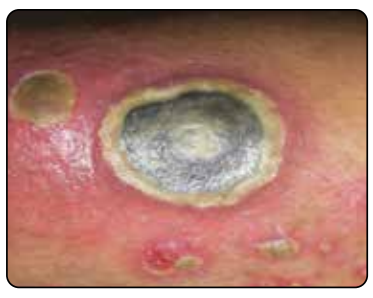
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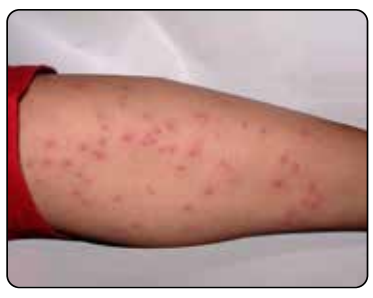
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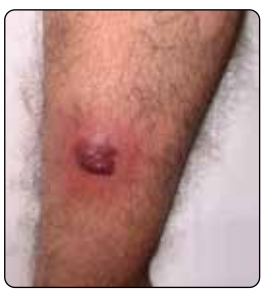
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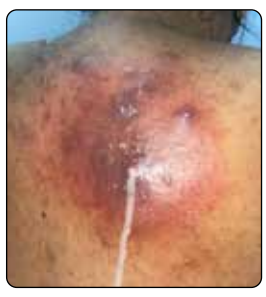
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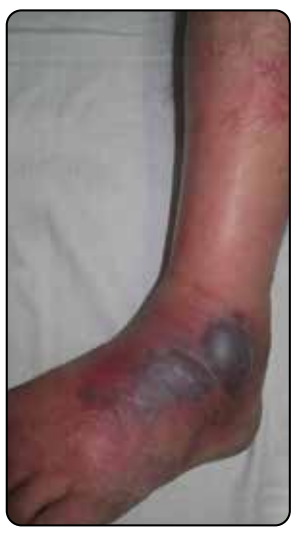
CELLULITIS WITH BULLAE

7. CELLULITIS

CLINICAL FEATURES Acute spreading infection of skin involving subcutaneous tissue; Painful, red, tender, diffuse swelling mostly involving the limbs

8. ERYSIPELAS

CLINICAL FEATURES A more superficial, bright red, edematous, painful area with a clear demarcated edge; common sites: lower extremities>face. Often associated with lymphangitis and lymphadenopathy; broken skin/ portal of entry may be visualised

MANAGEMENT

CATEGORIZE DISEASE SEVERITY

MILD

- Typical cellulitis/ erysipelas with no focus of purulence

MANAGEMENT

- Outpatient treatment with oral antibiotics
- Elevation of affected area (to allow for dependent drainage); treatment of predisposing factors
- Anti-inflammatory (Ibuprofen 400mg BD, Indomethacin 75mg BD)

MODERATE

- Typical cellulitis/ erysipelas with systemic signs of infection

MANAGEMENT

Hospitalization and parenteral antibiotics:

- Inj Ceftriaxone 2g BD OR Inj Amoxicillin-clavulanate 1.2gm TDS
- Alternatively (allergic to penicillins) Inj Clindamycin 600-900mg IV TDS

SEVERE

With poor response to oral antibiotics, immunocompromised, signs of deeper infection like bullae, skin sloughing or systemic signs of infection like hypotension, or with organ dysfunction

MANAGEMENT

Empiric broad spectrum IV antibiotic coverage

- Vancomycin + Piperacillin/ tazobactum
- Surgical debridement
- Sensitivity profile based modification of antibiotics

INVESTIGATIONS

1. Swabs for gram staining and pus culture are desirable
2. Blood cultures and biopsies are not routinely recommended, but useful with co-morbid conditions (malignancy on chemotherapy, immunocompromised states, animal bites etc.)

COMPLICATIONS

Subcutaneous abscesses, blistering (often haemorrhagic), ulceration, tissue necrosis, myositis, septicemia

9. STAPHYLOCOCCAL SCALDED SKIN SYNDROME

- Superficial peeling of skin due to toxin producing strains of staphylococcus
- Starts as tender and warm erythema and progresses to localised or generalised exfoliation with fever, malaise +/- dehydration and electrolyte disturbances
- Follows a local staphylococcal infection of either skin, throat, nose, umbilicus, or gut
- Bacteria cannot be demonstrated from blisters (cultures from original site may be positive)
- Treatment: preferably in-patient
- Mild cases: oral anti-staphylococcal antibiotics; severe cases: IV antibiotic
- Consider methicillin resistant *Staphylococcus aureus* (MRSA) coverage
- Usually remits within a week in children, high mortality in adults

RED FLAGS

- Temperature >100.4 ˚F, WBC>12,000 or < 4000/µL, heart rate > 90 bpm, or respiratory rate > 24/min may indicate sepsis
- Severe pain followed by deceptive absence may indicate necrotising fasciitis
- Dark discoloration of overlying skin

PHARMACOTHERAPY

ANTIBIOTICS FOR SKIN AND SOFT TISSUE INFECTIONS

PREFER β-LACTAMS

- Amoxycillin 500mg TDS (25-50 mg/kg/day)
- Cloxacillin 500mg QID (50mg/kg/day)
- Cephalexin 250-500mg QID (25–50 mg/kg/day)
- Amoxicillin clavulanate combination: 625mg TDS

IF ALLERGIC TO PENICILLINS

- Erythromycin 500mg QID (40 mg/kg/day)
- Clindamycin: 300-600mg BD/TID (20mg/kg/day)

FOR NASAL CARRIERS

2% Mupirocin ointment for 5 days a month

TOPICAL ANTIBIOTICS

- Mupirocin cream 2%
- Fusidic acid cream 2%
- Framycetin cream 1%

IN ALL PATIENTS SUSPECT THE NEED FOR MRSA COVERAGE IF:

- Poor immune status
- Severe systemic signs
- MRSA infection elsewhere
- If no improvement in 48-72 hours
- Penetrating trauma

ORAL ANTIBIOTICS FOR SUSPECTED OR CONFIRMED MRSA INFECTION

- Cotrimoxazole 2 DS tablets BD
- Doxycycline 100 mg BD
- Minocycline 100 mg BD
- Linezolid 600 mg BD

IV ANTIBIOTICS FOR MRSA

- Vancomycin: 15 mg/kg BD
- Linezolid: 600 mg BD
- Clindamycin: 600-900 mg TDS

ANTIBIOTIC SUSCEPTIBILITY PATTERNS MAY VARY WITH REGION AND TIME