CHAPTER: 5
PSORIASIS

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OVERVIEW

1. Epidemiology and pathophysiology
2. Clinical presentation
3. Diagnosing psoriasis
4. Managing psoriasis
5. Case studies
WHAT IS PSORIASIS?

- Inflammatory and hyperplastic disease of skin\(^1\)
- Characterised by erythema and elevated scaly plaques\(^1\)
- Chronic, relapsing condition
- Course of disease often unpredictable
SYMPTOMS OF PSORIASIS

Most frequently experienced symptoms:
- Scaling: 94%
- Itching: 79%
- Skin redness: 71%
- Tightness of skin: 31%
- Bleeding: 29%
- Burning sensation: 21%
- Fatigue: 19%
- Other: 5%

Percentage of respondents (n = 17,425)
Psoriasis mistaken as contagious

Psoriasis mistaken for other disease

Trouble receiving equal treatment in service establishments (e.g. hair salons, public pools)

Percentage of respondents with severe psoriasis (n = 502)
PSORIASIS AFFECTS EMOTIONAL STATE

- Concern that disease would worsen: 88%
- Feelings of embarrassment: 81%
- Feelings of unattractiveness: 75%
- Depression: 54%

Percentage of 18-to-34-year-old respondents with severe psoriasis (n not reported)
EPIDEMIOLOGY

• Common skin disorder

• Prevalence variable: ~ 0.3–2.5%\textsuperscript{1}

• Prevalence equal in males and females\textsuperscript{2}

• Estimated incidence: ~ 60 per 100,000 per year\textsuperscript{3}

AGE OF ONSET

• Mean age: ~ 23–37 years\(^1\)

• Current theory:
  2 distinct peaks with possible genetic associations\(^1\)
    – Early onset (16–22 years)\(^2\)
      • More severe and extensive
      • More likely to have affected first-degree family member
    – Late onset (57–60 years)\(^2\)
      • Milder form
      • Affected first-degree family members nearly absent

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• Evidence suggests strong genetic association
  – Studies of monozygotic twins show concordance for psoriasis (e.g. 64% in a Danish Study)¹
  – Multiple susceptibility loci have been identified²

• Disease expression
  – likely result of genetic and environmental factors²

COMMON TRIGGER FACTORS FOR PSORIASIS¹

- **Infections** (e.g. streptococcal, viral)
- **Skin trauma** (Koebner phenomenon)
- **Psychological stress**
- **Drugs** (e.g. lithium, beta blockers)
- **Sunburn**
- **Metabolic factors** (e.g. calcium deficiency)
- **Hormonal factors** (e.g. pregnancy)

PSORIASIS IS A T-CELL MEDIATED, AUTOIMMUNE DISEASE

- Current hypothesis:
  - Unknown skin antigens stimulate immune response
    - Antigen-specific memory T-cells are primary mediators
  - Leads to impaired differentiation and hyperproliferation of keratinocytes

PATHOPHYSIOLOGY

Genetic Predisposition

Antigenic Stimuli (Bacterial superantigens, viruses, chemicals)

PSORIASIS

Decreased Apoptosis

Keratinocyte Proliferation

p16 expression

Bcl-xl expression

Activated APC

COSTIMULATION

TH-1 cytokines

Adhesion molecules

Growth promoting factors

Naive CD4+ Cell (CLA+)

Activated CD4+ Cell (CLA+)

CD8+ Cell

PTHrP
IRAP
TGF-β
CLINICAL PRESENTATION:
CLASSIC PSORIASIS

- Well-defined and sharply demarcated\textsuperscript{1,2}
- Round/oval-shaped lesions\textsuperscript{1,3}
- Usually symmetrical\textsuperscript{1,3}
- Erythematous, raised plaques\textsuperscript{1–3}
- Covered by white, silvery scales\textsuperscript{1–3}

COMMON SITES AFFECTED BY PSORIASIS

- Can affect any part of the body – typically scalp, elbow, knees and sacrum\(^1\)
- Extent of disease varies

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TYPES OF PSORIASIS

- Chronic plaque
- Guttate
- Flexural
- Erythrodermic

- Pustular
  - Localised and generalised

- Local forms
  - Palmoplantar
  - Scalp
  - Nail (psoriatic onychodystrophy)

CHRONIC PLAQUE PSORIASIS

- Most common type – affects approximately 85%1
- Features pink, well-defined plaques with silvery scale2
- Lesions may be single or numerous²
- Plaques may involve large areas of skin²
- Classically affects elbows, knees, buttocks and scalp³

CHRONIC PLaque PSORIASIS
CHRONIC PLAQUE PSORIASIS
CHRONIC PLAQUE PSORIASIS
GUTTATE PSORIASIS

- Numerous and small lesions – ~ 1 cm diameter\textsuperscript{1,2,3}
- Pink with less scale than plaque psoriasis\textsuperscript{1}
- Commonly found on trunk and proximal limbs\textsuperscript{1,3}
- Typically seen in individuals < 30 years\textsuperscript{4}
- Often preceded by an upper respiratory tract streptococcal infection\textsuperscript{1,2}

FLEXURAL PSORIASIS

- Lesions in skin folds\textsuperscript{1}
- Particularly groin, gluteal cleft, axillae and submammary regions
- Often minimal or absent scaling\textsuperscript{1,2}
- May cause diagnostic difficulty when genital or perianal region is affected in isolation

ERYTHRODERMIC PSORIASIS

- Generalised erythema covering entire skin surface\(^1,2\)
- May evolve slowly from chronic plaque psoriasis or appear as eruptive phenomenon\(^1,3\)
- Patients may become febrile, hypo/hyperthermic and dehydrated\(^3\)
- Complications include cardiac failure, infections, malabsorption and anaemia\(^1\)
- Relatively uncommon

PUSTULAR PSORIASIS

Two forms:

- **Localised form**
  - More common\(^1,2\)
  - Presents as deep-seated lesions with multiple small pustules on palms and soles\(^1,2\)

- **Generalised form**
  - Uncommon\(^3\)
  - Associated with fever and widespread pustules across inflamed body surface\(^3\)

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PALMOPLANTAR PSORIASIS

- Can be hyperkeratotic or pustular
- May mimic dermatitis – look for psoriatic manifestations elsewhere to aid diagnosis
- Possibly aggravated by trauma

SCALP PSORIASIS

- Varies from minor scaling with erythema to thick hyperkeratotic plaques\textsuperscript{1,2}
- May extend beyond hairline\textsuperscript{1,2}
- Patient scratching may produce asymmetric plaques\textsuperscript{2}

NAIL PSORIASIS

– May be present in patients with any type of psoriasis

– **Can take several forms:**
  
  • Pitting: discrete, well-circumscribed depressions on nail surface
  
  • Subungual hyperkeratosis: silvery white crusting under free edge of nail with some thickening of nail plate
  
  • Onycholysis: nail separates from nail bed at free edge
  
  • ‘Oil-drop sign’: pink/red colour change on nail surface

NAIL PSORIASIS
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NAIL PSORIASIS
Approximately 5–20% have associated arthritis. Five major patterns of psoriatic arthritis:

- Distal interphalangeal involvement
- Symmetrical polyarthritis
- Psoriatic spondylarthropathy
- Arthritis mutilans
- Oligoarticular, asymmetric arthritis

Clinical expressions often overlap

DIAGNOSING PSORIASIS

• Other dermatological disorders can resemble psoriasis

• Diagnosed clinically according to appearance, distribution, history of lesions and family history

• Important to consider non-cutaneous complications

DIFFERENTIAL DIAGNOSIS$^{1,2}$

- **Localised patches/plaques**
  - Tinea
  - Eczema
  - Superficial basal cell carcinoma and Bowen’s disease
  - Seborrhoeic dermatitis
  - Cutaneous T-cell lymphoma (mycosis fungoides)

- **Flexural**
  - Tinea
  - Eczema
  - Candidiasis
  - Seborrhoeic dermatitis

- **Guttate**
  - Pityriasis rosea
  - Drug eruption
  - Secondary syphilis

- **Erythrodermic**
  - Eczema
  - Cutaneous T-cell lymphoma
  - Pityriasis rubra pilaris
  - Lichen planus
  - Drug

- **Palmoplantar**
  - Tinea

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LOCALISED PATCHES/PLAQUES

- **Tinea corporis**
  - Affects body
  - Lacks symmetrical lesions
  - Presence of peripheral scale and central clearing

- **Discoid eczema**\(^1\)
  - Individualised patches more pruritic than psoriasis
  - Lack silvery scale
  - Less vivid colour than psoriasis

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LOCALISED PATCHES/PLAQUES

- **Superficial basal cell carcinoma/Bowen’s disease**\(^1,2\)
  - Asymmetrical lesions, either single or few in number
  - Perform biopsy if lesions resistant to topical psoriasis treatment, or to confirm diagnosis

LOCALISED PATCHES/PLAQUES

- **Seborrhoeic dermatitis**
  - Characterised by yellowish scaling and erythema\(^1\)
  - Localised to many of the same areas as psoriasis
  - Diffuse scaling differs from sharply defined psoriasis plaques\(^2\)
  - Affects furrows of face (facial psoriasis is generally restricted to hairline)\(^1\)

- Cutaneous T-cell lymphoma (mycosis fungoides)
  - Red, discoid lesions\(^1\)
  - Asymmetrical and less scaly than psoriasis\(^1\)
  - Lesions may present with fine atrophy and be resistant to antipsoriatic therapy\(^2\)
  - Biopsy to confirm diagnosis

- **Pityriasis rosea**
  - Difficult to distinguish from acute guttate psoriasis
  - Presents first as single large patch, progresses to a truncal rash of multiple red scaly plaques (‘Christmas tree’ distribution)

GUTTATE PSORIASIS

- **Secondary syphilis**
  - Search for characteristic primary syphilitic lesion, lymphadenopathy, and lesions of face, palm and soles\(^1\)
  - Conduct serology and skin biopsies to confirm\(^1,2\)

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Atopic eczema

- Often associated with asthma and hay fever
- Lacks classic psoriatic nail involvement and sharply demarcated scaly plaques

FLEXURAL PSORIASIS

– **Candidiasis**\(^1,2\)
  • Characteristic peripheral pustules and scaling differ to psoriasis
  • Yeast cultures are diagnostic

– **Seborrhoeic dermatitis**\(^2\)

- Tinea manum\(^1\)
  - Ringworm of hands
  - Fine powdery scale, particularly involving palms and palmar creases
  - Usually asymmetrical

- **Hand and foot eczema**
  - Hyperkeratotic forms difficult to distinguish from psoriasis\(^1,2\)
  - Biopsies can assist diagnosis\(^1\)
  - Look for history of atopy, a lack of psoriasis elsewhere on body, and evidence of eczema elsewhere on skin\(^1\)

PALMOPLANTAR PSORIASIS

- Pompholyx of palms and soles (dishydotic eczema)\(^1\)
  - Presents as clear vesicles – contrast to white/yellow pustules in pustular psoriasis
  - Accompanied by intense pruritus

• Psoriasis Area and Severity Index (PASI)\(^1\)
  – Score indicates severity of disease at a given time
  – Single number that considers severity of lesions and extent of disease across four major body sites (head, trunk, upper limbs and lower limbs)
  – Score ranges from 0 (no disease) to 72 (maximal disease)

Before starting treatment

- Establish relationship of trust with patient
- Provide patient with information
  - Emphasise benign nature of disease
  - Explain that psoriasis tends to be chronic and recurrent

• Determine clinical setting before selecting treatment, considering
  – Disease pattern, severity and extent\textsuperscript{1,2}
  – Sites of disease\textsuperscript{2}
  – Coexistent medical conditions\textsuperscript{1}
  – Patient’s perception of disease severity\textsuperscript{1}
  – Time commitments and treatment expense\textsuperscript{1,2}
  – Previous treatments for psoriasis\textsuperscript{1}

• **Goals of management**
  
  – Tailor management to individual and address both medical and psychological aspects\(^1\textsuperscript{–}^3\)
  
  – Improve quality of life\(^3\)
  
  – Achieve long-term remission and disease control\(^3\)
  
  – Minimise drug toxicity\(^3\)
  
  – Evaluate and monitor efficacy and suitability of individual treatments\(^3\)
  
  – Remain flexible and respond to changing needs\(^1\textsuperscript{–}^3\)

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• Stepwise approach is advised\textsuperscript{1}

• Treatments include:\textsuperscript{1,2,3}
  – General measures and topical therapy
  – Phototherapy
  – Systemic and biological therapies

• Combination therapies may reduce toxicity and improve outcomes\textsuperscript{2}

TREATING PSORIASIS:
GENERAL MEASURES¹,²

- Reduce/eliminate potential trigger factors:
  - Stress
  - Smoking
  - Alcohol
  - Trauma
  - Drugs
  - Infections

TOPICAL THERAPIES

• Approximately 70% of patients with mild-to-moderate psoriasis can be managed with topical therapies alone\(^1\)

• Tailor to needs of patient\(^2\)

• Potency, delivery vehicle and patient motivation may affect compliance\(^1\)

• Application may be time-consuming for patients\(^1\)

TOPICAL THERAPIES: EMOLLIENTS

- Include aqueous cream, sorbolene cream, white soft paraffin and wool fats\(^1\)

- Regular use can:
  - alleviate pruritus\(^2\)
  - reduce scale\(^2\)
  - enhance penetration of concomitant topical therapy\(^2\)
  - hydrate dry and cracked skin\(^3\)

- Soap should be avoided\(^4\)

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TOPICAL THERAPIES: KERATOLYTICS

- Over-the-counter products include:¹
  - Salicylic acid
  - Urea

- Help dissolve keratin to soften and lift psoriasis scales¹,²

- May enhance penetration of other actives¹

TOPICAL THERAPIES: COAL TAR

- Help reduce inflammation and pruritus\(^1\)
- May induce longer remissions\(^2\)
- Use limited by distinctive smell and ability to stain clothing and skin\(^1,2\)
- May cause local skin irritation\(^2\)

• Anti-proliferative properties

• Particularly effective in thick plaque psoriasis

• Initiate therapy at very low concentrations – can burn skin

• Not suitable for face, flexures or genitals

• Stains clothes permanently and skin temporarily

TOPICAL THERAPIES: TAZAROTENE

- Topical synthetic retinoid\(^1,2\)
- For treatment of chronic plaque psoriasis\(^1,2\)
- Applied once daily in evening\(^1,2\)
- Commonly causes local irritation\(^1,2\)

• Possess anti-inflammatory, antiproliferative and immunomodulatory properties\textsuperscript{1,2}

• Reduce superficial inflammation within plaques\textsuperscript{3}

• Potency choice depends on disease severity, location and patient preference\textsuperscript{2}

TOPICAL THERAPIES: CORTICOSTEROIDS

• Adverse effects associated with long-term use include:\textsuperscript{1,2}
  – Skin atrophy and telangiectasia
  – Hypopigmentation
  – Striae
  – Rapid relapse or rebound on stopping therapy
  – Precipitation of pustular psoriasis
  – Pituitary-adrenal axis suppression through significant systemic absorption (rare)

TOPICAL THERAPIES:  
CALCIPOTRIOL (DAIVONEX®)

- Synthetic vitamin D analogue\(^1\)
- For chronic plaque-type psoriasis\(^1\)
- Reverses abnormal keratinocyte changes by:\(^1\)
  - Inducing differentiation
  - Suppressing proliferation of keratinocytes

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TOPICAL THERAPIES: CALCIPOTRIOL (DAIVONEX®)

- Response may require 4–6 weeks\textsuperscript{1,2}

- Adverse effects include erythema and irritation\textsuperscript{3}

TOPICAL THERAPIES: CALCIPOTRIOL/BETAMETHASONE DIPROPIONATE OINTMENT (DAIVOBET®)

• For plaque-type psoriasis

• Combination of calcipotriol and a potent topical corticosteroid (betamethasone dipropionate)
  – Stable formulation for both actives

• Provides rapid, effective psoriasis control

TOPICAL THERAPIES: CALCIPOTRIOL/BETAMETHASONE DIPROPIONATE OINTMENT (DAIVOBET®)

Combination of calcipotriol and betamethasone dipropionate in Daivobet is more effective than either active constituent used alone

- 39.2% mean reduction in PASI score after 1 week

TOPICAL THERAPIES: CALCIPOTRIOL/BETAMETHASONE DIPROPIONATE OINTMENT (DAIVOBET®)

- Once-daily treatment with the potential to improve compliance\(^1,2\)
- Can be used intermittently in 4-weekly cycles with Daivonex\(^\circledR\) used in between for maintenance\(^1\)
- Most common adverse events include pruritus, rash and burning sensation\(^1\)

TOPOCAL THERAPIES: CALCIOPTRIOL/BETAMETHASONE DIPROPIONATE GEL

• Newly TGA approved product not yet available in Australia

• Specially formulated for the scalp\(^1\)

• Provides rapid, effective control of scalp psoriasis\(^1,2,3\)
  – More effective than treatment with individual actives alone
  – 53.2% (more than half) of patients had absent or very mild disease after just two weeks of gel application\(^1\)

• Once-daily formulation may encourage compliance\(^2\)

OTHER THERAPIES

• Phototherapy
• Systemic therapies
• Biological agents
PHOTOTHERAPY

- For psoriasis resistant to topical therapy and covering > 10% of body surface area\textsuperscript{1}

- Immunomodulatory and anti-inflammatory effects\textsuperscript{2}

- Three main types of phototherapy:\textsuperscript{2}
  - Broadband UVB
  - Narrowband UVB
  - PUVA (administration of psoralen before UVA exposure)

- Treatment usually administered 2–3 times/week\textsuperscript{1,2}

SYSTEMIC THERAPIES

• Reserved for patients with widespread or severe psoriasis¹

• Potentially serious adverse effects and drug interactions²

• Many require PBS authority prescription from dermatologist³

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SYSTEMIC THERAPIES: METHOTREXATE

• Most commonly used systemic treatment for psoriasis\(^1\)

• Slows epidermal cell proliferation and acts as immunosuppressant\(^1\)

• Closely monitor kidney, liver and bone-marrow function\(^2\)

• Perform PASI score before starting treatment

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SYSTEMIC THERAPIES: CYCLOSPORIN

• Immunosuppressive agent\textsuperscript{1}

• For patients with severe psoriasis that is refractory to other treatments\textsuperscript{2}

• Requires ongoing monitoring of blood elements, and renal and liver function\textsuperscript{2}


\textsuperscript{2} Neoral Product Information, 22 October 2009.
SYSTEMIC THERAPIES: ACITRETIN

- Oral retinoid
- For treatment of all forms of severe psoriasis
- Once-daily oral therapy
- Teratogenic – pregnancy must be avoided

BIOLOGICAL AGENTS

• Proteins derived from living organisms that exert pharmacological actions\(^1\)

• For adults with moderate-to-severe chronic plaque-type psoriasis who are candidates for phototherapy or systemic therapy\(^2-5\)

• Most administered sub-cutaneously\(^2-5\)

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