

Morphea and Psoriatic Arthritis

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Morphea

Background

- Fibrosing disorder **limited to skin, SQ +/- bone** and underlying CNS (rarely)
- Normal life expectancy
- **No systemic features**

- Inflammation and sclerosis → permanent damage of skin and soft tissue
 - Hair loss
 - Cutaneous, soft tissue and bony atrophy
 - Joint contractures
 - Growth restriction of affected body site in children

Morphea

Epidemiology

- Incidence: 0.4-2.7 per 100,000
- White females more common
- Adults = kids
 - Kids: 7-8 yo
 - Adults: 40 yo
- + FamHx of autoimmunity

Morphea

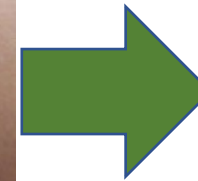
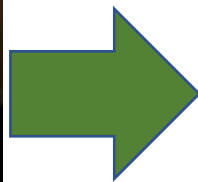
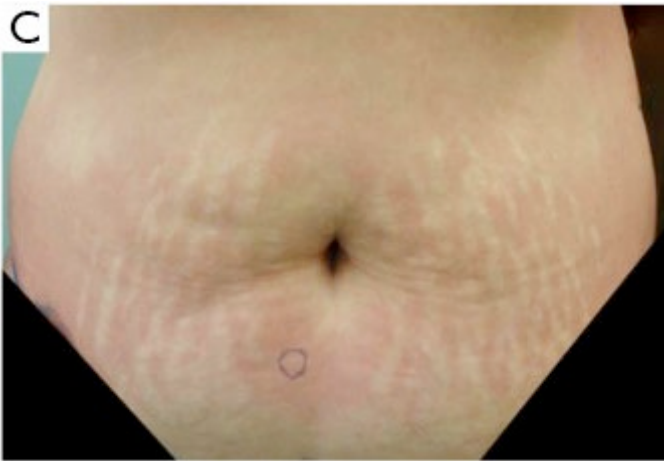
Pathogenesis

- Exact pathogenesis unknown, dysregulated immune and fibrotic pathways
- Morphea pts have elevated cytokine levels
 - Interferon-gamma pathway
 - IL-4/IL-13
 - JAK-STAT pathway?
- 10-30% + famHx of autoimmune disease
- 10% pts have concomitant autoimmune disease
 - Vitiligo, AA, JRA

Morphea

Clinical Features

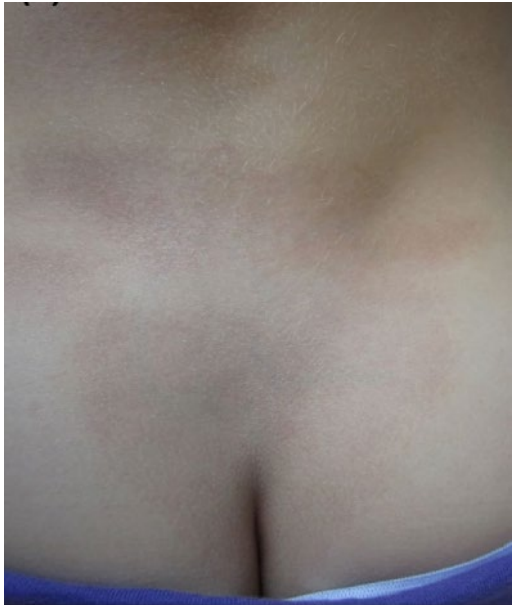
- Inflammatory → sclerotic phase
- Classic: Begins as violaceous patch → sclerotic plaque with violaceous ring (active phase) → hyperpigmented atrophic plaque



Morphea

Clinical Features

- Atrophoderma variants of morphea



Morphea

Clinical Variants

Table II. Morphea classification according to Laxer and Zulian*

Classification	Included subtypes	Description
Circumscribed morphea	Superficial variant	Oval areas of induration limited to epidermis and dermis
	Deep variant	Oval areas of deep induration including the subcutaneous tissue (may include fascia and muscle); overlying skin may not be involved
Linear morphea	Trunk/limb variant	Linear induration involving the dermis and subcutaneous tissue (may include muscle and bone)
	Head variant	
	En coup de sabre	Linear induration involving the dermis of the face and scalp (may involve underlying muscle, bone, and central nervous system)
	Parry—Romberg	Loss of dermis, subcutaneous tissue, muscle and bone of the unilateral face
Generalized morphea		Four or more individual indurated plaques >3 cm each, involving ≥ 2 of seven anatomic sites (head-neck, each extremity, anterior trunk, and posterior trunk)
Pansclerotic morphea		Circumferential involvement of limbs involving epidermis, dermis, subcutaneous tissue, muscle, and bone; may affect other areas of the body with full depth sclerosis
Mixed variant morphea		Combination of 2 or more previous subtypes

*From Laxer and Zulian.⁸ Used with permission.

Morphea

Circumscribed

- MC on trunk
 - Areas of pressure – hips, waist, bra line
- MC type in adults
- Superficial
 - Involves epidermis/dermis



Early inflammatory lesion

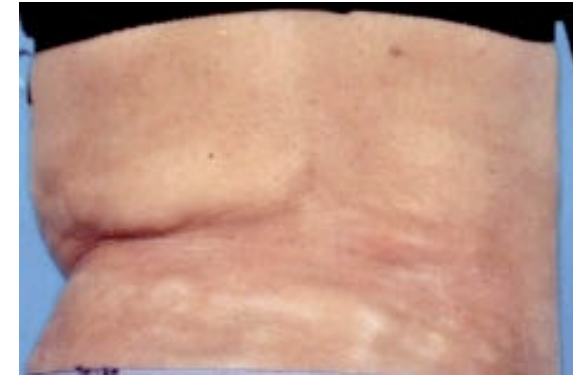


Violaceous border

Morphea

Circumscribed

- MC on trunk
 - Areas of pressure – hips, waist, bra line
- MC type in adults
- Superficial
 - Involves epidermis/dermis
- Deep (morphea profunda / subcutaneous morphea)
 - Invol't SQ fat, fascia, +/- muscle
 - Epidermis/dermis +/-



Morphea

Linear

- MC subtype in kids
- Often single, multilesional or b/l may occur
- +/- Blaschko lines
- May involve underlying muscle / bone



Morphea

Linear

- En coup de sabre (ECDS)
 - Paramedian forehead and/or frontal scalp
 - +/- alopecia
- Parry-Romberg syndrome (PRS) (progressive hemifacial atrophy)
 - U/I SQ atrophy of face
 - Minimal skin changes
- Co-occur in 28% children with head/face linear morphea



Morphea

Generalized

- Seen more in adults
- 4+ plaques, 3cm+ size, involving 2+ anatomic sites
- Distinguished from scleroderma by absence of:
 - Sclerodactyly
 - Nailfold capillary changes
 - Raynaud's



Morphea

Pansclerotic

- Seen in kids
- Lifelong severe disability 2/2 persistent atrophy of muscles +/- contractures of joints



Morphea

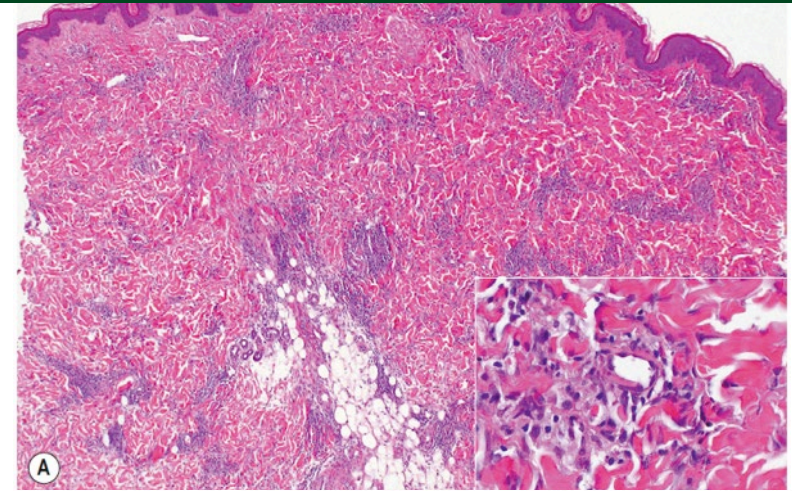
Extracutaneous Features

- Arthralgias 10%
- CNS: 4% kids
 - Seizures, H/As, peripheral neuropathy, vascular malformations, CNS vasculitis
- Ocular: 3.2% kids (14.2% with ECDS)

Morphea

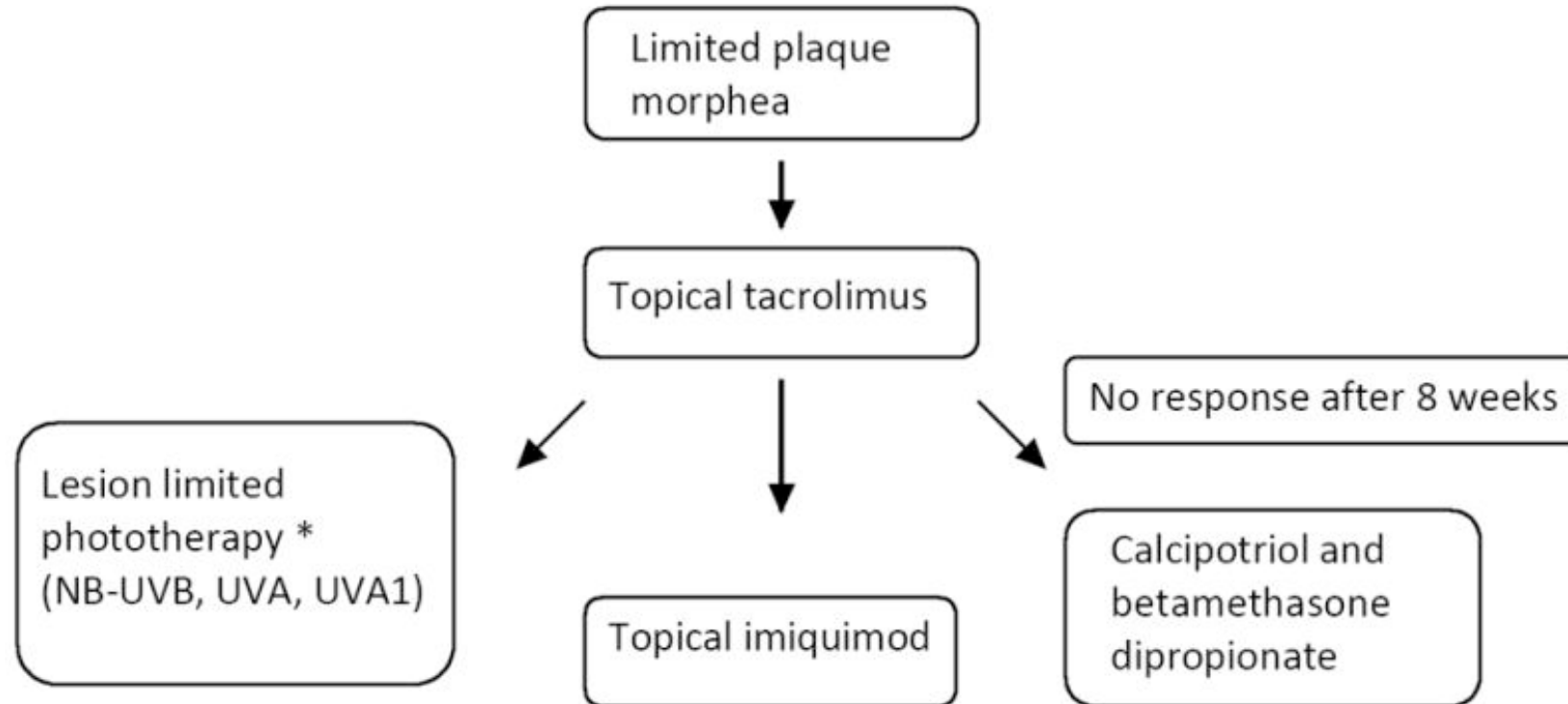
Pathology

- Inflammatory border:
 - Endothelial swelling and edema
 - Lymphocytic infiltrate +/- eos, plasma cells, mast cells
- Late stage:
 - Flattened DE junction
 - Dermal sclerosis
 - “Trapping” of eccrine glands

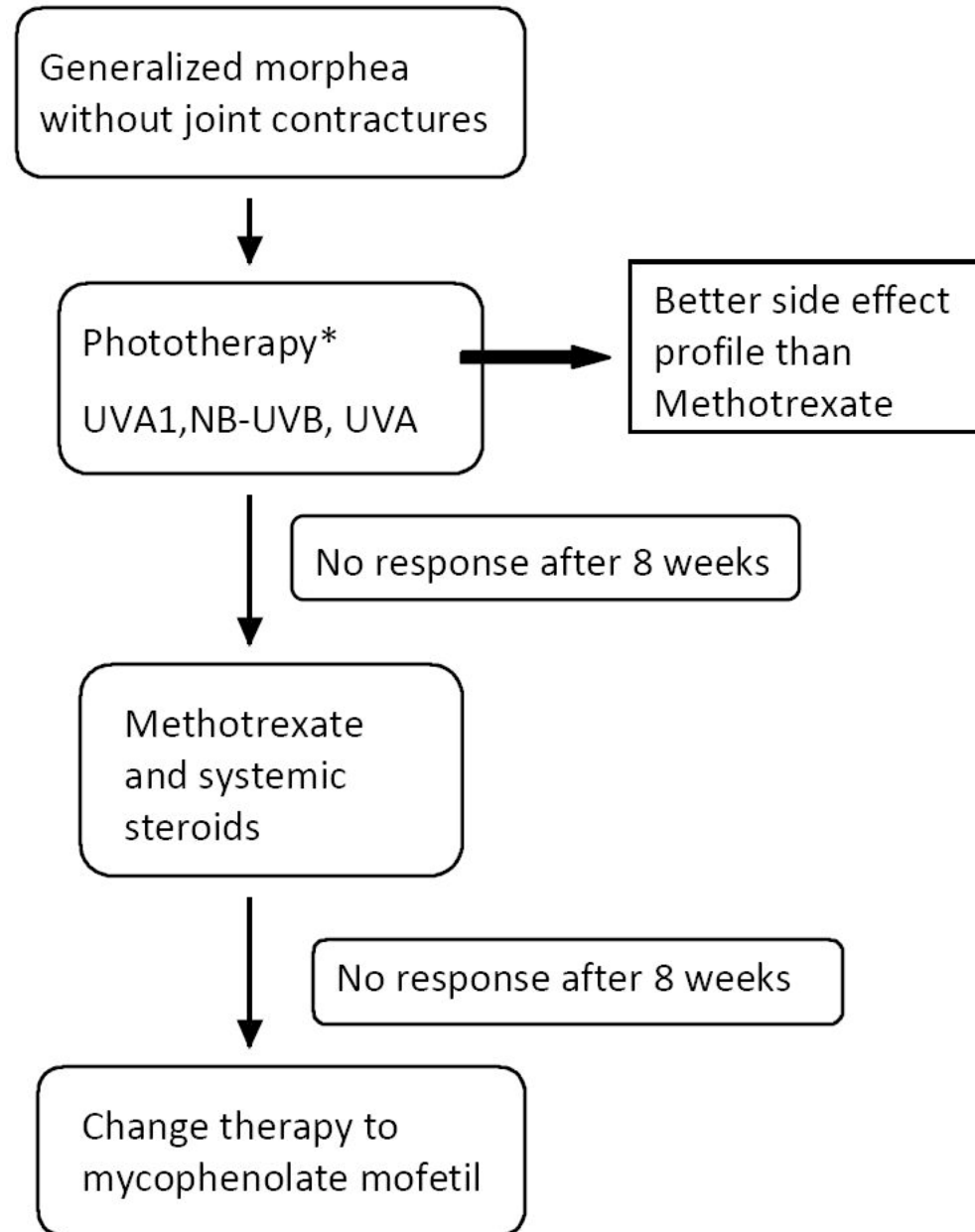


Morphea

Treatment

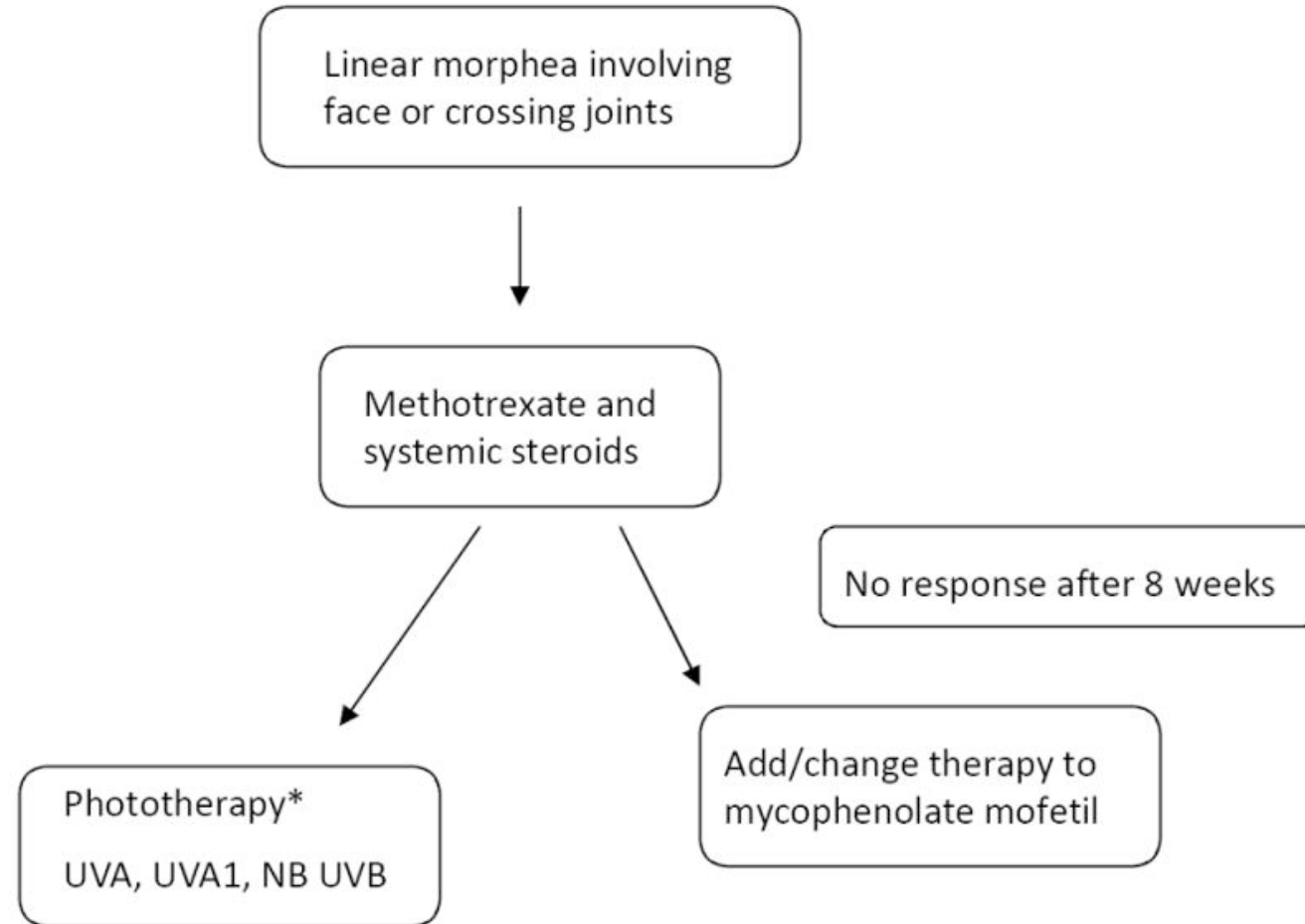


Morphea *Treatment*



Morphea

Treatment



Morphea

Treatment

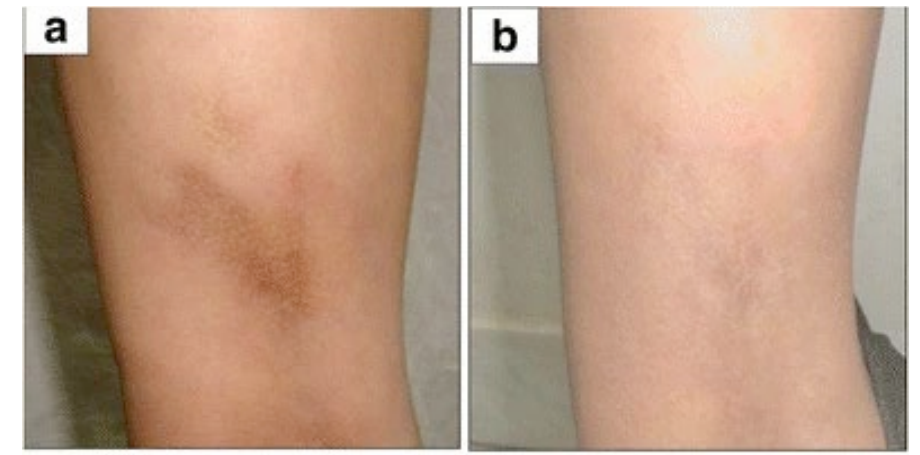
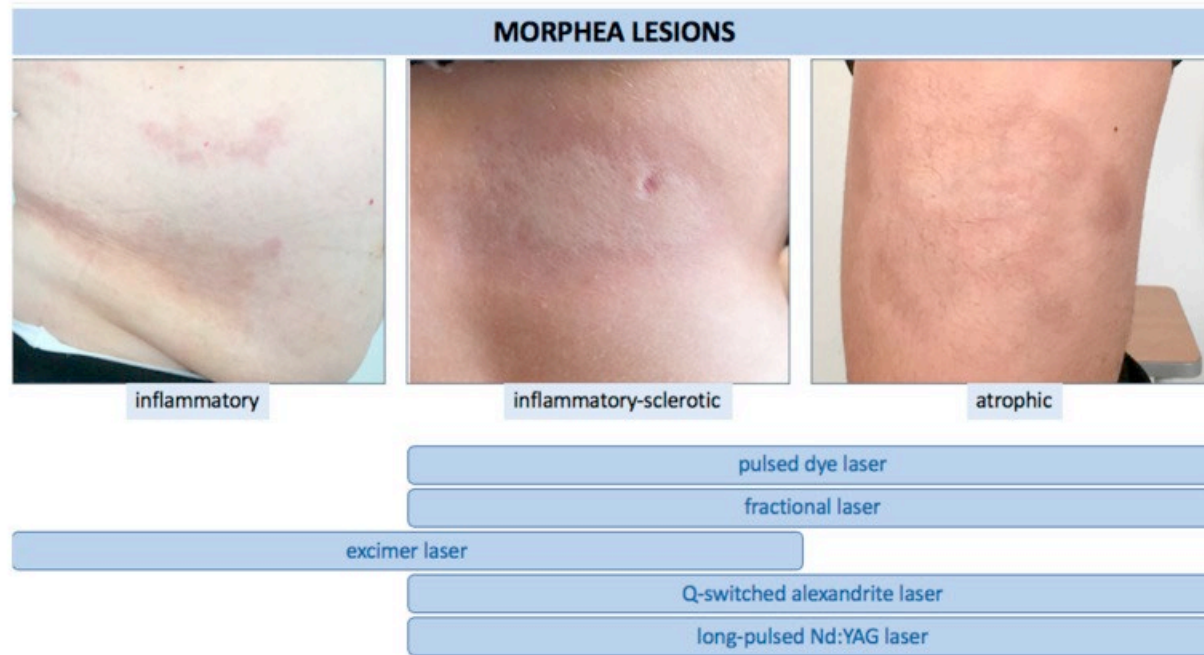
- Inactive lesions
 - Dermal fillers and fat transfer for significant atrophy
 - Only for disease well controlled on immunosuppressives or quiescent off therapy



Morphea

Treatment

- Inactive lesions
 - Laser (inactive +/- active disease)



Morphea

Natural History

- Disease duration 5.4-10.3 years
- Follows relapsing remitting course
 - Recurrence rate up to 45%
- Relapses more common in:
 - Linear and generalized morphea
 - +ANA
- Long-term monitoring of these patients – “Never say goodbye to morphea patients!”

Psoriatic Arthritis

Background and Epidemiology

- Inflammatory musculoskeletal disease a/w psoriasis
- Usually seronegative (RF, CCP)

- Incidence: 6 per 100,000 per year
- Prevalence: 6/1000 general population
- F=M

Psoriatic Arthritis

Relation to Skin Disease

- Affects 20% Ps pts (25% mod-severe Ps)
- In ~80%, psoriasis precedes PsA
 - Median time: 7-8 y
 - 7-15% joints precede skin
 - 15% joints and skin at same time
- Ps sites a/w higher risk of PsA:
 - Scalp
 - Intergluteal / perianal lesions
 - Nail
- Severity of Ps not necessarily a/w risk of PsA

Psoriatic Arthritis

Pathogenesis

- Precise cause not identified
 - Likely a shared pathogenic link b/w skin and joint disease
- Genetic factors

Loci linked to psoriatic arthritis from association studies

Gene	Study	Cases (n)	Control	Odds ratio	P value
Cytokines					
IL-2/IL-21	Liu Y, et al ^[1]	576	480	1.37	0.002
IL-12B	Liu Y, et al ^[1]	576	480	1.1	0.0013
	Hüffmeier U, et al ^[2]	748	937	1.5	4.72×10 ⁻⁷
	Hüffmeier U, et al ^[2]	748	937	1.48	2.1×10 ⁻⁵
IL-13 (2 SNPs)	Bowes J, et al ^[3]	1057	778	1.27 to 1.33	6.1 to 8×10 ⁻⁵
IL-23A	Eiris N, et al ^[4]	48	167	3.04	0.02
IL-23R	Stuart PE, et al ^[5]	1430	1417	1.29	2.5×10 ⁻¹²
	Hüffmeier U, et al ^[2]	748	937	1.59	0.002
TNF	Reich K, et al ^[6]	375	376	1.96	0.0025
MHC class 1					
HLA-B27	Winchester R, et al ^[7]	359	1000	3.18	<0.0001
HLA-B cysteine 67	Bowes J, et al ^[3]	1962	8923	1.62	<6.53×10 ⁻¹⁴
Amino acid 45	Okada Y, et al ^[8]	3038	3098	1.46	2.2×10 ⁻¹¹
HLA-Cw*0602	Liu Y, et al ^[1]	576	480	2.4	6.9×10 ⁻¹¹
	Liu Y, et al ^[1]	576	480	3.2	1.9×10 ⁻¹⁰
Cell signaling					
PTPN22	Bowes J, et al ^[9]	1177	2155	1.32	<1.49×10 ⁻⁹
REL	Ellinghaus E, et al ^[10]	535	3432	1.27	1.18×10 ⁻⁸
TRAF3IP2	Ellinghaus E, et al ^[11]	1919	8037	1.57	4.6×10 ⁻¹²
TNIP1	Nair R, et al ^[12]	1430	1417	1.78	2×10 ⁻¹⁴
FBXL19	Stuart PE, et al ^[5]	1831	2546	1.43	2×10 ⁻⁴
TNFAIP3	Stuart PE, et al ^[5]	1755	5942	1.2	5.9×10 ⁻⁸
Other					
NOS2	Stuart PE, et al ^[5]	1831	2546	1.19	4×10 ⁻¹¹
LCE3C_LCE3b deletion	Docampo E, et al ^[13]	420	450	1.82	0.03

IL: interleukin; SNPs: single-nucleotide polymorphisms; TNF: tumor necrosis factor; MHC: major histocompatibility complex; HLA: human leukocyte antigen.

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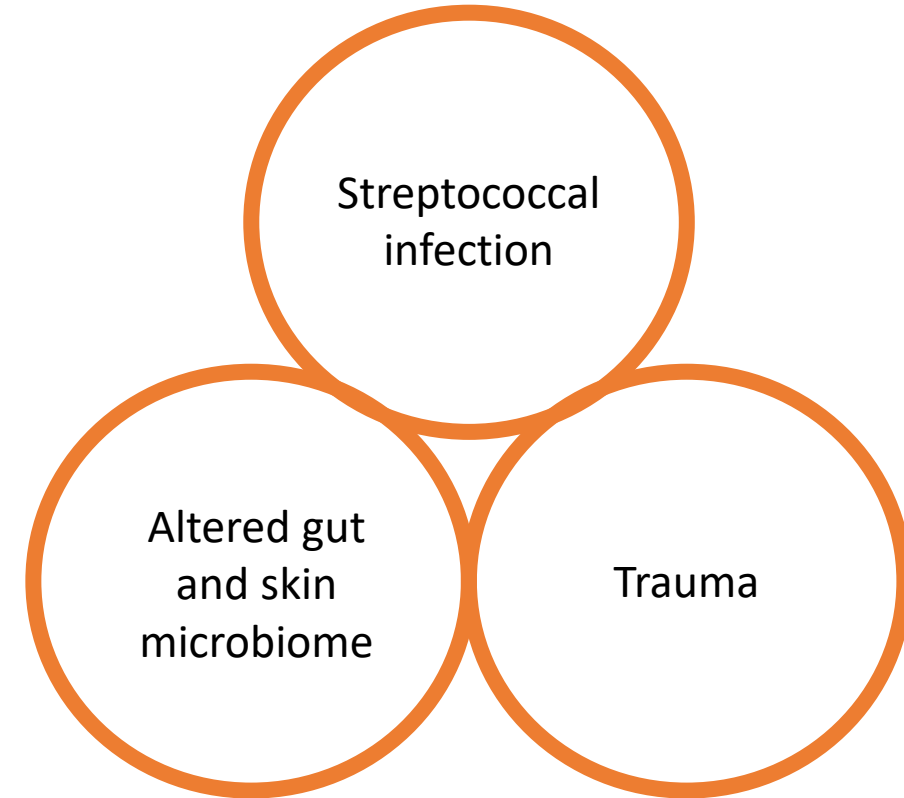
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Psoriatic Arthritis

Pathogenesis

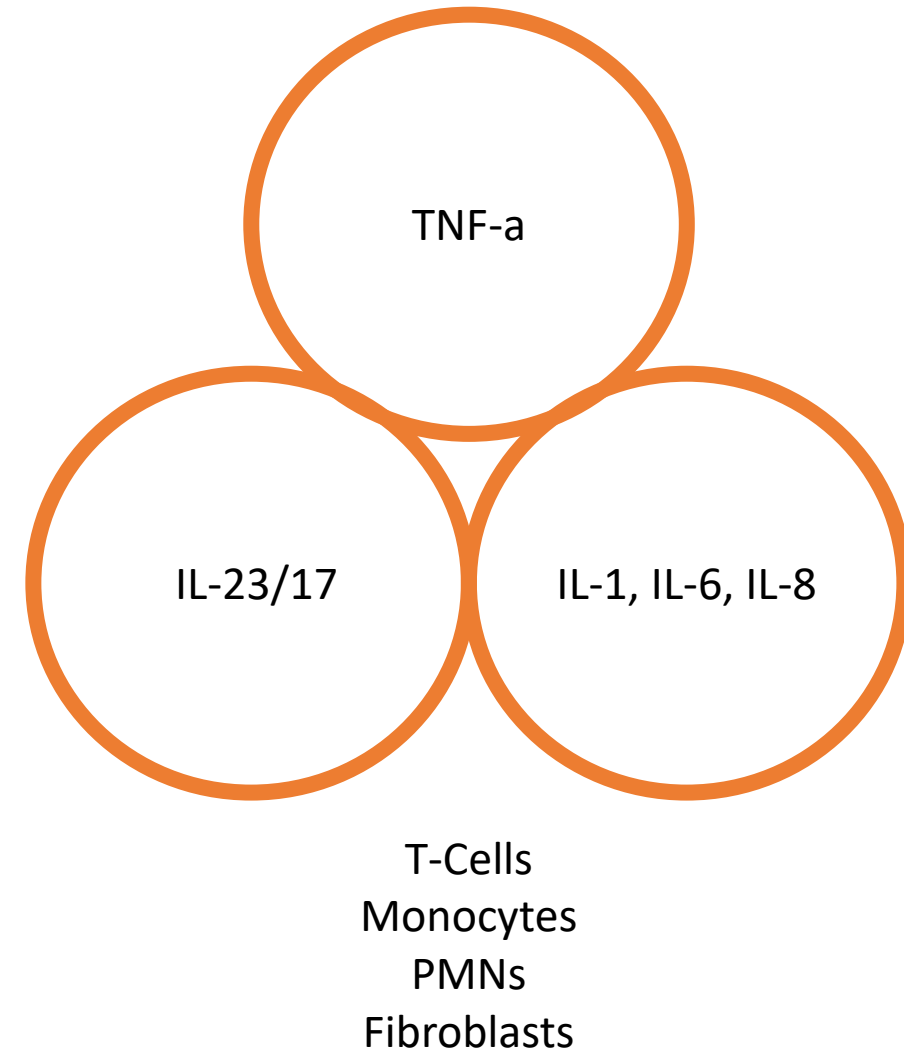
- Precise cause not identified
 - Likely a shared pathogenic link b/w skin and joint disease
- Genetic factors
- Environmental factors



Psoriatic Arthritis

Pathogenesis

- Precise cause not identified
 - Likely a shared pathogenic link b/w skin and joint disease
- Genetic factors
- Environmental factors
- Immunologic mechanisms



Psoriatic Arthritis

Clinical Presentation

- Typically polyarthrititis
 - +/- enthesitis, tenosynovitis, dactylitis
- Affects peripheral joints, axial joints or both
- P/w pain and stiffness in affected joints
 - In ½ pts, morning stiffness ≥ 30 min
 - Worse with prolonged immobility
 - Improved with physical activity

- 22% fatigue

Psoriatic Arthritis

Clinical Presentation

- 5 Main Clinical Patterns:
 - Distal arthritis



Psoriatic Arthritis

Clinical Presentation

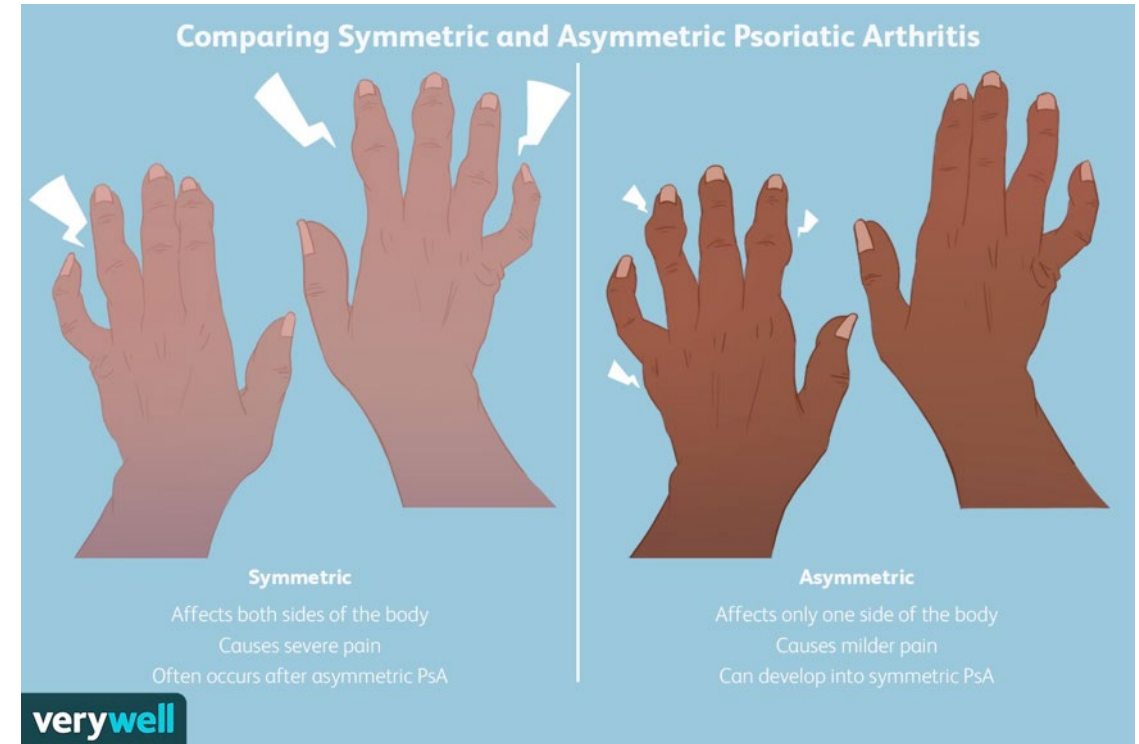
- 5 Main Clinical Patterns:
 - Distal arthritis
 - Asymmetric oligoarthritis (<5 joints)



Psoriatic Arthritis

Clinical Presentation

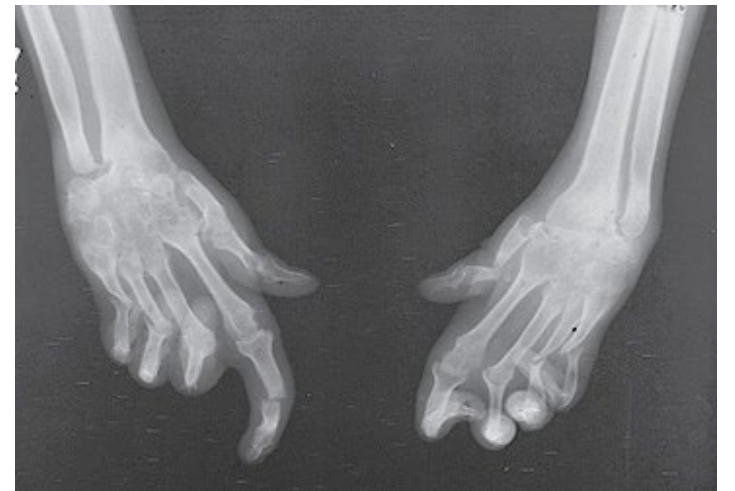
- 5 Main Clinical Patterns:
 - Distal arthritis
 - Asymmetric oligoarthritis (<5 joints)
 - Symmetric polyarthritis (RA-like)



Psoriatic Arthritis

Clinical Presentation

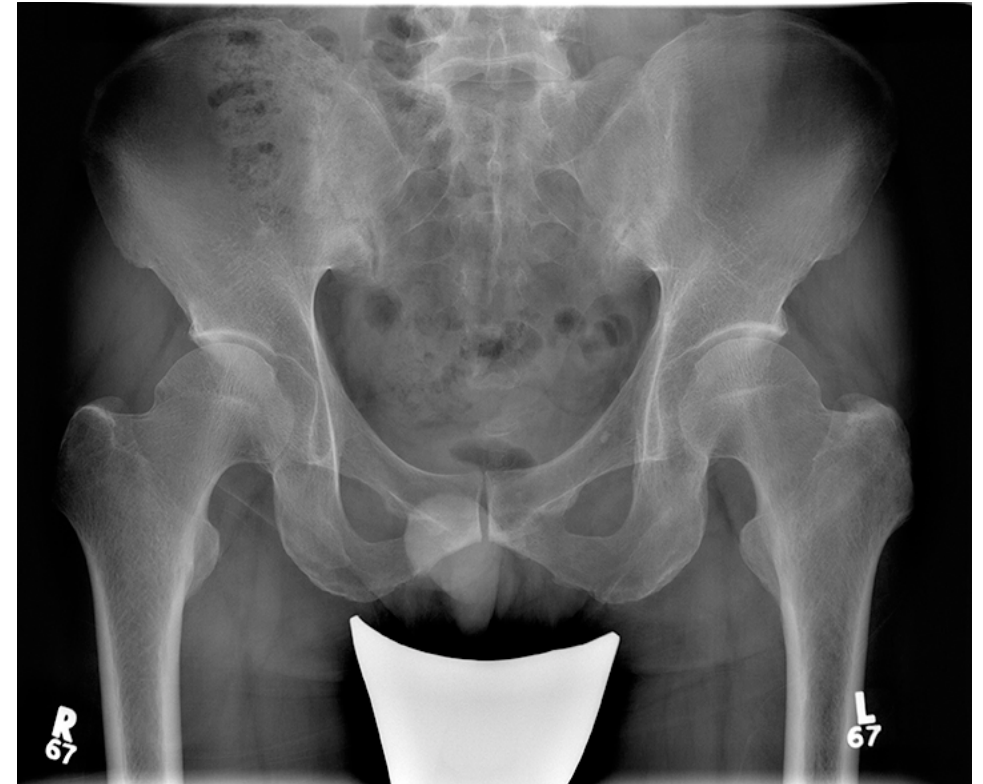
- 5 Main Clinical Patterns:
 - Distal arthritis
 - Asymmetric oligoarthritis (<5 joints)
 - Symmetric polyarthritis (RA-like)
 - Arthritis mutilans



Psoriatic Arthritis

Clinical Presentation

- 5 Main Clinical Patterns:
 - Distal arthritis
 - Asymmetric oligoarthritis (<5 joints)
 - Symmetric polyarthritis (RA-like)
 - Arthritis mutilans
 - Axial spondyloarthritis (SpA)



Psoriatic Arthritis

Clinical Presentation

- 5 Main Clinical Patterns:
 - ***Distal arthritis – most specific***
 - Asymmetric oligoarthritis (<5 joints)
 - Symmetric polyarthritis (RA-like)
 - ***Arthritis mutilans – most specific***
 - Axial spondyloarthritis (SpA)

- Pts may present with +1 pattern, may change patterns during f/u

Psoriatic Arthritis

Clinical Presentation

- 5 Main Clinical Domains:
 - Peripheral arthritis
 - Axial disease
 - Enthesitis – *inflammation at insertion site of tendons, ligaments, synovium into bone*
 - Dactylitis – *diffuse swelling of entire finger or toe, “sausage digit”*
 - Skin and nail disease



Psoriatic Arthritis

Clinical Presentation

- 5 Main Clinical Domains:
 - Peripheral arthritis
 - Axial disease
 - Enthesitis – *inflammation at insertion site of tendons, ligaments, synovium into bone*
 - Dactylitis – *diffuse swelling of entire finger or toe, “sausage digit”*
 - Skin and nail disease – *nails can correlate with severity of disease*



Psoriatic Arthritis

Diagnosis

- *Every patient with Ps should be screened!*
- History
- Physical examination
- Laboratory testing
 - CBC, CMP, U/A, ESR, CRP, RF, CCP, ANA, HLA B-27
- Xrays of affected joints

Psoriatic Arthritis

Diagnosis

- CASPAR Criteria: score ≥ 3

Criteria	Points
Skin psoriasis that is: Present OR Previously present by history OR Family history of psoriasis	2 points 1 point 1 point
Nail lesions	1 point
Dactylitis	1 point
Negative rheumatoid factor (RF)	1 point
Juxtaarticular bone formation on XRay	1 point

Psoriatic Arthritis

Treatment

- Choice of therapy depends upon:
 - If active or severe Ps + PsA
 - Severity of joint disease

- Non-pharmacologic tx:
 - Exercise, PT/OT
 - Weight reduction

Psoriatic Arthritis

Treatment

- Several options:
 - Mild: NSAIDs
 - Moderate peripheral disease:
 - MTX
 - Leflunomide
 - Apremilast
 - Mod-to-severe peripheral disease, axial disease:
 - Biologic therapy
 - But which one to chose?

Psoriatic Arthritis

Management

- Cheat sheet:
 - If extensive psoriasis, and mild-to-moderate arthritis → IL-17, IL-23 inhibitor or upadacitinib
 - If psoriasis with aggressive erosive arthritis → TNF-inhibitor or IL-17
 - If axial disease → TNF- α , IL-17 or JAK-inhibitor

Take Home Points

- Morphea is a potentially disfiguring fibrosing disorder with variable presentations
- Early disease presents with inflammatory lesions → hyperpigmented +/- sclerotic
- Recurrence rates are high off treatment
- Psoriatic arthritis should be screened for in all psoriasis patients
- Choice of ideal therapy depends on site and extent of joint involvement