Painful Joints

Paediatric update course for paediatricians

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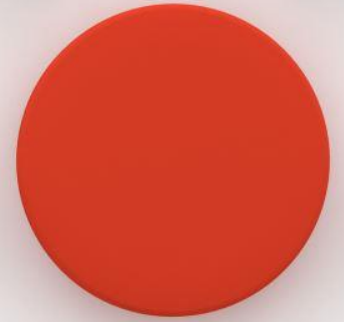
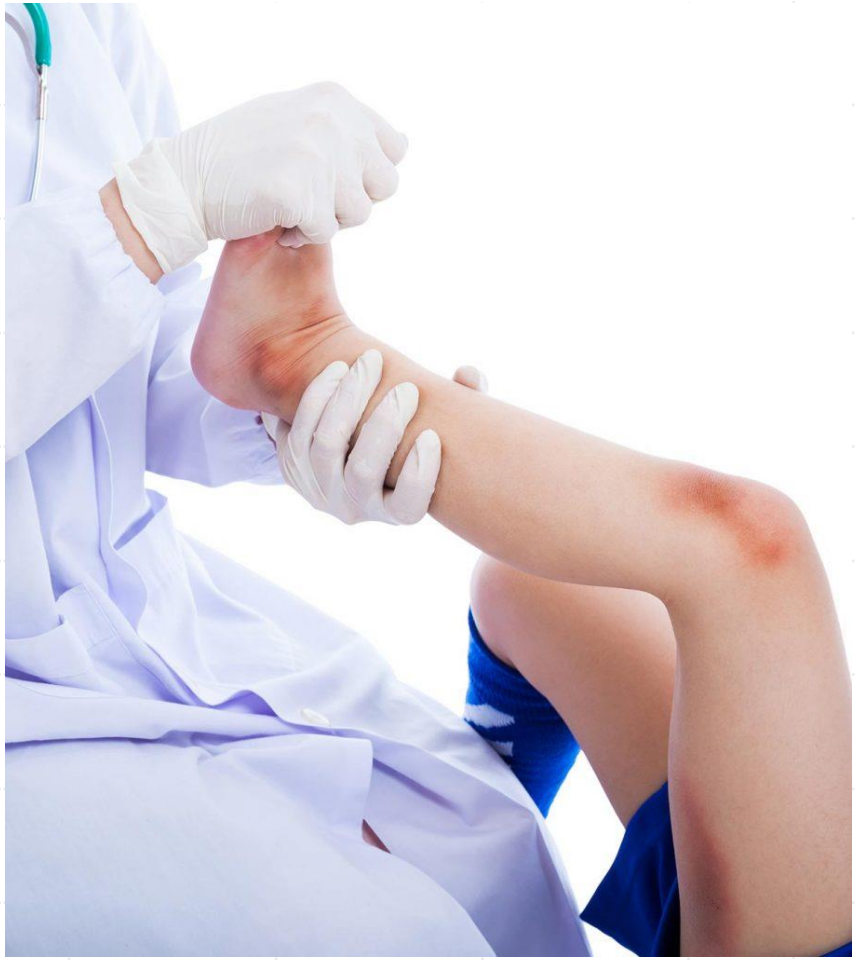
Objectives

- Spotting a rheumatological disorder
- When to investigate and how
- JIA
- Growing pains
- Referral pathways
- Further resources for you and patients



History

- Red flags
  - Fever
  - Weight loss
  - Night sweats
  - Marrow suppression
  - Back Pain <5 yrs
  - Night pain/waking
  - Neurological signs
  - ?NAI
- Duration of symptoms
- Stiffness in the morning
- Effect of activity on pain
- Functional impairment/baseline activity levels, schooling
- Psychosocial history

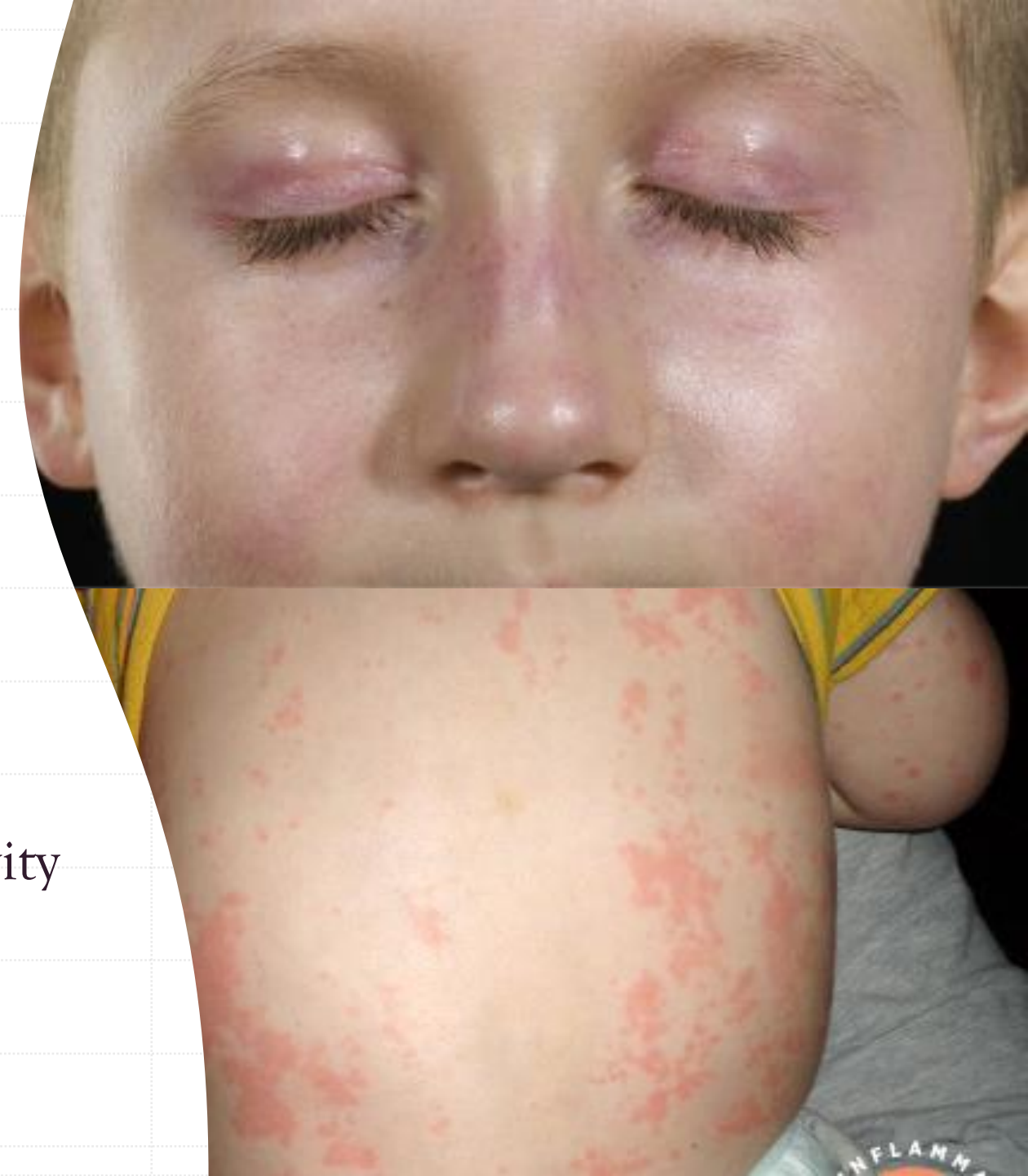


Examination

- At least the joints above and below
- pGALS and Beighton score
- Skin
- Eyes
- Lymph nodes
- Systems review
- Don’t forget referred pain!

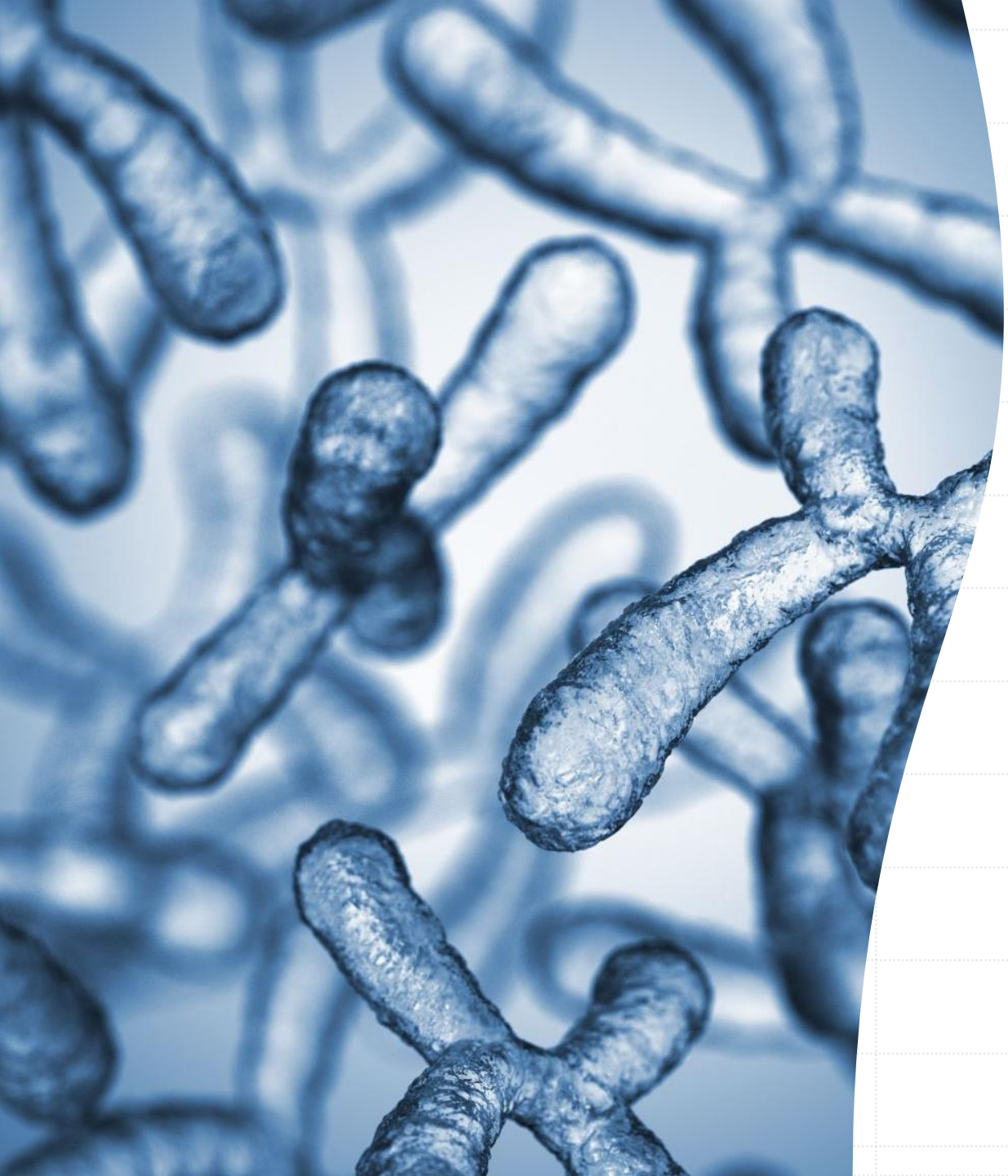
Clues to rheumatological diagnosis

- Joint restriction, pain or swelling
- Morning stiffness
- Pain better with activity
- Duration of symptoms >3 weeks
- Atypical skin rashes e.g photosensitivity
- Proximal muscle weakness
- Family history



Investigations – first line

- Full blood count, film, ESR
- U&Es, LFTs, Bone profile, Vitamin D, CRP, ferritin, consider ANA*, consider CK+LDH if muscle pain/weakness
- X-rays of affected joints – exclude trauma
- Don't do full rheumatology screen unless discussed with someone with an interest

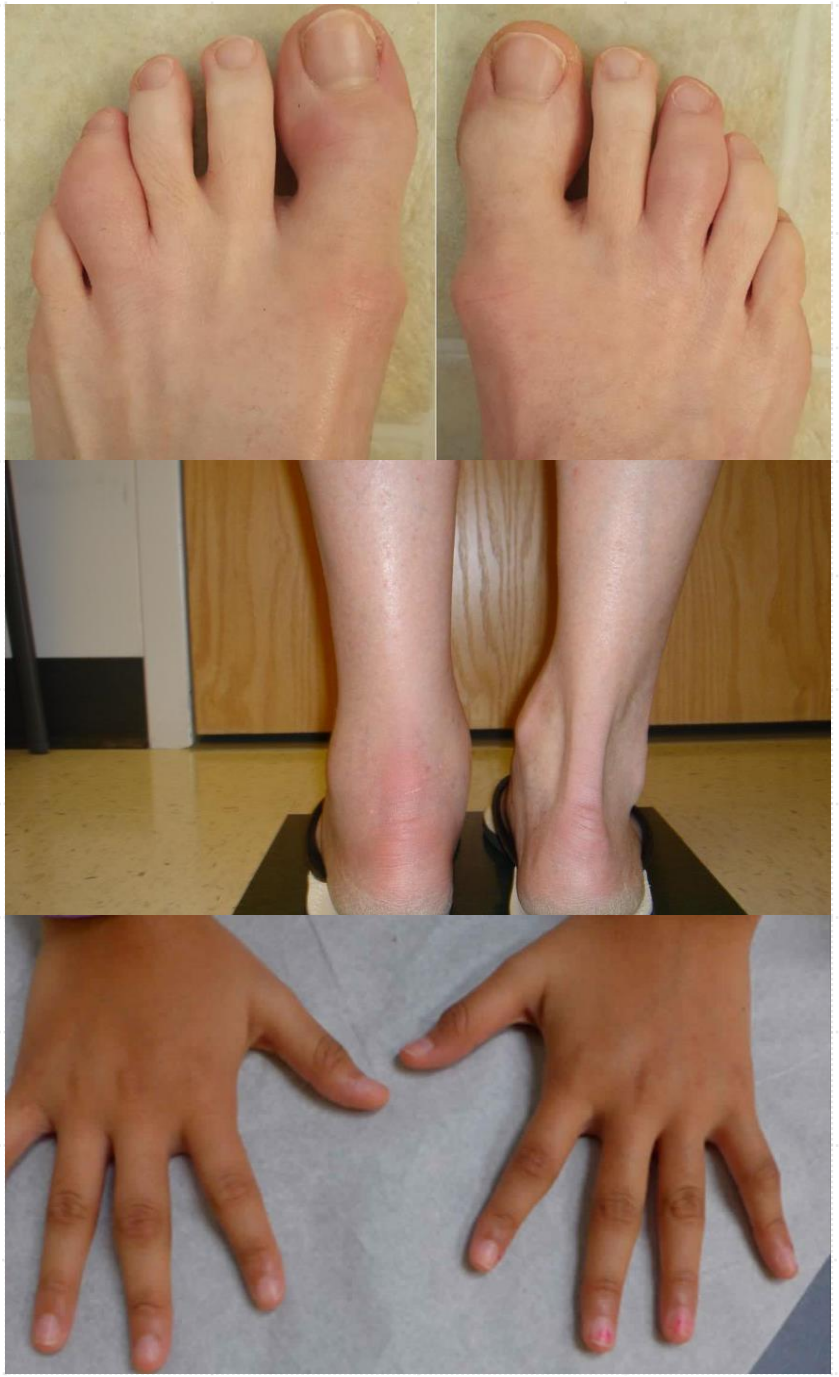


Antinuclear antibody

- Only test if convincing history and examination for autoimmune disease
- Common post infection
- If negative doesn't exclude autoimmune disease
- If titre is low, i.e. less than 1:320, no need to repeat or follow-up in the absence of symptoms or signs suggestive of autoimmunity
- If ANA titre >1:320, refer

Juvenile idiopathic arthritis

- Incidence 1:100000 per year, prevalence 1:1000, cases increasing
- **Oligoarticular** (<5 joints at onset, 70% of cases), ANA predicts uveitis risk
- **Polyarticular** (>4 joints at onset, 20% of cases), RhF +ve/-ve
- **Systemic onset** (10% cases) - systemic features, fever (*quotidian* i.e. daily fever spikes - usually late evening to early morning and normal or below normal in between spikes), evanescent maculopapular rash, polyarthritis/arthralgia
- **Enthesitis related** – older often adolescent boys, back pain, family history of ank spond, HLA-B27 positive
- **Psoriatic** – Dactylitis, nail changes, poor correlation to skin findings
- Consider JIA in patient with ?osteomyelitis/septic arthritis not responding typically to treatment



Differential diagnosis of JIA

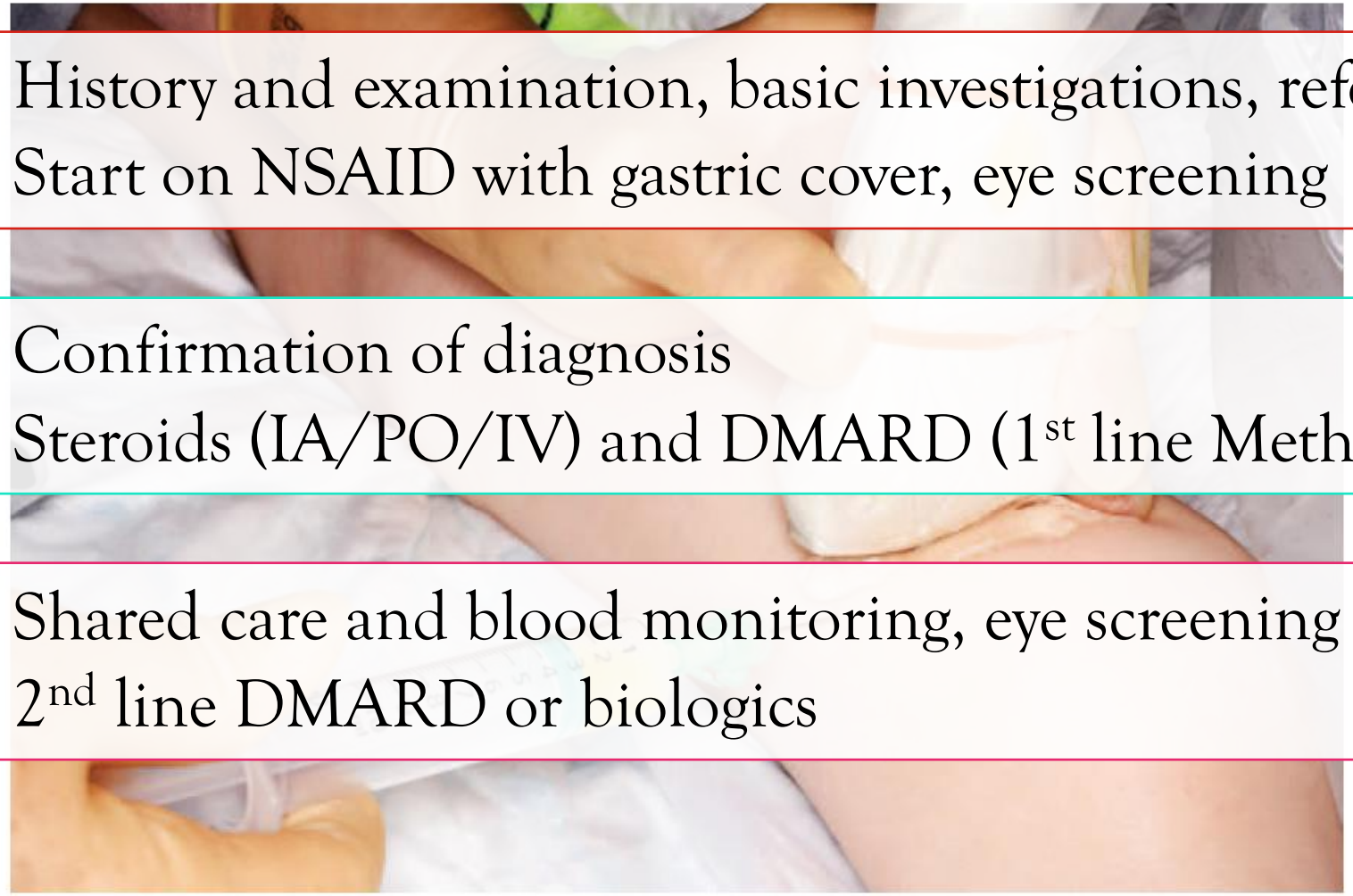
- Ask specialist advice early
- Book follow-up
- Trial of NSAID

Table 2 Differiential diagnosis for juvenile idiopathic arthritis

	1 joint	2–4 joints
Infection	Reactive arthritis Septic arthritis Lyme arthritis Osteomyelitis Transient synovitis (hip)	Reactive arthritis Viral (hepatitis B, rubella, parvovirus B19, EBV, CMV, adenovirus, herpes) Chronic recurrent multifocal osteomyelitis
Tumour	Leukaemia, lymphoma or metastatic solid tumour	
Autoimmune		Systemic lupus erythematosus Mixed connective tissue disease
Inflammatory	Alternative JIA subtype	Alternative JIA subtype Sarcoidosis

CMV, cytomegalovirus; EBV, Epstein-Barr virus; JIA, juvenile idiopathic arthritis.

Management pathway – suspected JIA



DGH

- History and examination, basic investigations, referral
- Start on NSAID with gastric cover, eye screening

Tertiary

- Confirmation of diagnosis
- Steroids (IA/PO/IV) and DMARD (1st line Methotrexate)

Ongoing

- Shared care and blood monitoring, eye screening
- 2nd line DMARD or biologics

NSAIDs

Table 3 Non steroidal ani-inflammatory medications for use in juvenile idiopathic arthritis[20]

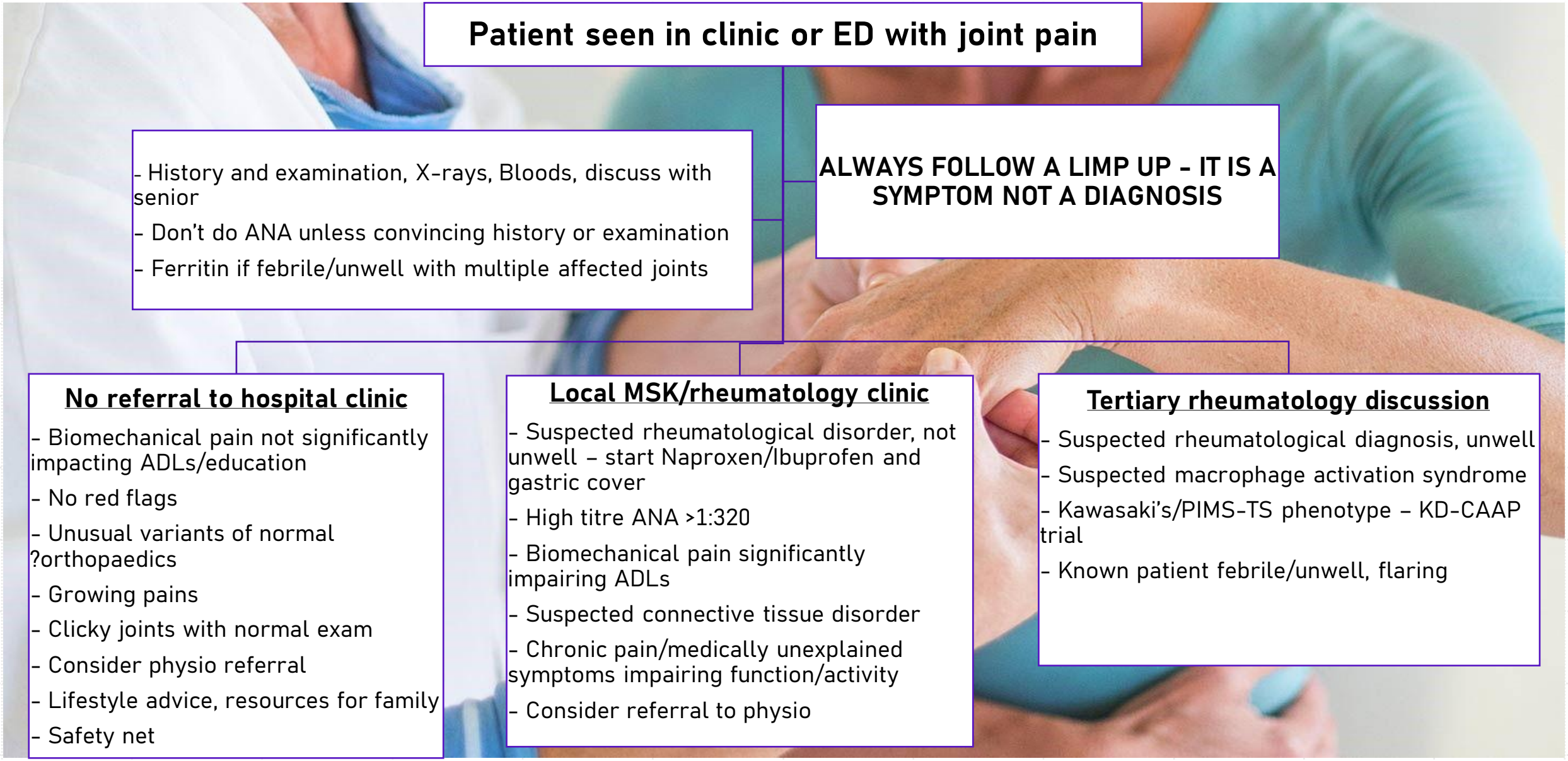
Name	Dose	Frequency	Comment
Ibuprofen	10–20 mg/kg	Two times per day	Lower doses can be used in milder disease. It has fewer side effects than other NSAIDS, but its inflammatory properties are felt to be less beneficial.
Naproxen	30–40 mg/kg	Three times per day	Is effective and generally well tolerated.
Piroxicam	5–20 mg (weight dependent)	Once daily	As a once daily preparation, this can be beneficial in school-aged children.
Indomethacin	2–3 mg/kg/day	2–4 divided doses	Is effective, but has a high side effect profile, and for that reason is largely avoided in children.
Meloxicam	0.125 mg/kg	Once daily	This tends to be reserved for those over 12 years old who are intolerant of other NSAIDs.
Diclofenac (immediate release)	1.5–2.5 mg/kg	Two times per day	Is effective but may be less well tolerated than other NSAIDs.

NSAIDs, non-steroidal anti-inflammatory drugs.

Rules of growing pains

- Age 3-12 yrs
- Pains never present at start of day on waking
- Child doesn't limp
- Physical activity not limited by symptoms
- Pains symmetrical and not confined to joints
- Physical examination normal (nb hypermobility)
- No systemic red flag symptoms
- Nocturnal pain is common – refer if night waking more frequent or pain limited to one site

Referral pathways



Patient seen in clinic or ED with joint pain

- History and examination, X-rays, Bloods, discuss with senior
- Don't do ANA unless convincing history or examination
- Ferritin if febrile/unwell with multiple affected joints

ALWAYS FOLLOW A LIMP UP - IT IS A SYMPTOM NOT A DIAGNOSIS

No referral to hospital clinic

- Biomechanical pain not significantly impacting ADLs/education
- No red flags
- Unusual variants of normal ?orthopaedics
- Growing pains
- Clicky joints with normal exam
- Consider physio referral
- Lifestyle advice, resources for family
- Safety net

Local MSK/rheumatology clinic

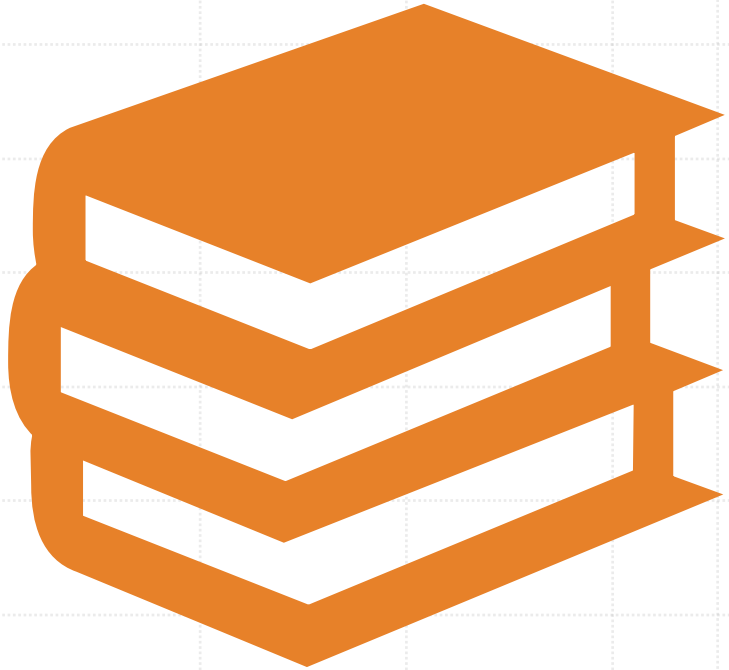
- Suspected rheumatological disorder, not unwell – start Naproxen/Ibuprofen and gastric cover
- High titre ANA >1:320
- Biomechanical pain significantly impairing ADLs
- Suspected connective tissue disorder
- Chronic pain/medically unexplained symptoms impairing function/activity
- Consider referral to physio

Tertiary rheumatology discussion

- Suspected rheumatological diagnosis, unwell
- Suspected macrophage activation syndrome
- Kawasaki's/PIMS-TS phenotype – KD-CAAP trial
- Known patient febrile/unwell, flaring

Resources

- NICE – Developmental rheumatology in children, common scenarios
  - https://cks.nice.org.uk/topics/developmental-rheumatology-in-children/
- Paediatric musculoskeletal matters
  - http://www.pmmonline.org/doctor#
- Versus Arthritis
  - https://www.versusarthritis.org/
- The Ehlers-Danlos Society
  - https://www.ehlers-danlos.com/
- The British Society of paediatric and adolescent Rheumatology
  - https://bspar.org.uk/
- The British Society for Rheumatology
  - https://www.rheumatology.org.uk/practice-quality/guidelines/paediatric-adolescent-guidance/



Appendix 1

- **'Rheumatology screen'**
  - FBC, film, U&Es, LFTs, bone profile, vitamin D, CK, LDH, CRP, ESR, ferritin
  - C3/C4, immunoglobulins
  - Anti-nuclear antibody, extractable nuclear antigen (ENA) panel, rheumatoid factor, dsDNA, ANCA, HLA-B27, serum ACE, anti-CCP antibody
  - VZV IgG, TB quantiferon/elispot, ASOT, Mycoplasma serology, borrelia serology (if relevant), COVID antibody
- **Macrophage activation syndrome**
  - Suspect if febrile, unwell, polyarthritis/arthralgia, known rheum diagnosis (esp SoJIA) and unwell, lymphadenopathy, hepatosplenomegaly, CNS dysfunction (lethargy), SOJIA rash
  - Clues in bloods – cytopaenias (esp plts), ferritin >500, transaminitis, high LDH
  - Bloods to add – Fibrinogen (low), lipids (high triglycerides), soluble CD25 (if available, raised)