Podiatric Implications and Management

Rheumatoid Arthritis and Osteoarthritis

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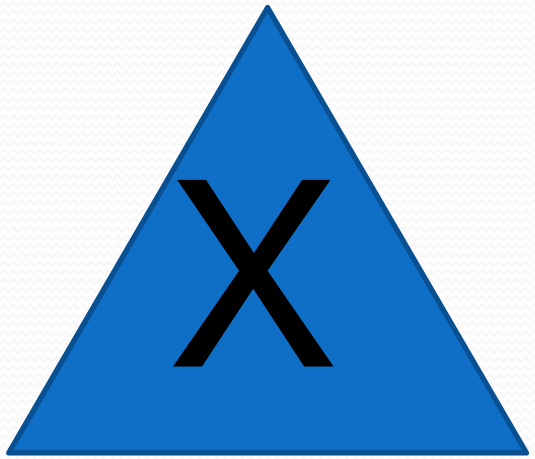
(some slides modified from Jenny Tranter)

Aims

- Medication management
- Review the podiatric implications of Rheumatoid Arthritis and Osteoarthritis
- Management of foot problems in early and established Rheumatoid disease
- Explore the management of the prevention and treatment of ulceration in the high risk foot.
  - Podiatric management
  - MSK /Functional – orthotic mangement
  - High risk / Tissue viability - Woundcare

Medication in Rheumatoid Arthritis

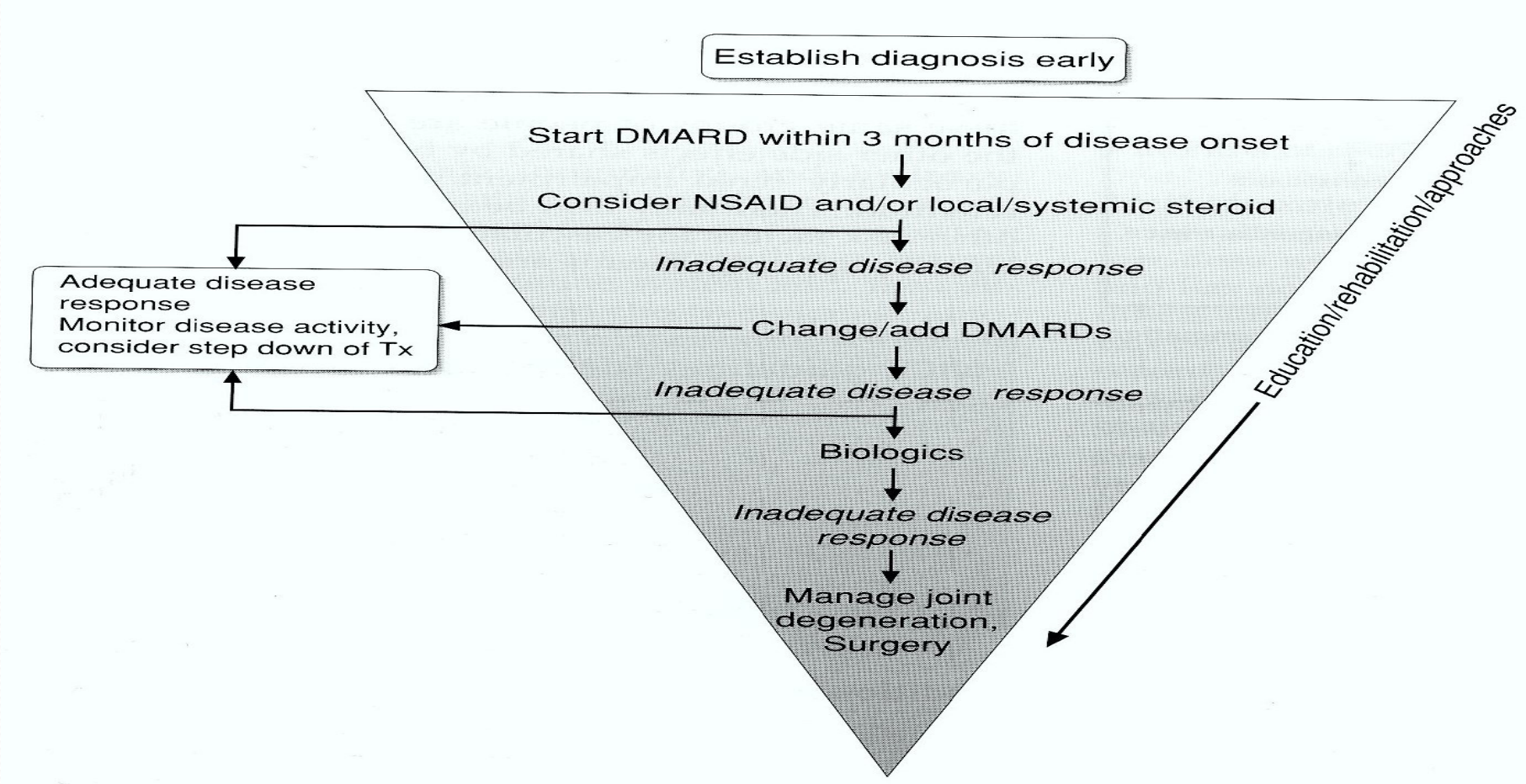
- Simple analgesics
- NSAIDs
- Corticosteroids
- DMARDs mono and or combination
- Biologic therapies TNF
- Chronic pain drugs
- Complementary therapy



Medical management principles

- New concept
  - Detect and refer EARLY
  - intervene aggressively
  - Patients newly diagnosed with RA offered a combination of DMARD's as 1st line treatment
  - Principles of 'TIGHT' control/treat robustly
  - Minimise inflammation to improve ALL outcomes for the patient

Step down approach ‘Inverted triangle’



Disease Modifying Anti-Rheumatic Drugs (DMARDs)

- Suppress disease activity
- Reduce pain, swelling, stiffness of joints
- Slow onset of action
- Nearly all require regular blood monitoring
- Choice depends on balancing side-effects with efficacy
- High toxicity

RA NICE guidelines overview

- Monitor response and toxicity
  - In newly diagnosed
    - combination of DMARDs
  - If combination therapy not appropriate, start monotherapy but place greater emphasis on suppression of inflammation

- If patient has not responded to above consider Biologic Therapy if indicated
  - Cost implications
  - DAS score

Feldman M, et al. *Annu Rev Immunol.* 1996;14:397-440.

Biologic Therapies

- Adalimumab (Humira) (anti TNFα) – subcut. Injection, every other week or weekly
- Anakinra (Kineret) (anti IL1) – subcut. Injection, daily
- Etanercept (Enbrel) (anti TNFα) – subcut. Injection, once or twice weekly
- Infliximab (Remicade) (anti TNFα) - IV
- Rituximab (Mabthera) (anti CD20)– IV

Limitations

- Cost considerations (£6-8k per annum)
- At what stage?
  - 1st line in USA
  - NICE UK guidelines
    - Fail 2 DMARDs
- Treatment complications
  - Injection-site reactions
  - Infection
  - Malignancy
- Clinical efficacy?

Biologic Therapy Alerts

- greater risk of infection
- should be stopped with serious infections
- Post surgery Biologics should not re-commence until wound healing demonstrates good prognosis
- GP/Consultant must be consulted prior to any surgical intervention
- Patients on Biologic Therapy and with foot deformity and/or poor tissue viability should receive regular Podiatry appointments

Steroids

- Anti-inflammatory & may slow disease progression
- Systemic treatment: many side effects Dose/duration dependent
- Side effects include osteoporosis, diabetes, hypertension
- Oral prednisolone- most risk of SE'S
- Intra-articular injections
- I.M injections
- I.V infusions
- Podiatric implications
  - Fibro fat pad atrophy, delayed healing

Local steroid Injection Therapy

- Widely used
- Easy and safe
- Deliver potent treatment locally with minimal side-effects
- Can be administered by AHP’s

Rheumatoid Arthritis

Podiatric Implications

Foot - Epidemiology

- 2nd most frequent site of symptoms
- 79-94% will have foot symptoms/deformity
- Most suffer at onset of disease
- Development & severity increase with duration of active joint disease
- Differentiating MSK pathology as a result of functional changes in foot function and the signs of active disease process

Changes in foot function And Structure In Rheumatoid Arthritis

Structure

- Combination of inflammatory process and abnormal mechanical loads
- Synovitis - stiffness
- Erosions
- Deformity
- Displaced fat pad
- Subluxation

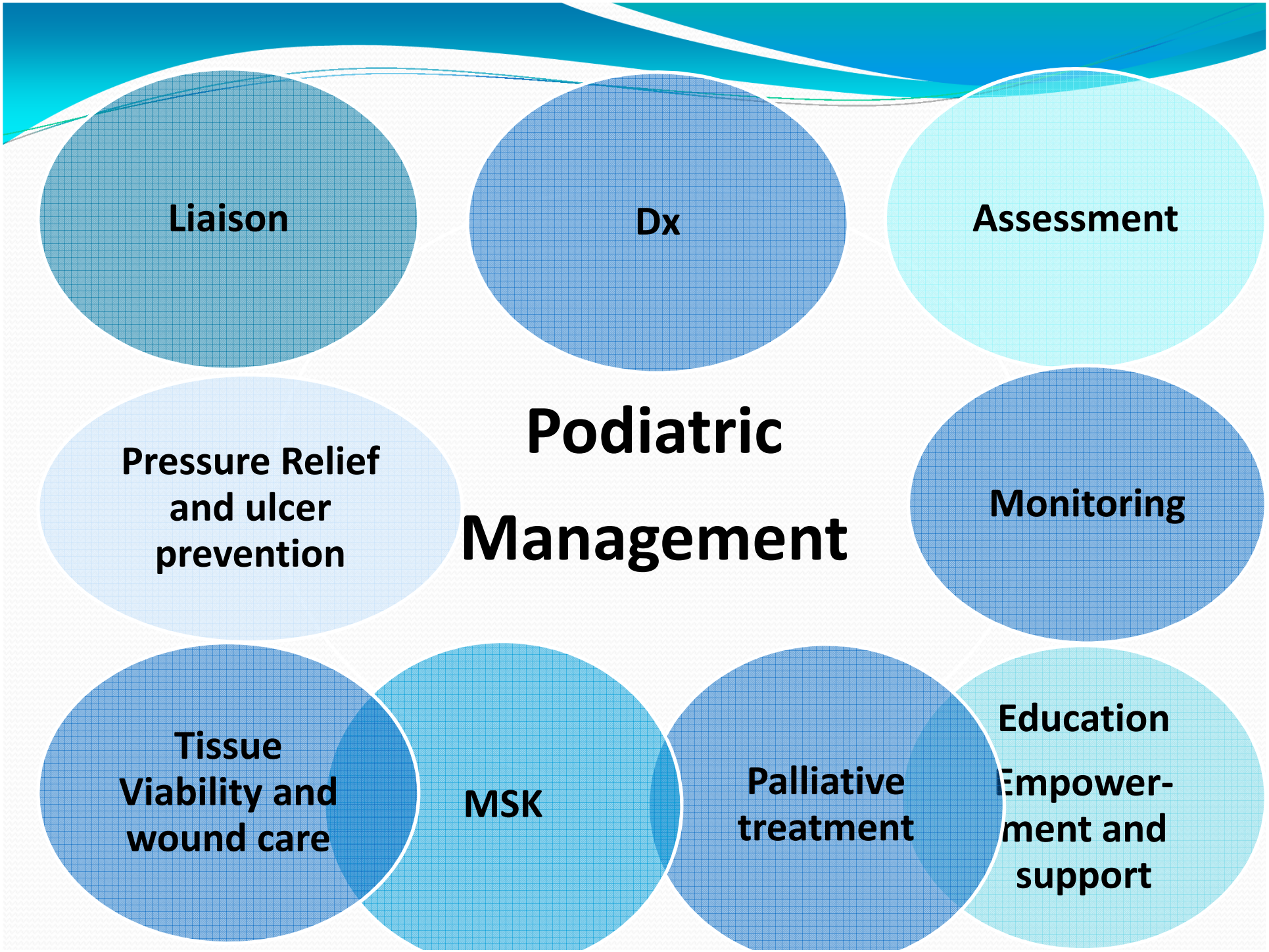
Function

- Limited joint mobility
- Proprioception
- Poor postural stability and instability in gait
- Excess foot pronation / supination
- Changes in foot function- predispotion to overuse
- Limitation of movement - muscle wasting

Tissue Damage

Risk of infection / Risk of impaired healing

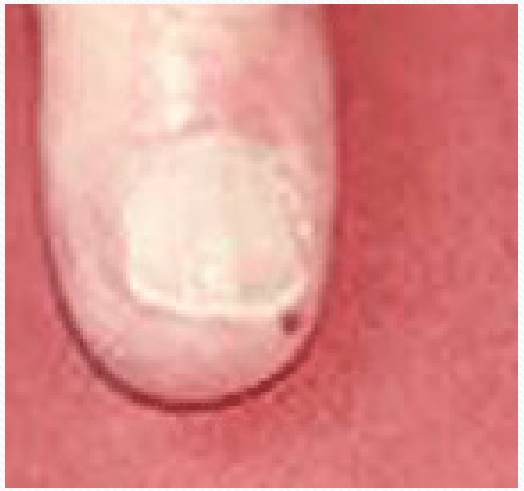
- Direct mechanical trauma
- Constant Intermittent moderate pressure
- Deformities
- Poor Tissue Viability
- Immuno compromised
- PAD Vasculitis
- Neuropathy
- Anaemia
- Risk of co mobitities


Liaison
Dx
Assessment
Pressure Relief and ulcer prevention
Podiatric Management
Monitoring
Tissue Viability and wound care
MSK
Palliative treatment
Education
Empower-ment and support


SCIENCEphotoLIBRARY

Clinical Manifestations

- Synovitis
- Bursitis
- Hallux Abductor valgus
- Lesser toe deformities
- Subluxation of MTP joints
- Callosities
- Ulceration
- Nodules
- Vasculitis
- Nail infarcts



Clinical Manifestations MSK and Functional

- Synovitis
- Tenosynovitis
- Pes planovalgus deformity:
  - Flattening of medial longitudinal arch
  - Valgus deformity of calcaneus
  - Tibialis posterior degeneration --------→ Adult acquired flat foot deformity-------→subluxation

Assessment

- Neuropathy
- Ischaemia
- Deformity
- Musculoskeletal
- Dermatological
- Infection
- Osteomyelitis
- Joint damage
- Extra articular
- Footwear
- Woundcare
- Well Being
- Function
- Support
- Pain
- Fatigue
- Disease Activity

Monitoring and Assessing disease activity in the foot

- Monitor patient overtime using outcome measures to predict further outcome
- Assess disease activity at each appointment
  - DAS score, blood results, localised inflammation, changes to patient daily activities
- Assessment of joint loading patterns
  - Gait parameters
- Documentation and assessment of joint deformity
- Soft tissue assessment
  - Muscle power testing
  - Pos Tib dsyfunction/tinnel's sign

Treatment - Callus debridement

- To debride or not to debride?
- Woodburn et al (2000)
  - Plantar callosities of 14 RA patients feet debrided, pain scale using VAS reported symptomatic relief but treatment effect lost after 7 days. Following scalpel debridement, contact time reduced but peak pressure increased. Conclusion – scalpel debridement may reduce forefoot pain for 7 days but pressure distribution not affected
- Davys et al (2005)
  - Compared forefoot pain, pressure and function after normal and sham callus debridement. No statistical difference overall. Improvement overall short lived. Conclusion – forefoot pain may not be soley attributed to plantar callosities

Liason


ESP
POD
Rheumatologi
st
IV
Nurse
RSN
RN/ DN
Family
/carer/
support
worker
You
OT
Orthotist
Haemat
ology
GP

Pressure Relief and Functional Considerations for Orthotic Therapy

Functional insoles and therapeutic footwear should be available for all people with RA if indicated.

NICE 2009

Progressive Deformity

Management of joint damage pain and disability

- Impaired structure and function
- Fluctuating nature of synovitis effect ROM
- Orthosis design is dependant on ROM not disease duration
- Deformity
- Synovitis and mechanical stress
- Minimise pain and deformity

Management in Early Disease

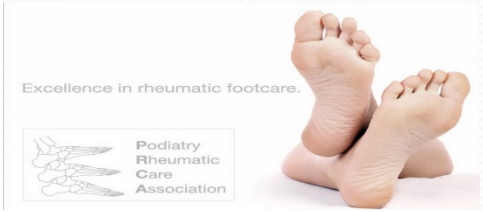
- referred to Podiatry for early baseline assessment of foot health needs (ARMA, 2004)
- Patient education
- Footwear appraisal
- Minimise effects of joint loading and deformity
  - Biomechanical screening,
  - off loading strategies - forefoot
  - Rigid and functional/controlling orthoses
    - Baseline record of disease activity and serology
    - Baseline outcome measures included in management plan

Excellence in rheumatic footcare.

Podiatry Rheumatic Care Association

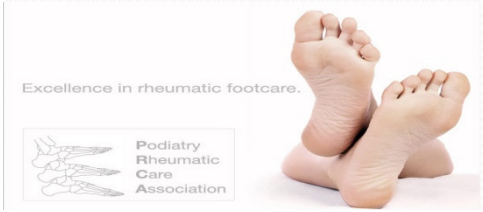
Established RA

- Minimise progressive change
  - Orthotic design should move away from rigid device and offer a mix of support and control
  - Orthotics should incorporate materials that decelerate pressure
- Maintain mobility



Late stage disease

- Late stage disease
  - Established pes planus deformtity
  - Minimise progressive change
    - Service provision with increased emphasis on MST involvement
    - Total contact insoles
    - Management of secondary features
    - Regular access to emergency appointments for prompt management of vasculitis, soft tissue lesions and ulceration
  - Maintain mobility

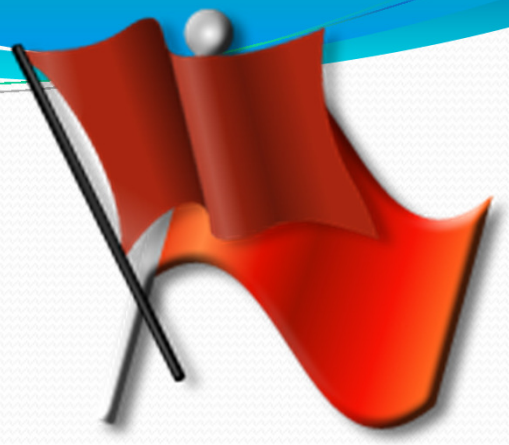


Changes in gait style – established RA

- Decreased gait velocity and cadence
- Increased double support
- Decreased contact time loading of forefoot
- Delayed heel lift
- Increased loading in force time curves
- Flatter foot contact
- Increased contact area and duration of mid foot

D Turner 2008; van der Leeden 2008

Red flags!



- Early referral to Rheumatology
  - > 3 swollen joints, MTP and MCP involvement, Positive squeeze test
  - N.B. NSAIDs can mask signs and symptoms at presentation
- Patients presenting with infection and receiving biologic therapy
- Reactive arthritis should be considered if present with inflammatory arthritis localised to multiple joints in the lower limb
- Infective arthritis should be considered in the case of monoarthritis in the foot following surgery or injury. Rapid referral for further imaging and haemitological investigation is warranted

Orthotic Management

Functional – Early disease

- Prevent joint damage
- Mobile feet

- Reduce foot pain
- optimise foot function
- Slow rate of progression of deformity heel and ankle early RA (Woodburn 2003)

Pressure Redistributing Insoles- Established

- Improve comfort (Hodge et al 1999)
- maximise foot function
- Increase shock absorption
- Reduce shear?
- Functionally stabilise arch
- Decrease pain
- Protection / tissue viability

Woodburn et al 2005 2003 clark 2006

Foot Pressure Measurement in Rheumatoid Arthritis

- Ulceration at sites of maximum pressure- forefoot (Hodge et al 1999 van der Leeden et al 2006)
- High forefoot pressures result in pain
- Radiological erosion scores – high pressure (Tuna 2005)
- Footwear / orthoses to reduce pp do not always relieve pain

Methods of Pressure Relief

- Padding & Strapping
- Orthoses TCI semi functional
- Total non Weight bearing
- Shoe modifications /half shoes
- Footwear
- Soft cast /scotch cast
- Total contact casting
- Temporary- allergy/ restriction of circulation of loops/ elastic
- Footwear accomodation
- Impractical, costly. Muscle wasting, DVT,
- Poor compliance
- If rocker in the wrong position increases pressures
- Experienced Plaster technician
- Infection

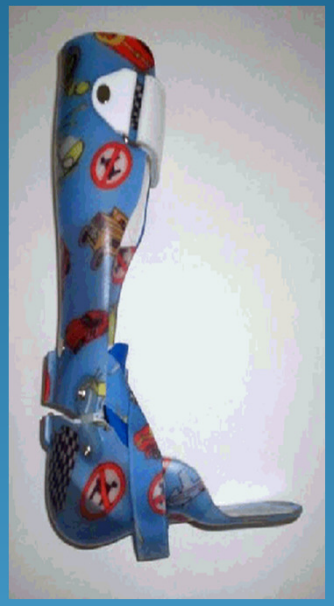
Total Contact Inlays

- Aim is to redistribute pressure by increasing the weight bearing area of the foot
- Prevention of tissue breakdown
- Healing of damaged tissues
- Protection of high pressure areas
- Pressure important contributing factor to ulceration
- Peak pressure over ulcer sites has been shown to be up to 15x greater than normal (Boulton et al 2000)
- Footwear needs to be appropriate
- Materials need to be chosen well – may be some compromises

Soft Cast

ANKLE FOOT ORTHOSES

Rigid AFO
Hinged AFO
Posterior Leaf Spring
Dynamic AFO



New patient with Ulceration to plantar 2 nd MTPJ

- Biologic therapy / HAV and Lesser MTPJ damage
- Management ?

OsteoArthritis
DJD

Podiatric Implications

Lower limb and Foot manifestations

- Assymetry LLD
- Spine
- Hip
- Knee
- Ankle
- STJ
- Midfoot
- 1 ST mtpj
- Lesser Digits DIPJ

Effect on function

- DJD, disc prolapse,radicular symptoms
- LLD – internal rotation
- LLD – Varus
- Loss of foot pivots
- Shock absorption
- Pain
- Deformity
- Gait

Osteoarthritis Treatment

- Mediterranean diet
- Glucosamine
- Chondroitin
- Pain control – NSAIDs and analgesia
- Weight-loss
- Surgery / Joint Replacement
- Exercise therapy
- Activity modification
- Podiatry

Hallux Limitus/Rigidus Drago/Regnauld Grades

Grade 1:

Functional Hallux Limitus

Grade 2:

Mild Hallux Limitus - Joint adaptation

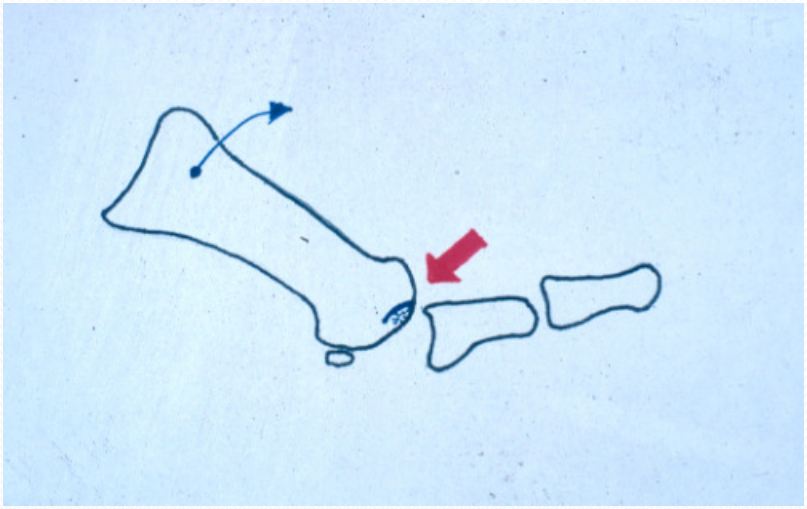
Grade 3:

Moderate Hallux Limitus - O.A.

Grade 4:

Severe Hallux Limitus - Ankylosis,

Cartilage damage in the dorsiflexed ray



- Base of Proximal Phalanx collides into cartilage.
- elevates cartilage
- Damage & subsequent OA occurs.

Hallux Limitus Complex

- Limited dorsiflexion at MPJt
- Hyperextension at IPJt

Hallux RigidusManagement

- Exostosis
- Bursa
- Limited ROM MPJt
- Hyperextended IPJt
- Callus sub IPJt
- OX
- OP
- Subungual exostosis

Podiatric Interventions

- Footwear advice
- Pacing (graded activities)
- Education & Empowerment (Arthritis Care free course)
- Exercise - Muscle strength & Flexibility
- Biomechanical examination/Orthoses – enhance function or limit movement, pressure redistribution
- LA / steroid injection
- Ostenil injection
- Podiatric Surgery referral
- Referral Orthotist

Wear marks in Hallux Rigidus

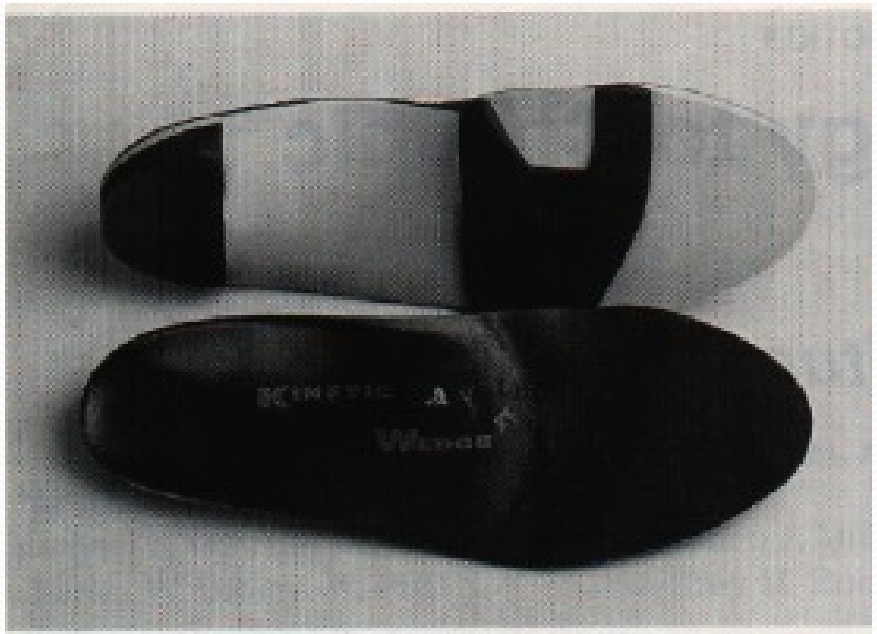
Conservative ROCKER SOLE

Hallux limitus

- Rigid soled footwear
- Rocker sole
- Curved heel
- Encourage forward progression when there is restriction of motion at a foot pivot

Orthoses

Kinetic wedge



1st Ray cut out

Treatment

- Joint preservation
  - Cheilectomy
  - Watermann decompression osteotomy
  - Kessel -Bonny
- Joint destruction
  - Kellers arthroplasty
  - Arthrodesis
- Joint replacement
  - Silastic arthroplasty

Arthrodesis vs. joint replacement

- **Arthrodesis**
- Strong 1st ray
- For active lifestyle
- Usual 80% + success

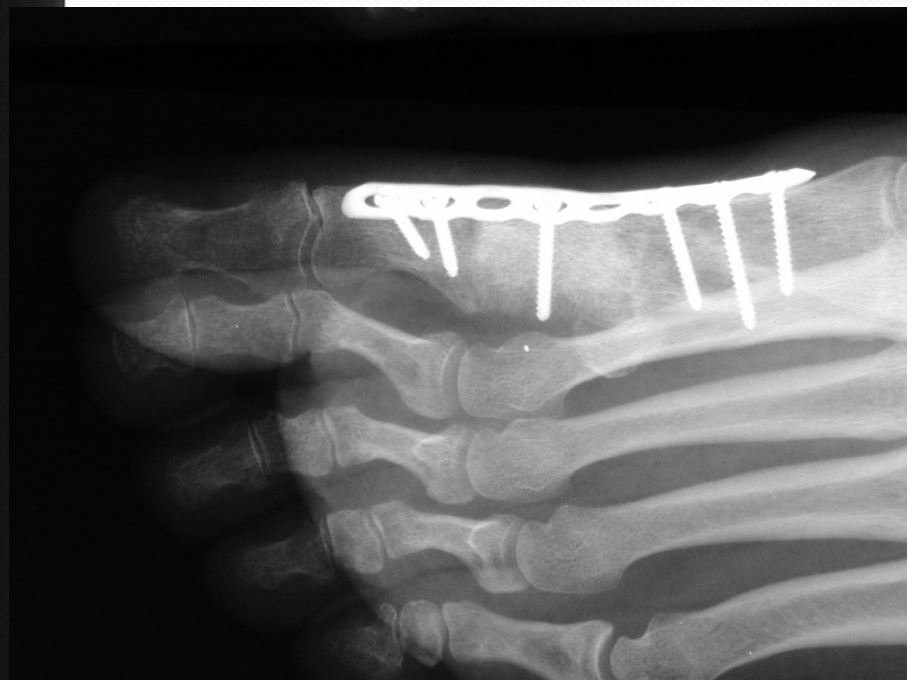
- Nonunion
- Malunion
- OA ipj

- **Joint replacement**
- Range of movement
- Footwear
- ? Success rates

- ? Longevity
- ? Sesamoid problems
- ? Metatarsalgia

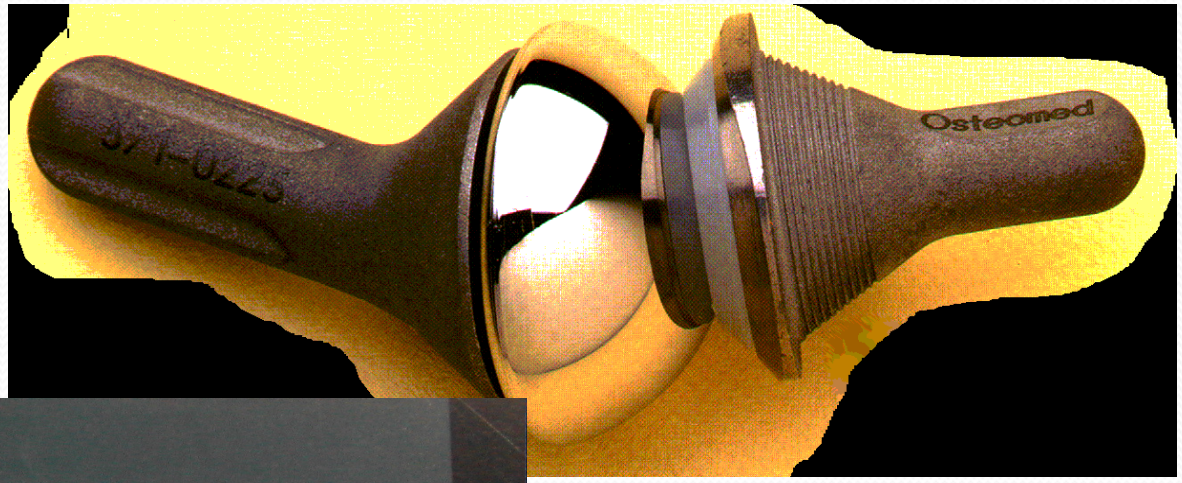
Fusion

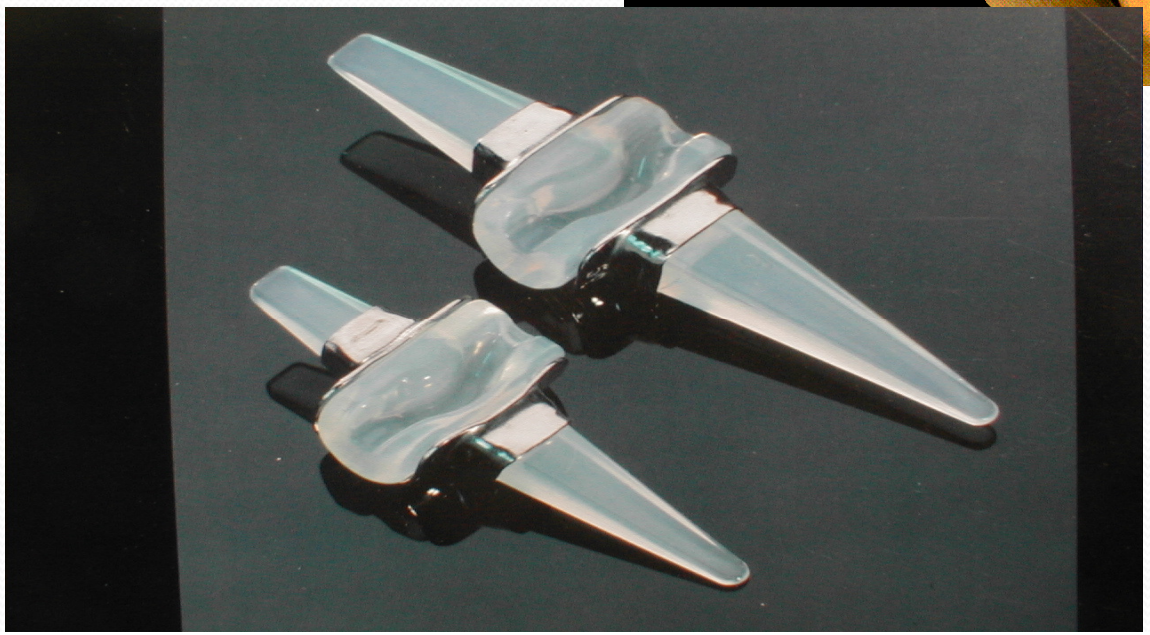
Intreposition bone graft & good union at 8 weeks



Titanium Implant Arthrodesis

Reflection & Swanson total joint systems





Conclusion

Case study A

- Early stage RA – Flexible pes planus, tib post dysfunction, symptoms
- Restricted ankle joint and MTJs due to synovitis which is improving
- Patient is also seeing physiotherapist and is under Rheumatologists and is taking biological therapy

Case study B

- Osteoarthritis severe of ankle knees and 1 st MTPJ fixed plantar flexed 1 s Ray
- Laterally unstable ankle and associated symptoms
- Limited ROM at STJ and fixed varus heel deformity

Case Study C

- SLE
- Large areas of plantar vasculitis whole of sole of foot
  - Long standing
- Poor tissue viability – due to long-term steroid medication
- Patient reluctant to change foot wear slip on narrow shoe no fastening
- Shuffling gait but reasonable ROM most joints

Case study D

- RA - 78
- Established disease
- Restricted ROM
- Gross digital deformities
- Prominent MTPJ's bursa with longstanding ulceration to 3 rd MTPJ
- Varus heel

Professional Organisations

- PRCA
  - http://www.prcassoc.org.uk
- BHPR
  - http://www.rheumatology.org.uk
- ARMA
  - http://www.arma.uk.net/
- EULAR
  - http://www.eular.org/

Information Sources

- Arthritis Research Campaign
  - Patient leaflets/informative literature
  - Educational/Professional literature
  - GALS/REMS
  - Collected Reports on Rheumatic Diseases
- Arthritis and Musculoskeletal Alliance
  - www.arma.uk
- Standards of Care for people with musculoskeletal foot health problems
  - PRCA. Available at: http://www.prcassoc.org.uk/standards-project
- NRAS. National Rheumatoid Arthritis Society at: http://www.rheumatoid.org.uk/

- **Arthritis Research Campaign - ARC**

  Copeman House, St Marys Court, St Marys Gate, Chesterfield, Derbyshire, S41 7TD.
  Tel: 0870 850 5000 Web: www.arc.org.uk

- **Arthritis Care**

  18 Stephenson Way, London, NW1 2HD
  Helpline: 0808 800 4050 Web: www.arthritiscare.org.uk

- **National Rheumatoid Arthritis Society (NRAS)**

  Unit B4 Westacott Business Centre, Westacott Way, Littlewick Green, Maidenhead, Berks, SL6 3RT
  Helpline: 0800 298 7650 Web: www.rheumatoid.org.uk

- Podiatric Rheumatic Care Association

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  236 Gray's Inn Road
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  T: +44 (0)20 7562 2930

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