

55 y/o Korean male presents with chronic bilateral hand and wrist swelling, pain and stiffness. Fatigue and 10lb weight loss.

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Study: IM6722402 - XR HAND BILATERAL RHEUMATOLOGY
Series: PA
Image #171 www.UM 6398/2208
Accession Number: 0191923

L
KRW

R
KRW

Area Dose Product: 0.284
ELs: 205
mAs: 1
KVP: 52

ORIGINAL/PRIMARY
Device: Philips Medical Systems OPAR/ADDR

Study: IMG722402 - XR HAND BILATERAL RHEUMATOLOGY
Series: Lateral
Image #171 www/vwl 4203/2039
Accession Number 3191323

L
KRW

R
KRW

Area Dose Product 0.332
EI_s 159
mAs 1

ORIGINAL/PRIMARY

Study IMG722402 - XR HAND BILATERAL RHEUMATOLOGY
Series Oblique
Image #171 www.wv 4429/2028
Accession Number 3181323



L
KRW

R
KRW

Area Dose Product 0.332
EI_s 184
mAs 1
KVP 52

ORIGINAL/PRIMARY/
Device Philips Medical Systems OPARADDR1



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A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off, with a serrated edge.

Rheumatoid Arthritis

Study IMG722402 - XR HAND BILATERAL RHEUMATOLOGY
Series PA
Image #171 wwwj 6993/2206
Accession Number 3191928



L
KRW

R
KRW

phalanges

metacarpals

carpus

bilateral early pan carpal bone erosions
With joint space narrowing R>L

Area Dose Product: 0.284
EI_s 205
mAs 1
KVP 52

ORIGINAL PRIMARY
Device: Philips Medical Systems OPARADDR

Study: IMC722402 - XR HAND BILATERAL RHEUMATOLOGY
Series: Lateral
Image #: 111 www.wvl 4203/2039
Accession Number: 3191323

L
KRW

Erosive
change
distal radius

b/l dorsal subluxation
distal ulnar

R
KRW

Erosive change
distal radius

Area Dose Product 0.332
EI_s 159
mAs 1

ORIGINAL/PRIMARY

Study: IMG722402 - XR HAND BILATERAL RHEUMATOLOGY
Series: Oblique
Image #1/1 www.wvl 4429/2028
Accession Number: 3191323



Area Dose Product: 0.332
EI_s: 184
mAs: 1
KVP: 52

ORIGINAL/PRIMARY
Device Philips Medical Systems OPARADDR1

Rheumatoid Arthritis

- Epidemiology
 - More common in females 3:1
 - Onset typically 30-50 years old
 - Annual incidence RA 40 per 100,000 in United States
- Etiology
 - Autoimmune inflammatory arthritis
 - Proliferation macrophages in synovium of joints leading to lymphocyte infiltration
 - Ultimately joint and cartilage destruction in addition to other systemic complications
 - Most commonly small joints of hands (MCPs, PIPs) and feet (MTPs), and wrists
 - Cervical spine (C1-C2), and other large joints (shoulder, knee)
 - Axial skeleton relatively spared
 - Environmental factors and genetic factors likely both play role
 - HLA genes play role most significantly HLA-DRB1 gene
 - Hypothesis possible triggering event such as a viral infection
 - Smoking strong risk factor for development of RA

Rheumatoid Arthritis

- Presentation
 - Progressive onset joint pain and swelling with symmetric polyarticular involvement
 - Joint decreased range of motion, redness, and warmth
 - Morning stiffness >1 hour that improves with activity
 - Tenosynovitis and carpal tunnel concomitantly
 - Significant fatigue, fever, anemia chronic disease, weight loss
- Diagnosis
 - Positive Rheumatoid factor (RF) and/or positive anti-cyclic citrullinated peptide (anti-CCP)
 - Elevated inflammatory markers ESR and CRP
 - X-ray/Radiographs:
 - Joint space narrowing, bone erosions, joint subluxation particularly ulnar in hand (“ulnar drift”)
 - Erosions typically around margin of the joint
 - Joint deformities including swan neck deformities and boutonniere deformity

Rheumatoid Arthritis

- Differential Diagnosis
 - Psoriatic arthritis, systemic lupus erythematosus, crystalline arthropathy, inflammatory osteoarthritis, septic arthritis
- Management
 - Medical management to lower or achieve remission of inflammatory disease activity to prevent further destruction of joints and improve quality of life
 - Disease-modifying anti-rheumatic drug (DMARD)
 - Initiate as early as possible
 - Common agents include methotrexate, leflunomide, sulfasalazine
 - Biologic agents targeted against specific cytokines in the inflammatory pathway including:
 - Anti-TNF (adalimumab, etanercept, infliximab,
 - Anti-IL-12/23 (Ustekinumab)
 - Anti-IL-6 (tocilizumab)
 - Anti-B cell (rituximab)
 - May use steroids intermittently for acute flares but not for long-term therapy

References

- Liao KP, Alfredsson L, Karlson EW. Environmental influences on risk for rheumatoid arthritis. *Curr Opin Rheumatol* 2009; 21:279.
- McInnes IB, Schett G. The pathogenesis of rheumatoid arthritis. *N Engl J Med* 2011; 365:2205.
- National Institute for Health and Care Excellence (NICE) guideline on management of rheumatoid arthritis in adults can be found at NICE 2018 Jul:NG100 PDF, summary can be found in *BMJ* 2018 Aug 3;362:k3015
- Nepom BS, Nepom GT. Polyglot and polymorphism. An HLA update. *Arthritis Rheum* 1995; 38:1715.
- Scott DL, Wolfe F, Huizinga TW. Rheumatoid arthritis. *Lancet*. 2010 Sep 25;376(9746):1094-108
- Spector TD. Rheumatoid arthritis. *Rheum Dis Clin North Am* 1990; 16:513.