

Illustrated Handbook of Rheumatic and Musculo-Skeletal Diseases

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Second Edition

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“To our patients who not only trusted their health, but also allowed us to take photos of their clinical manifestations in order to teach students and other health professionals”

“To all the medical, nursing and supporting staff who worked in the rheumatology clinic all these years and gave battles against pain, giving hope, courage and strength to our patients”

Preface

Rheumatology is a medical speciality that provides diagnosis and management of patients suffering from autoimmune rheumatic diseases (ARD) and chronic inflammatory arthritis. The majority of the above disorders are systemic, involving one or more organs and systems. The first signs of a rheumatic disease may implicate cutaneous, mucosal, ophthalmic and joint manifestations. Thus, it is mandatory for physicians to perform a minute and detailed physical examination of these systems, in order to reach a correct diagnosis. The necessity of the present second edition of the *Illustrated Handbook of Rheumatic and Musculoskeletal Diseases* relies on the new knowledge regarding the disease pathophysiology, diagnosis and treatment, which have been emerged over the last five years. Indeed, with the introduction of the new classification criteria and diagnostic tests for many rheumatic diseases, early recognition of them is now possible. Furthermore, the International and European authorities and organizations have approved new targeting agents, targeting components of the immune system and many biological therapies are now available and are used in these patients. On the other hand, targeting different proteins and cells of the immune system have led to several new paradoxical inflammatory manifestations. All the above are incorporated in the new second edition of the present book. As in the first edition, the philosophy of this book relies on less text and more figures, in order to make the reader confident and familiar to recognize easily different aspects of a rheumatic disease.

For this reason, a new chapter regarding ARD pathophysiology and immunological tests, along with two chapters dealing with disease monitoring and musculoskeletal ultrasonography, has been added. Moreover, another chapter covering the whole spectrum of spondyloarthropathies was also included. More than 100 new figures, clinical, imaging and histopathological pictures have been included.

Every chapter is divided into three parts. The first part with a general description of the disease including introduction, epidemiology, signs and symptoms, diagnostic modalities and management. The second part includes figures, clinical findings, imaging and histological pictures with a short, or detailed explanation according to the case presented. The last part includes old and new references and suggestions for further reading.

We hope that this second edition of the *Illustrated Handbook of Rheumatic and Musculoskeletal Diseases* will become a valuable guide and educator for training physicians, general practitioners, medical students, orthopaedics, and specialists in the field as well as other medical specialities.

Ioannina, Greece

Alexandros A. Drosos

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Abbreviations

β2-GPI	Beta2-glycoprotein I
AAV	ANCA-associated vasculitis
ACE	Angiotensin-converting enzyme
ACL	Anterior cruciate ligament
aCL	Anticardiolipin
ACPA	Anti-citrullinated peptide antibodies
ACR	American College of Rheumatology
ADR	Adverse drug reactions
AIHA	Autoimmune haemolytic anaemia
ALT	Alanine aminotransferase
ANA	Antinuclear antibodies
ANCA	Antineutrophil cytoplasmic antibodies
anti-CCP	Anti-cyclic citrullinated peptide
AOSD	Adult-onset Still's disease
aPL	Antiphospholipid
aPTT	Activated partial thromboplastin time
ARD	Autoimmune rheumatic disease
AS	Ankylosing spondylitis
ASAS	Assessment of spondyloarthritis international society
ASDAS	Ankylosing spondylitis disease activity score
ASS	Antisynthetase syndrome
AxSpA	Axial spondyloarthropathy
AZA	Azathioprine
BASDAI	Bath ankylosing spondylitis disease activity index
BASFI	Bath ankylosing spondylitis functional index
BASMI	Bath ankylosing spondylitis metrology index
BCP	Basic calcium phosphate
bDMARDs	Biologic disease-modifying antirheumatic drugs
BICLA	BILAG-based composite lupus assessment
BILAG	British Isles lupus assessment group index
BME	Bone marrow edema

BMI	Body mass index
cANCA	Cytoplasmic antineutrophil cytoplasmic antibodies
CASPAR	Classification criteria for psoriatic arthritis
CBP	Chronic back pain
CCLE	Chronic cutaneous lupus erythematosus
CD	Colour Doppler
CDAI	Clinical disease activity index
CHB	Congenital heart block
CL	Cutaneous lupus
CLE	Cutaneous lupus erythematosus
CMC	Carpometacarpal joint
COPD	Chronic obstructive pulmonary disease
COX-2	Cyclooxygenase-2
CP	Cyclophosphamide
CPDAI	Composite psoriatic disease activity index
CPFE	Combined pulmonary fibrosis and emphysema
CPPD	Calcium pyrophosphate dihydrate disease
CR	Conventional radiography
CRP	C-reactive protein
Cryo	Cryoglobulin
CS	Corticosteroids
CSA	Cyclosporine
csDMARDs	Conventional synthetic disease-modifying antirheumatic drugs
CT	Computed tomography
CTD	Connective tissue disease
CTLA-4	Cytotoxic T-lymphocyte antigen 4
CTS	Carpal tunnel syndrome
CXR	Chest X-ray
DAPSA	Disease activity index for psoriatic arthritis
DAS-28	Disease activity score-28
DECT	Dual-energy computed tomography
DEXA	Dual-energy X-ray absorptiometry scan
DIP	Distal interphalangeal joint
DISH	Diffuse idiopathic skeletal hyperostosis
DLE	Discoid lupus erythematosus
DM	Dermatomyositis
DMARDs	Disease-modifying antirheumatic drugs
dRVVT	Dilute Russell's viper venom time
ds-DNA	Double-stranded DNA
DSM	Dermatomyositis sine myositis
EF	Eosinophilic fasciitis
EGPA	Eosinophilic granulomatosis with polyangiitis
ELISA	Enzyme-linked immunosorbent assay
ELP	Electrophoresis

EMG	Electromyography
EN	Erythema nodosum
ENA	Extractable nuclear antigens
ERAP-1	Endoplasmic reticulum aminopeptidase-1
ESK	Extraskelatal
ESR	Erythrocyte sedimentation rate
ESSG	European Spondyloarthropathy study group
ESSPRI	EULAR Sjögren's syndrome patient reported index
EULAR	European League Against Rheumatism
FBC	Full blood count
GA	Granuloma annulare
GCA	Giant cell arteritis
GPA	Granulomatosis with polyangiitis
GRACE	GRAPPA composite score
GRAPPA	Group for Research and Assessment of Psoriasis and Psoriatic Arthritis
H/E	Hematoxylin and eosin
HADD	Hydroxyapatite crystal deposition disease
HAP	Hemiarthroplasty
HAQ-DI	Health assessment questionnaire disability index
HC	Hyaline cartilage
HCQ	Hydroxychloroquine
HIV	Human immunodeficiency virus
HLA	Human leukocyte antigen
HMGR	3-hydroxy-3-methylglutaryl-CoA reductase
HPV	Human papillomavirus
HRCT	High-resolution computed tomography
HS	Hidradenitis suppurativa
HSP	Henoch-Schönlein purpura
HZ	Herpes zoster
IBM	Inclusion-body myositis
IC	Immune complex
ICOAP	Measure of intermittent and constant osteoarthritis pain
ICU	Intensive care unit
IF	Immunofluorescence
IFN	Interferon
Ig	Immunoglobulin
IgG4-RD	Immunoglobulin G4-related disease
IGRA	Interferon gamma release assay
IL-	Interleukin
ILD	Interstitial lung disease
IP	Interphalangeal
IVIG	Intravenous immunoglobulin
JADAS	Juvenile arthritis disease activity score
JAKi	Janus kinase inhibitors

JIA	Juvenile idiopathic arthritis
KCS	Keratoconjunctivitis sicca
KOOS	Knee injury and osteoarthritis outcome score
LA	Lupus anticoagulant
LD	Lyme disease
LDI	Leeds dactylitis instrument
LE	Lupus erythematosus cell
LEF	Leflunomide
LET	Lupus erythematosus tumidus
LFT	Liver function tests
LIP	Lymphoid interstitial pneumonia
LLDAS	Lupus low disease activity state
MALT	Mucosa-associated lymphoid tissue
MCP	Metacarpophalangeal
MCTD	Mixed connective tissue disease
MDA	Minimal disease activity
mDixon	Modified Dixon
MHC	Major histocompatibility complex
MMF	Mycophenolate mofetil
MPA	Microscopic polyangiitis
MPO	Myeloperoxidase
MRI	Magnetic resonance imaging
mRSS	Modified Rodnan skin score
MSA	Myositis specific autoantibody
mSASSS	Modified Stoke ankylosing spondylitis spinal score
MSK	Musculoskeletal
MST	Modified Schober's test
MSU	Monosodium urate
MSUS	Musculoskeletal ultrasound
MTP	Metatarsophalangeal
mTSS	Modified total Sharp/van der Heijde score
MTX	Methotrexate
NAM	Necrotising autoimmune myositis
NOF	Neck of femur
nr-axSpA	Non-radiographic axial spondyloarthritis
NSAIDs	Non-steroidal anti-inflammatory drugs
NSCLC	Non-small cell lung cancer
NSF	Nephrogenic systemic fibrosis
NSIP	Non-specific interstitial pneumonia
NVC	Nailfold videocapillaroscopy
OA	Osteoarthritis
OARSI	Osteoarthritis Research Society International Committees
OCD	Osteochondritis dissecans
OCI	Osteitis condensans ilii
OMERACT	Outcome measures in rheumatoid arthritis clinical trials

ON	Osteonecrosis
PAD	Peptidylarginine deiminase
PAH	Pulmonary arterial hypertension
PAN	Polyarteritis nodosa
pANCA	Perinuclear antineutrophil cytoplasmic antibodies
PASI	Psoriasis area and severity index
PCL	Posterior cruciate ligament
PD	Proton density
PDS	Power Doppler sonography
PET	Positron emission tomography
PIP	Proximal interphalangeal joint
PM	Polymyositis
PMN	Polymorphonuclear
PR3	Proteinase 3
PROFAD	Profile of fatigue and discomfort
PsA	Psoriatic arthritis
PTPN22	Protein tyrosine phosphatase non-receptor type 22
PUK	Peripheral ulcerative keratitis
QFT	Quantiferon-TB
RA	Rheumatoid arthritis
RANKL	Receptor activator of nuclear factor kappa-B ligand
RAPID3	Routine assessment of patient index data 3 score
RF	Rheumatoid factor
RN	Rheumatoid nodule
RNP	Ribonucleoprotein
ROM	Range of motion
RP	Raynaud's phenomenon
RS3PE	Remitting seronegative symmetrical synovitis with pitting oedema syndrome
RTX	Rituximab
RV	Rheumatoid vasculitis
SAPHO	Synovitis, acne, pustulosis, hyperostosis and osteitis syndrome
SASSS	Stoke ankylosing spondylitis spinal score
SCCJ	Sternocostoclavicular joint
SCL	Scleroderma
SCLE	Subcutaneous lupus erythematosus
SD	Standard deviation
SDAI	Simplified disease activity index
SE	Shared epitope
SELENA-SLEDAI	Safety of estrogen in lupus erythematosus national assessment—systemic lupus erythematosus disease activity measure
SF	Synovial fluid
SI	Sacroiliac

SLE	Systemic lupus erythematosus
SLEDAI	Systemic lupus erythematosus disease activity measure
SLS	Shrinking lung syndrome
Sm	Smith antibodies
SpA	Spondyloarthropathies
SPE	Serum protein electrophoresis
SRI	SLE responder index
SRP	Signal recognition particle
SS	Sjögren's syndrome
SSI	Sicca symptoms inventory
SSZ	Sulphasalazine
ST	Schober's test
TA	Takayasu's arteritis
THA	Total hip arthroplasty
THR	Total hip replacement
TKR	Total knee replacement
TM	Transverse myelitis
TNF-i	Tumour necrosis factor inhibitor
tsDMARDs	Targeted synthetic disease-modifying antirheumatic drugs
TST	Tuberculin skin test
UIP	Usual interstitial pneumonia
ULN	Upper limit of normal
UV	Ultraviolet
VAS	Visual analogue scale
WG	Wegener's granulomatosis
WHO	World Health Organization
WOMAC	Western Ontario and McMaster universities osteoarthritis index