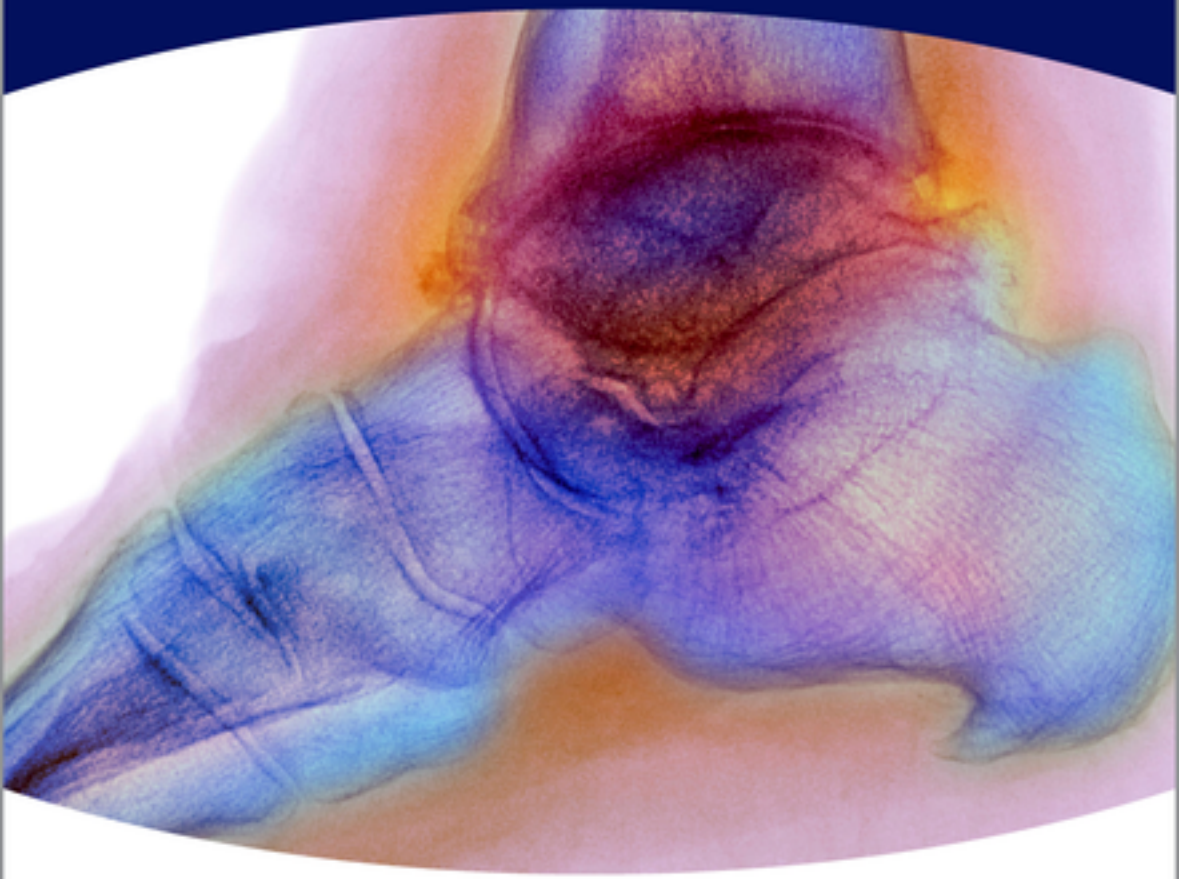
OHST OXFORD HIGHER SPECIALTY TRAINING



BEST OF FIVE MCQs FOR THE RHEUMATOLOGY SCE

Edited by
Sonya Abraham | Elena Nikiphorou
Anupama Nandagudi | Hannah Jethwa

Best of Five MCQs for the Rheumatology SCE

Best of Five MCQs for the Rheumatology SCE

Edited by

Sonya Abraham

Senior Lecturer Rheumatology and General Internal Medicine, Imperial College London, London, UK

Elena Nikiphorou

Consultant Rheumatologist, Department of Rheumatology, King's College Hospital; and Honorary Senior Lecturer, Centre for Rheumatic Diseases, King's College London, London, UK

Anupama Nandagudi

Consultant Rheumatologist, Basildon and Thurrock Hospitals NHS Foundation Trust; and Honorary Senior Lecturer, Anglia Ruskin University, UK

Hannah Jethwa

Specialist Registrar Year 5 (ST5), Chelsea and Westminster Hospital, Northwest London NHS Healthcare Trust, London, UK

OXFORD
UNIVERSITY PRESS

OXFORD
UNIVERSITY PRESS

Great Clarendon Street, Oxford, OX2 6DP,
United Kingdom

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries

First Edition published in 2020

Impression: 1

Published in the United States of America by Oxford University Press
198 Madison Avenue, New York, NY 10016, United States of America

British Library Cataloguing in Publication Data
Data available

Library of Congress Control Number: 2020936721

ISBN 978–0–19–965143–6

Printed in Great Britain by
Ashford Colour Press Ltd, Gosport, Hampshire

PREFACE

In 2010, the Specialist Clinical Exam (SCE) in Rheumatology was introduced by the Royal College of Physicians to help support the quality assurance process in postgraduate education to ensure the practising Consultant has acquired sufficient knowledge and is able to apply this knowledge in a safe and competent manner.

Passing the SCE in Rheumatology is compulsory in obtaining the certificate of completion of training (CCT) in the United Kingdom. While the knowledge and skills in passing this examination is developed during clinical training and wide reading of the rheumatology literature, this book seeks to help candidates experience and simulate the exam process. To support this, we have produced exam papers which are relevant to the SCE Rheumatology exam. Additionally, we have provided comprehensive explanatory answers and suggestions for further reading. This is not just to help support the exam process but to also aid the learning process. Therefore, this book may also assist those taking international rheumatology and internal medicine board certification and specialist exams. This book could also be used by allied healthcare professionals such as specialist rheumatology nurses, physiotherapists, and physician's assistants in their continuing professional development.

We wish you every success in your exam but even more success in your future career as a practising Rheumatology Specialist.

ACKNOWLEDGEMENTS

We would like to acknowledge the contribution of Dr Omer Ali and Dr Anthony Isaacs for their critical review of the questions and answers for this book.

CONTENTS

CONTRIBUTORS

Sonya Abraham Senior Lecturer in Rheumatology and General Internal Medicine, Imperial College London, London, UK

Hannah Jethwa Specialist Registrar Year 5 (ST5), Chelsea and Westminster Hospital, Northwest London NHS Healthcare Trust, London, UK

Charles Li Consultant Rheumatologist and General Physician, Royal Surrey County Hospital, Guildford; and Honorary Lecturer Rheumatology, Institute of Child Health, University College London, London, UK

Anupama Nandagudi Consultant Rheumatologist, Basildon and Thurrock Hospitals NHS Foundation Trust; and Honorary Senior Lecturer, Anglia Ruskin University, UK

Chetan Narshi Consultant Rheumatologist, Stoke Mandeville Hospital, Aylesbury, Bucks, UK

Elena Nikiphorou Consultant Rheumatologist, Department of Rheumatology, King's College Hospital; and Honorary Senior Lecturer, Centre for Rheumatic Diseases, King's College London, London, UK

ABBREVIATIONS

A&E	Accident and Emergency
ACE	angiotensin-converting enzyme
AL	light-chain
ALP	alkaline phosphatase
ALT	alanine aminotransferase
ANA	anti-nuclear antibodies
ANCA	antineutrophil cytoplasmic antibody
AOSD	adult-onset Still's disease
APS	antiphospholipid syndrome
AST	aspartate aminotransferase
BASDAI	Bath Ankylosing Spondylitis Disease Activity Index
BCG	Bacillus Calmette–Guérin
bd	twice daily
BHPR	British Health Professionals in Rheumatology
BMI	body mass index
BP	blood pressure
BSP	bone sialoprotein
BSR	British Society for Rheumatology
cANCA	cytoplasmic antineutrophil cytoplasmic antibodies
CCP	cyclic citrullinated peptide
CK	creatine kinase
CKD	chronic kidney disease
CoCa	corrected calcium
COPD	chronic obstructive pulmonary disease
CPK	creatinine phosphokinase
CRP	C-reactive protein
CSF	cerebrospinal fluid
CT	computerized tomography
CTX	carboxy-terminal collagen crosslinks
CTX	cross-linked C-telopeptide
CVA	cerebral vascular accident

DAS	disease activity score
DLCO	diffusing capacity of lungs for CO
DMARDs	disease-modifying anti-rheumatic drugs
DPD	deoxypyridinoline
dsDNA	double-stranded DNA
DVT	deep vein thrombosis
DXA	dual energy X-ray absorptiometry
EBV	Epstein–Barr virus
ECG	electrocardiogram
eGFR	estimated glomerular filtration rate
ELISA	enzyme-linked immunosorbent assay
EMG	electromyography
EMS	Eosinophilia-myalgia syndrome
ENA	extractable nuclear antigen
ESDs	Ehlers–Danlos syndromes
ESR	Erythrocyte sedimentation rate
EUVAS	European Vasculitis Study Group
FBC	full blood count
FEF	forced expiratory flow
FEV	forced expiratory volume
FRAX	fracture Risk Assessment
FVC	forced vital capacity
GCA	giant cell arteritis
GGT	gamma glutamyl transferase
GP	General Practitioner
Gn-RH	gonadotropin-releasing hormone
Hb	Haemoglobin
HBV	hepatitis B
HGPRT	hypoxanthine-guanine phosphoribosyl transferase
HRCT	high-resolution CT
HRT	hormone replacement therapy
Ig	immunoglobulin
IGRA	interferon gamma release assay
IL	interleukin
INR	International normalized ratio
ITU	intensive treatment unit
IV	intravenous
JAK	Janus-activated kinase
JIA	juvenile idiopathic arthritis

LFTs	liver function tests
LMWH	low molecular weight heparin
MAGIC	mouth and genital ulcers with inflamed cartilage
MALT	mucosa-associated lymphoid tissue
MCP	metacarpophalangeal
mg	milligrams
MGUS	monoclonal gammopathy of unknown significance
mm	millimetre
MMF	mycophenolate mofetil
MMR	measles, mumps, and rubella
MPO	myeloperoxidase
MRI	magnetic resonance imaging
MSK	musculoskeletal
MTP	metatarsophalangeal
NICE	National Institute for Health and Care Excellence
NSAIDs	non-steroidal anti-inflammatory drugs
NTX	cross-linked N-telopeptide
OCP	oral contraceptive pill
OD	once daily
OH	occupational health
OR	odds ration
PAN	polyarteritis nodosa
PCR	polymerase chain reaction
PET	positron emission tomography
PIP	proximal interphalangeal
PR3	proteinase 3
PsARC	Psoriatic Arthritis Response Criteria
PTH	parathyroid hormone
PYD	pyridinoline
R3SPE	relapsing remitting rheumatoid arthritis with peripheral oedema
RANKL	receptor activator of nuclear factor kappa-B ligand
RBC	red blood count
RCOG	Royal College of Obstetricians and Gynaecologists
RF	rheumatoid factor
SCE	Specialty Certification Examination
SLE	systemic lupus erythematosus
SRP	signal recognition particle
Syk	spleen tyrosine kinase
TB	tubulointerstitial

TIA	transient ischaemic attack
TLC-He	total lung capacity (helium dilution)
TLCO	total lung capacity (oxygen)
TNF	tumour necrosis factor
TPMT	thiopurine methyltransferase
TSF	thyroid-stimulating hormone
U&Es	urea and electrolytes
ULT	urate-lowering therapy
UV	ultraviolet
VAS	Visual Analogue Scale
WCC	white cell count
WG	Wegener's granulomatosis

exam
1

QUESTIONS

1. A 70-year-old woman with osteoporosis presented with new vertebral fractures. She was previously treated with alendronate and Adcal D3 for the last three years. Her dual energy X-ray absorptiometry (DXA) scan shows T score of –2.7 at the hip, –3.0 at the spine, and –2.6 at the neck of femur.

Investigations:

Urea	8.2 mmol/L	(1.7–7.1 mmol/L)
Creatinine	167 µmol/L	(55–125 µmol/L)
Estimated glomerular filtration rate (eGFR)	27 ml/min	
Corrected calcium (CoCa)	2.3 mmol/L	(2.2–2.55 mmol/L)
Phosphate	0.9 mmol/L	(0.8–1.2)
25-OH vitamin D	56 mmol/L	(> 70 mmol/L)
Protein electrophoresis	No abnormal band	

What is the best line of management?

A. Continue alendronate
B. Denosumab
C. Risedronate
D. Strontium
E. Zoledronate

2. A 30-year-old man presented with acute onset of a right knee effusion. He is currently on warfarin following a mitral valve replacement. He recently returned from Ibiza. He has pyrexia of 38 °C.

Investigations:

Hb	12 g/dL	(11.5–16.4 g/dL)
White blood cell count (WCC)	13 × 10^9/L	(4.0–11.0 × 10^9/L), mainly neutrophilia
Platelets	500 × 10^9/L	(150–400 × 10^9/L)
C-reactive protein (CRP)	150 mg/L	(0–10 mg/L)
Erythrocyte sedimentation rate (ESR)	80 mm/h	(< 20 mm/h)
International normalized ratio (INR)	2.2	

Liver and renal function: normal.

The most appropriate diagnostic investigation is:

A. Blood culture
B. Joint aspirate
C. MRI knee
D. Serum urate
E. X-ray knee

3. A 60-year-old man with seropositive rheumatoid arthritis comes for his routine rheumatology appointment with worsening joint pain. He previously tried sulfasalazine and hydroxychloroquine but eventually stopped them due to side effects. His DAS28-ESR (disease activity score 28-erythrocyte sedimentation rate) is 6.13 in clinic, having been 5.45 at his previous review. His medical history included a knee joint replacement surgery six months previously. This was complicated by a post-operative joint infection for which he was treated with an intensive course of antibiotics. He is currently on methotrexate 15 mg and diclofenac.

The next line of management should be:

A. Anakinra + methotrexate
B. Certolizumab + methotrexate
C. Leflunomide + methotrexate
D. Rituximab + methotrexate
E. Secukinumab + methotrexate

4. A 78-year-old man with known giant cell arteritis presents with worsening temporal headache, blurred vision, and jaw claudication. His ESR is 80 mm/h (< 20 mm/h) and CRP 65 mg/L (0–10 mg/L). He is currently on 30 mg of prednisolone and aspirin 75 mg.

The immediate plan should be to:

A. Add azathioprine
B. Add Infliximab
C. Add methotrexate
D. Increase prednisolone to 40 mg
E. Treat with intravenous methylprednisolone

5. A 25-year-old woman is being treated for severe erosive seropositive rheumatoid arthritis with methotrexate. She desperately wishes to conceive and comes to the rheumatologist for an opinion.

The best advice for her would be:

A. Continue methotrexate
B. Stop methotrexate only
C. Switch to hydroxychloroquine
D. Switch to leflunomide
E. Switch to sulfasalazine

6. A 62-year-old man with psoriatic arthritis is being treated with adalimumab. He is due to undergo a right knee replacement. The surgical registrar rings you for advice regarding biologics.

The following is the most appropriate advice to give:

A. Replace adalimumab with etanercept
B. Withhold adalimumab 15 days prior to surgery and immediately restart post-surgery
C. Withhold adalimumab 15 days prior to surgery and restart following wound healing review
D. Withhold adalimumab three days prior to surgery and restart with wound review
E. Withhold adalimumab a week before operation and restart a week after operation

7. A study was conducted to compare the effects of pregabalin in subjects with painful cervical radiculopathy. Three hundred participants were equally divided into pregabalin monotherapy, pregabalin add-on, and non-pregabalin groups. If we assume that the sets of measurements were normally distributed, what would the most appropriate statistic test be to compare the groups?

A. ANOVA
B. Mann–Whitney test
C. Paired t-test
D. Unpaired t-test
E. Wilcoxon

8. A 57-year-old man presents with nasal stuffiness.

Investigations:		
Haemoglobin (Hb)	11 g/dL	(11.5–16.4 g/dL)
WCC	14 × 10^9/L	(4.0–11.0 × 10^9/L)
Platelets	450 × 10^9/L	(150–400 × 10^9/L)
Urea	8 mmol/L	(1.7–7.1 mmol/L)
Creatinine	120 µmol/L	(55–125 µmol/L)
Cytoplasmic antineutrophil cytoplasmic antibodies (cANCA)	+++	
Anti-proteinase 3 antibody PR3)	> 100	
Nasal biopsy	Non-caseating granulomata	
Normal electrolytes and liver function.		
Urinalysis	Protein trace	
Chest X-ray	Normal	

The next most appropriate line of management is:

A. Cyclophosphamide with methyl prednisolone
B. Methotrexate with oral prednisolone
C. Oral steroids with anti-tumour necrosis factor (TNF)
D. Plasma exchange with methylprednisolone
E. Rituximab with oral steroid

9. A 50-year-old woman presents with a left leg deep vein thrombosis (DVT) and worsening hypertension. She has a history of two miscarriages, previous stroke, and a malar rash.

Investigations:		
Hb	10 g/dL	(11.5–16.4 g/dL)
WCC	4.5 × 10^9/L	(4.0–11.0 × 10^9/L)
Platelets	200 × 10^9/L	(150–400 × 10^9/L)
Urea	5 mmol/L	(1.7–7.1 mmol/L)
Creatinine	89 µmol/L	(55–125 µmol/L)
Anti-nuclear antibodies (ANA)	Positive, 1:640	
Double-stranded DNA (dsDNA)	Negative	
Lupus anticoagulant	Positive	
Anti-cardiolipin IgG	Positive	
C 3	1.10g/L	(0.79–1.52 g/L)
C 4	0.25 g/L	(0.16–0.38 g/L)
Urinalysis	++blood, ++protein	

Normal electrolytes and liver function tests (LFTs).

The decision was taken to proceed with a renal biopsy, which revealed thrombotic angiopathy.

The best treatment choice would be:

A. Anticoagulation + antihypertensives
B. Intravenous (IV) methylprednisolone and aspirin
C. Pulse cyclophosphamide + IV methylprednisolone
D. Mycophenolate mofetil (MMF) + IV methylprednisolone
E. Rituximab + IV methylprednisolone

10. Which of the following drug/mechanism of action combinations are a mismatch?

A. Abatacept—TNF antagonist
B. Adalimumab—TNF antagonist
C. Certolizumab—TNF antagonist
D. Rituximab—CD20 antagonist
E. Tocilizumab—IL6R antagonist

11. A 37-year-old woman presented with three-month history of joint pain with associated stiffness, and on examination she had synovitis affecting proximal interphalangeal (PIP) and metacarpophalangeal (MCP) joints. She was commenced on methotrexate and hydroxychloroquine.

She is currently suffering from a urinary tract infection.

What antibiotic should be avoided for this patient?

A. Amoxicillin
B. Ciprofloxacin
C. Co-amoxiclav
D. Nitrofurantoin
E. Trimethoprim

12. A 45-year-old man who was treated with sulfasalazine for active psoriatic arthritis had to stop it following the development of an allergic rash. Clinically he had synovitis affecting his MCP and PIP joints, and also a left knee effusion. He has been commenced on methotrexate and his current dose is 15 mg weekly.

Investigations:

Hb	9.5 g/dL	(11.5–16.4 g/dL)
WCC	2.0 × 10^9/L	(4–11 × 10^9/L)
Platelet	100 × 10^9/L	(150–400 × 10^9/L)
Neutrophil count	0.9 × 10^9/L	(2.5–7.5 × 10^9/L)
ESR	48 mm/h	(< 20 mm/h)
CRP	59 mg/L	(0–10 mg/L)
Urea	4.1 mmol/L	(1.7–7.1 mmol/L)
Creatinine	66 µmol/L	(55–125 µmol/L)

What would be the first step of management for this patient?

A. Halve methotrexate to 7.5 mg weekly
B. Reduce methotrexate to 12.5 mg weekly
C. Switch to anti-TNF therapy
D. Switch to azathioprine
E. Withhold methotrexate completely

13. A 31-year-old woman was treated for active rheumatoid arthritis with methotrexate. She has previously tried hydroxychloroquine and sulfasalazine but had to stop them both due to side effects. She wishes to conceive and was commenced on azathioprine 50 mg after stopping methotrexate.

Investigations:

Hb	11.5 g/dL	(11.5–16.4 g/dL)
WCC	5.0 × 10^9/L	(4–11 × 10^9/L)
Platelets	130 × 10^9/L	(150–400 × 10^9/L)
ESR	30 mm/h	(< 20 mm/h)
CRP	11 mg/L	(0–10 mg/L)
Urea	6.1 mmol/L	(1.7–7.1 mmol/L)
Creatinine	79 µmol/L	(55–125 µmol/L)
Alanine aminotransferase (ALT)	100 U/L	(10–40 U/L)
Rheumatoid factor	Positive	

What should the next step in her management be?

A. Continue the azathioprine with granulocyte colony stimulating factor (GCSF) cover
B. Observe
C. Reduce the azathioprine to 25 mg per day
D. Restart methotrexate
E. Withhold azathioprine

14. A 31-year-old man was treated for uveitis by the ophthalmologist. He was referred to the rheumatologist with recent history of alopecia and vitiligo. On further questioning it was revealed that the uveitis episode was preceded by headache and fever. He has been diagnosed with Vogt–Koyanagi–Harada's disease.

Investigations:

Hb	11.5 g/dL	(11.5–16.4 g/dL)
WCC	5.0 × 10^9/L	(4–11 × 10^9/L)
Platelet	140 × 10^9/L	(150–400 × 10^9/L)
ESR	30 mm/h	(< 20 mm/h)
CRP	11 mg/L	(0–10 mg/L)
Urea	6.1 mmol/L	(1.7–7.1 mmol/L)
Creatinine	79 µmol/L	(55–125 µmol/L)
ALT	100 U/L	(5–40 U/L)
ANA	Positive	

What is best way to treat this patient?

A. IV antibiotics for six weeks
B. Periodic cerebrospinal fluid (CSF) drainage
C. Prednisolone followed by azathioprine
D. Topical non-steroidal eye-drops
E. Ultraviolet (UV) therapy

15. A 75-year-old man presented with increasing lower back pain worse on activity. The pain decreases on leaning forward with his trolley whilst shopping. There is no history of any neurological deficit, fever, or weight loss.

Investigations:

Hb	10.5 g/dL	(11.5–16.4 g/dL)
WCC	9.8 × 10^9/L	(4–11 × 10^9/L)
Platelet	470 × 10^9/L	(150–400 × 10^9/L)
ESR	15 mm/h	(<20 mm/h)
CRP	8 mg/L	(0–10 mg/L)
Urea	7.2 mmol/L	(1.7–7.1 mmol/L)
Creatinine	89 µmol/L	(55–125 µmol/L)
Alkaline phosphatase (ALP)	250 IU/L	(30–130)

His X-ray of the lumbar spine shows dense bone suggestive of Paget's disease. On examination, he was tender over L4/L5 with limited straight leg raise. There was no neurological deficit.

What is the best management for this patient?

A. Alendronate
B. Physiotherapy
C. Strontium
D. Teriparatide
E. Zoledronate

16. A 27-year-old man has just been diagnosed with ankylosing spondylitis. He has been commenced on naproxen and has started physiotherapy. He is *HLA B27* positive.

What percentage of AS patients are *HLA B27* positive?

A. 5%
B. 25%
C. 50%
D. 60%
E. 95%

17. A 38-year-old man presents with a three-month history of gradual stiffness and pain over his MCP joints of the right hand, with the second and third MCP joints appearing enlarged. He had no other active joint symptoms, however, in the past, he commented on an episode of swelling and tenderness affecting his right knee which had eventually resolved with anti-inflammatories. His only other past medical history was that of non-specific abdominal pains and discomfort for which he never sought a medical opinion.

The blood investigation most likely to lead to the diagnosis is:

A. ANA
B. Anti-cyclic citrullinated peptide (CCP)
C. Rheumatoid factor
D. Transferrin saturation
E. Urate level

18. A 70-year-old Caucasian woman presented with a four-month history of progressive muscle weakness, deteriorating from unlimited day-to-day endeavours. She now struggles especially walking uphill beyond five minutes. Examination reveals subtle proximal weakness in both upper and lower limbs no worse than 4+/5, of a symmetrical nature. No rash, organomegaly, or pathological lymphadenopathy.

Investigations:

ESR	80	(1–30 mm/hr)
CRP	8	(< 5 mg/L)
Creatine kinase (CK)	400 IU/L	(50–200)
ANA	Negative	
Corrected calcium	Normal	
Thyroid-stimulating hormone(TSH)	Normal	

Serum electrophoresis reveals a monoclonal IgG band not associated with immunoparesis.
A formal muscle biopsy did not show blatant myopathic or inflammatory features (few inflammatory infiltrating cells, no fibre necrosis).

At your request the laboratory also performed Congo Red staining, which was strongly positive on the muscle fibres.

What is the diagnosis?

A. AA amyloid myopathy
B. AL amyloid myopathy
C. Dermatomyositis
D. Monoclonal gammopathy of unknown significance (MGUS)
E. Visceral malignancy associated polymyositis

19. A 45-year-old man was treated with sulfasalazine for active psoriatic arthritis. However, despite a good response, he developed an allergic rash and therefore treatment with sulfasalazine was stopped. Clinically he had synovitis affecting his MCP, PIP joints, and left knee. He was commenced on leflunomide, established on a dose of 20 mg once a day.

Investigations:

Hb	11.5 g/dL	(11.5–16.4 g/dL)
WCC	7.7 × 10^9/L	(4–11 × 10^9/L)
Platelets	435 × 10^9/L	(150–400 × 10^9/L)
Neut	5 × 10^9/L	(2.5–7.5 × 10^9/L)
ESR	48 mm/h	(< 20 mm/h)
CRP	59 mg/L	(0–10 mg/L)
ALT	200 IU/L	(10–40 IU/L)
Urea	4.1 mmol/L	(1.7–7.1 mmol/L)
Creatinine	66 µmol/L	(55–125 µmol/L)

What would be the first step of management for this patient?

A. Add prednisolone
B. Halve leflunomide to 10 mg daily
C. Switch to anti-TNF therapy
D. Switch to azathioprine
E. Withhold leflunomide completely