

NAILFOLD CAPILLAROSCOPIC CHANGES IN EGYPTIAN PATIENTS WITH PSORIATIC ARTHRITIS IN COMPARISON TO RHEUMATOID ARTHRITIS

Thesis

Submitted for Partial Fulfillment of master Degree
In Internal Medicine and Rheumatology

By Nouran Mohammed Elshahat(M.B.,B.Ch.)

Supervised by

Prof. Dr. Adel Mahmoud Ali ELSayed

Professor of Internal Medicine and Head of Rheumatology
Department
Faculty of Medicine - Ain Shams University

Dr. Sherin Mohamed Hosny

Assistant Professor of Internal Medicine and Rheumatology Faculty of Medicine - Ain shams University

Dr. Fatma Mohammad Aboud

Lecturer of Internal Medicine and Rheumatology Faculty of Medicine - Ain shams University

Faculty of Medicine
Ain Shams University
2019

List of Contents

	Title	Page
•	List of Abbreviations	I
•	List of Tables	VI
•	List of Figures	IX
•	Introduction	1
•	Aim of the Work	3
•	Review of Literature	
	- Chapter (1): Rheumatoid Arthritis	4
	- Chapter (2): Psoriatic Arthritis	39
	- Chapter (3): Nailfold capillaroscopy	71
•	Patients and Methods	84
•	Results	93
•	Discussion	125
•	Summary and Conclusion	135
•	Recommendations	139
•	References	140
•	Arabic Summary	

Abs Antibodies

ACPA Anti-cyclic citrullinated peptide

Antibodies

ACR American College of Rheumatology

ALT Alanine Aminotrasferase

Anti-MCV Antibodies against mutated

citrullinated Vimentin

APC Antigen presenting cells

ASQOL Ankylosing Spondylitis Quality of Life

Questionnaire

AST Aspartate Aminotransferase

BASDAI Bath Ankylosing Spondylitis Disease

Activity Index

BCR B cell receptor

bDMARDS Biologic disease modifying anti-

rheumatic drugs

BHPR British Health Professionals in

Rheumatology

BSR British society of Rheumatology

cAMP cyclic adenosine monophosphate

CASPAR classification criteria for psoriatic

arthritis

CBC Complete blood count

CCP Cyclic citrullinated peptide

CCR6 Chemokine receptor 6

CDAI Clinical Disease Activity Index

cDMARDS Conventional disease modifying anti-

rheumatic drugs

CL Capillary length

COX Cyclo-oxygenase

CPDAI Composite Psoriatic Disease Activity

Index

CPK Creatine phosphokinase

CRP C-reactive proteinCS Cigarette smoking

CT Computerized tomography

CTLA Cytotoxic T-lymphocyte associated

antigen

CTS Carpal tunnel syndrome

CW Capillary width

DAPSA Disease Activity Index for Psoriatic

Arthritis

DAS Disease activity score

DAS28 DAS based on 28 joint counts

DD Disease duration

DIP Distal interphalangeal

DLQI Dermatology Quality of Life Index

DM Dermatomyositis

DMARDS Disease modifying anti-rheumatic

drugs

ESR Erythrocyte sedimentation rate

EULAR European League against Rheumatism

FDA Food and Drug administration

GCS Glucocorticosteroids

G-CSF Granulocyte-colony stimulating factor

GH General health

GIT Gastrointestinal tract

GN Glomerulonephritis

GRAPPA Group for research and assessment

of Psoriasis and Psoriatic Arthritis

GWAS Genome-wide association studies

HAQ Health Assessment Questionnaire

Hb Hemoglobin

HCQ Hydroxychloroquine

HLA Human Leucocyte Antigen

HLADRB Human Leucocyte Antigen Determinant

Region

HRQoL Health-related quality of life

HS Highly significant

IBD Inflammatory bowel disease

IFCC The International Federation of

Clinical Chemistry

Ig Immunoglobulin

IGU IguratimodIL Inter-leukin

ILD Interstitial lung disease

IPF Interstitial pulmonary fibrosis

IQR Inter-quartile range

JAK Janus kinase

MCP Metacarpophalangeal

MCTD Mixed connective tissue disease

MHC Major histocompatibility complex

MHZ Mega hertz

MMPS Matrix metalloproteinases

MRI Magnetic resonance imaging

MR-pred Modified-release prednisone

MTP Metatarsophalangeal

MTX Methotrexate

NFC Nailfold capillaroscopy

NF-Kb Nuclear factor of κB

NS Non significant

NSAIDS Non-steroidal anti-inflammatory drugs

OMERACT Outcome Measures in Rheumatoid

Arthritis Clinical Trials

PADI4 Peptidylarginine-deiminase 4

PASI Psoriasis Area and Severity Index

PDE4 Phosphodiesterase

PGE2 Prostaglandin E2

PIP Proximal interphalangeal

PLT Platelets

PP Patient pain

PsA Psoriatic arthritis

PtGA Patient global assessment

RA Rheumatoid arthritis

RABBIT German acronym for Rheumatoid

Arthritis-Observation of Biologic Therapy

RANKL Receptor activator of nuclear factor

Kb ligand

RF Rheumatoid factor
ROM Range of motion

RP Raynaud's phenomenon

RTX Rituximab
S Significant

SD Standard deviation

SDAI Simplified Disease Activity Index

SJC Swollen joint count

SLE Systemic Lupus Erythematosus

SPA Spondyloarthritis

SS Sjogren syndrome

SSc Systemic sclerosis

SSZ Sulphasalazine

STAT Signal transducers and activators of

transcription

TAC Tacrolimus

TGF-β Transforming growth factor-beta

Th T-helper

TJC Tender joint count

TLC Total leukocytic count

TLR Toll like receptor

TNF Tumor necrosis factor

TNFAIP3 Tumour necrosis factor alpha-

induced protein 3

TNF-a Tumor necrosis factor-alpha

tsDMARDS Targeted synthetic disease modifying

anti-rheumatic drugs

TYK Tyrosine kinase

VAS Visual analogue scale

List of Tables

Table No.	Title	Page
Table (1):	Environmental and other factor associated with rheumatoid at risk	rthritis
Table (2):	The ACR/EULAR 2010 classif criteria for RA	
Table (3):	Classification criteria for PsA (CASPAR)	55
Table (4):	Modification of GRAPPA grid proposed for CPDAI	60
Table (5):	Important capillaroscopic parameters	75
Table (6):	Scleroderma pattern	81
Table (7):	DAS28-ESR score Interpretati	on 85
Table (8):	Demographic data among our studied PsA patients (20) and patients (20)	RA
Table (9):	Articular manifestations amor studied PsA patients (20) and patients (20)	RA
Table (10):	Extra-articular manifestations our studied PsA patients (20) patients (20)	and RA
Table (11):	Drug intake among our studie patients (20) and RA patients	

List of Tables

Table No.	Title	Page
Table (12):	DAS28 score among our st patients (20) and RA patier	
Table (13):	Laboratory data among our s patients (20) and RA patients	
Table (14):	Nail fold capillaroscopy find among our studied PsA pat and RA patients (20)	tients (20)
Table (15):	Comparison between our s PsA patients (20) and RA p (20) as regards demograph:	atients
Table (16):	Comparison between our str patients (20) and RA patient regards articular manifestat	ts (20) as
Table (17):	Comparison between our s PsA patients (20) and RA p (20) as regard drug intake.	atients
Table (18):	Comparison between our s PsA patients (20) and RA p (20) as regards DAS28 scor	atients
Table (19):	Comparison between our s PsA patients (20) and RA p (20) as regards laboratory of	atients
Table (20):	Comparison between our s PsA patients (20) and RA p (20) as regards capillary manifoldings	atients icroscopy

List of Tables

Table No.	Title	Page
Table (21):	Correlation between capillary findings and parameters of dactivity in our studied PsA pa	isease
Table (22):	Relation between capillary microscopy findings and prof disease activity in our spatients (20)	parameters tudied PsA
Table (23):	Relation between capillary microscopy findings (distr and parameters of disease our studied PsA patients (ibution) e activity in
Table (24):	Relation between capillary refindings (hemorrhage and S plexus) and parameters of d activity in our studied PsA p	ub papillary lisease
Table (25):	Correlation between capill microscopy findings and p of disease activity in our s patients (20)	parameters tudied RA
Table (26):	Relation between capillary microscopy findings (shap parameters of disease actistudied RA patients (20)	e) and vity in our
Table (27):	Relation between capillary microscopy findings (hemo and parameters of disease our studied RA patients (2	orrhage) e activity in

Figure No.	Title	Page
Fig. (1):	Immune pathways in rheuma arthritis MMP: matrix metallo	
Fig. (2):	A hand affected by rheuma arthritis	
Fig. (3):	X-ray of the hand in rheum arthritis	
Fig. (4):	Algorithm of 2016 (EULAR) recommendations on rheur arthritis (RA) management	natoid
Fig. (5):	Susceptibility genes for psor by analogy for psoriatic arth	
Fig. (6):	Functional model of enthesitis 48	
Fig. (7):	Peripheral hand joint involvalong with psoriatic skin lenail changes	sion and
Fig. (8):	A patient with arthritis mutwith digital shortening	
Fig. (9):	(A) Schematic of joint struc(B) photograph of common symptoms in psoriatic arth	
Fig. (10):	Nail psoriasis53	
Fig. (11):	Ankylosis of distal interpha joint on both hands, pencil deformity in the first left interphalangeal joint on rac	in cup

Figure No.	Title	Page
Fig. (12):	The EULAR 2015 algorithm treatment of PsA with pharmon-topical treatments	nacological
Fig. (13):	Group for Research and Association of Psoriasis and Psoriation Association of Psoriasis and Psoriation Association arthritis (PsA)	Arthritis ve psoriatic
Fig. (14):	Different tools for nailfold capillaroscopic analysis	73
Fig. (15):	Normal capillaroscopic imashaped capillaries	•
Fig. (16):	Capillaroscopic pattern in	RA patient 78
Fig. (17):	Capillaroscopic pattern in patient with involvement of joints of the hands	of small
Fig. (18):	Scleroderma pattern. Early active (B) and late (C, D) p	
Fig. (19):	Schematic drawing of the portion of a nailfold capilla	
Fig. (20):	Distribution of capillary pe	er mm90
Fig. (21):	Showing tortuous capillari patient	
Fig. (22):	Showing tortuous capillari hemorrhage in PsA patient	
Fig. (23):	Showing hairpin capillarie patient	

Figure No.	Title	Page
Fig. (24):	Showing hairpin and organ capillaries in a RA patient	
Fig. (25):	Comparison between our s PsA patients (20) and RA p (20) as regards age	oatients
Fig. (26):	Comparison between our s PsA patients (20) and RA p (20) as regards sex	oatients
Fig. (27):	Comparison between our st patients (20) and RA patien regards articular manifesta	ts (20) as
Fig. (28):	Comparison between our st patients (20) and RA patien regards articular manifesta	ts (20) as
Fig. (29):	Comparison between our s PsA patients (20) and RA p (20) as regard drug intake	oatients
Fig. (30):	Comparison between our s PsA patients (20) and RA p (20) as regards DAS28 sco	oatients
Fig. (31):	Comparison between our separate PsA patients (20) and RA per (20) as regards DAS28 scottassessment of activity	oatients re and
Fig. (32):	Showing tortuous, low den capillaries in a PsA patient	•

Figure No.	Title	Page
Fig. (33):	Showing disorganized, tor	tuous
	capillaries in a PsA patien	t 110
Fig. (34):	Showing hemorrhage, tortuous	
	capillaries in a PsA patient 110	
Fig. (35):	Showing hairpin, organize	d
	capillaries in a RA patient	110
Fig. (36):	Comparison between our	studied
	PsA patients (20) and RA p	patients
	(20) as regards capillary m	nicroscopy
	findings	111
Fig. (37):	Comparison between our	studied
	PsA patients (20) and RA patients	
	(20) as regards capillary length 111	
Fig. (38):	Comparison between our	studied
	PsA patients (20) and RA patients	
	(20) as regards capillary s	hape 112
Fig. (39):	Comparison between our	studied
	PsA patients (20) and RA patients	
	(20) as regards capillary distribution 112	
Fig. (40):	Comparison between our studied PsA	
	patients (20) and RA patients (20) as	
	regards capillary microscopy findings	
	as avascular areas, hemorr	hage,
	subpapillary plexus113	
Fig. (41):	Correlation between capill	ary density
	and number of tender join	ts in our
	studied PsA patients (20).	115

Figure No.	Title	Page
Fig. (42):	Correlation between capillary and number tender joints in studied PsA patients (20)	our
Fig. (43):	Correlation between capillary diameter and CRP in our stupatients (20)	died PsA