ONYCHOMYCOSIS

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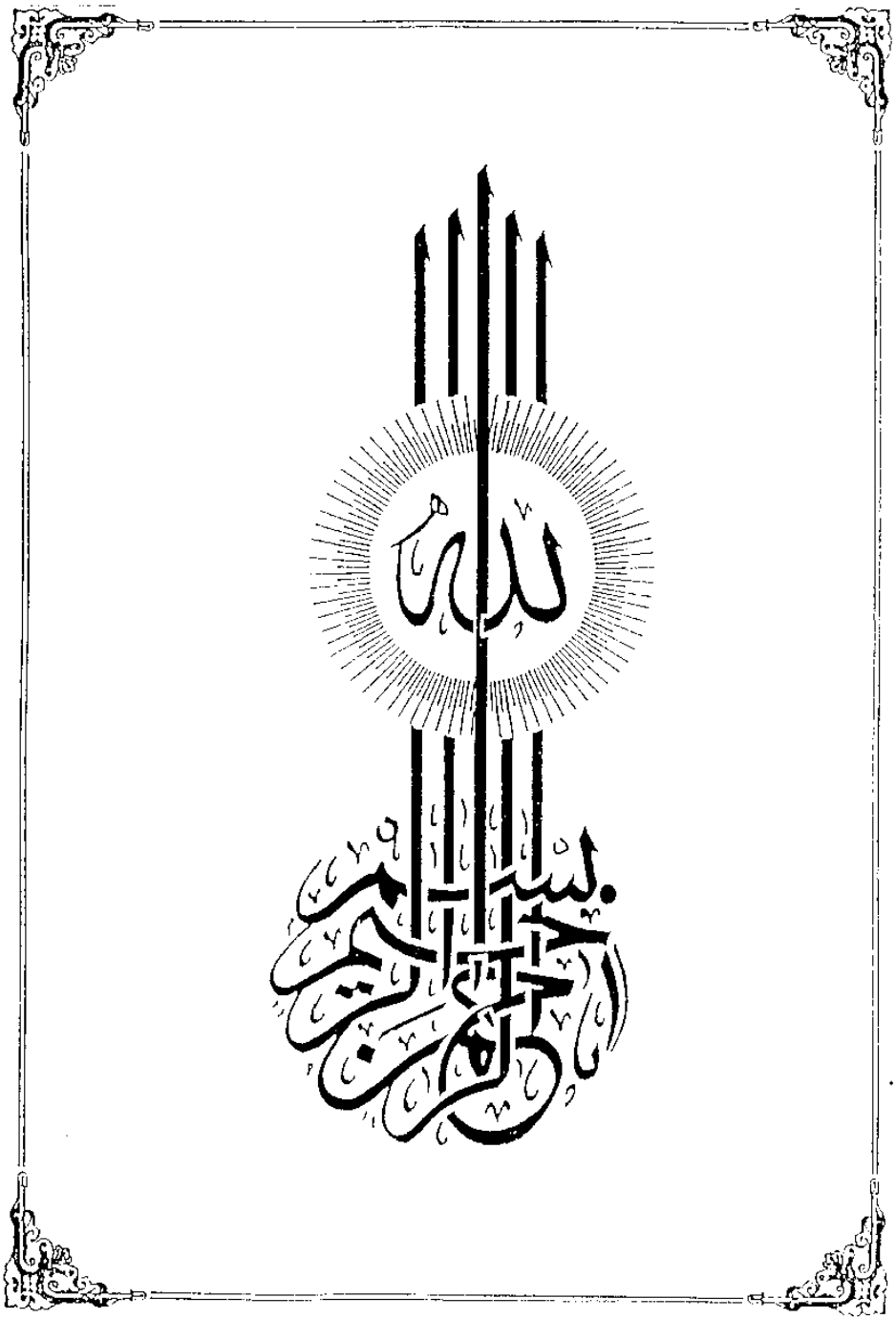

CONTENTS

LIST OF ABBREVIATIONS:

5FC	*: Flucytosine.*
A.niger	*:Asperigillus niger*
ARC	*: AIDS related complex.*
C.albicans	*:Candida albicans*
C.parapsilosis	*: Candida parapsilosis.*
CMI	*: Cell mediated immunity.*
DMS	*: Dimethyl sulfoxide*
DTM	*: Dermatophyte test medium*
E.floccosum	*: Epidermophytone flloccosum.*
FITC	*: Fluorescein isothiocyanate*
HIV	*: Human immunodificiency virus*
KOH	*: Potassium hydroxide.*
KONCPA	*: Potassium hydroxide-treated nail clippings, with periodic acid-Schiff.*
M. canis	*: Microsporum canis.*
MIC	*: Minimal inhibitory concentrations.*
NCCLS	*: National committee for clinical laboratory standards.*
PAS	*: Periodic acid-schiff.*
PCR	*: Polymerase chain reaction.*
PI	*: Propidium iodide.*
PSO	*: Proximal subungual onychomycosis .*

PWSO	*: Proximal white subungual onychomycosis.*
Q.C.	*: Quality control.*
rRNA	*: Ribosomal RNA.*
RSM	*: Rapid sporulating medium*
S. dimidatum	*: Scytalidium dimidatum.*
S.hyalinum	*: Scytalidium hyalinum.*
Spp.	*: Species.*
T.rubrum	*: Trichophyton rubrum.*
T.tonsurans	*: Trichophyton tonsurans.*
TOC	*: Tween-oxgall caffeic acid.*
T.mentagrophytes	*: Trichophyton mentagrophytes*
WSO	*: White superficial onychomycosis.*

LIST OF FIGURES

INTRODUCTION AND AIM OF THE WORK

ONYCHOMYCOSIS

INTRODUCTION

Onychomycosis is a common disorder, which traditionally refers to a non-dermatophytic infection of the nail, but now it denotes all fungal infections of the nails whether on fingers or toes ***(Weitzman and Summerbell, 1995).*** Onychomycosis occurs worldwide and accounts for up to 50% of all nail problems ***(Robert, 1996).***

The incidence of onychomycosis has been steadily increasing in parallel with an expanding number of elderly persons, immunocompromised patients, and increasing participation in fitness related activities ***(Scher, 1996).*** Onychomycosis has become a significant medical disorder that posses physical, psychosocial, and occupational problem. ***(Baek et al., 1998).*** Scher ***(1996)*** revealed that at least 15% to 20% of persons between 40 and 60 years of age have this disease.

Dermatophytes, yeasts, and nondermatophyte molds usually cause mycotic nail infections***(Han et al.,2000)***.

Because onychomycosis requires long-term systemic therapy, which has potential side effects, it is essential to diagnose the infection accurately. Diagnosis involves microscopic potassium hydroxide preparations, cultures, and nail biopsy and histological analysis. Also new diagnostic techniques as immunohistochemistery , flowcytometry , and PCR may be used ***(Pierard et al., 1996).***

The management of onychomycosis includes mechanical, chemical, and surgical approaches as well as topical and oral antifungal medications ***(Daniel, 1996).***

AIM OF THIS STUDY:

This essay highlights the aetiology, classification, causative pathogens , pathogenesis, diagnosis and treatment of onychomycosis, with special emphasis on current diagnostic modalities and novel laboratory techniques that might facilitate diagnosis and identification of this fungal infection.

REVIEW OF LITERATURE

CLINICAL IMPORTANCE

Onychomycosis is regarded as merely a cosmetic problem that is difficult to resolve. This belief may have been supported by the adverse effects and long dosing courses associated with some of the earlier antifungal agents ***(Scher, 1996).***

In fact, onychomycosis can have significant negative effects on patients' emotional, social, and occupational functioning and can, in addition, consume sizable proportions of health care money. Affected patients may experience embarrassment in social and work situations, where they feel unclean, unwilling to allow their hands or feet to be seen. Patients may fear that they will transmit their infection to family members, friends, or co-workers; fears that can lead to diminished self-esteem and the avoidance of close relationships ***(Scher, 1996).***

Employment suffers if employers are reluctant to hire individuals with abnormal nails, particularly for jobs such as food handling or modeling or where interaction with the

public is required. A more tangible barrier to work success is the discomfort some patients experience that prevents them from carrying out work related tasks such as prolonged standing, writing, or typing. Finally, onychomycosis can compel workers to take periodic sick leaves; a problem even for treated patients if therapy is ineffective and/or long lasting. This lack of success, in turn, can cause patients to feel discouraged or even to stop treatment, resigning themselves to permanent disfigurement and discomfort ***(Elewski, 1998)***

Onychomycosis in immunocompromised patients, such as those infected with human immunodeficiency virus (HIV), can pose a more serious health problem. The difficulty to treat infection leads to deterioration of the patient's condition and transfer of a very high dose of fungal pathogens to other persons ***(Scher, 1996).***

HISTORICAL CONSIDERATIONS

Onychomycosis was an uncommon disease in North America and Europe until the introduction of *Trychophyton rubrum* ***(Dahl and Grando, 1994).*** One hundred years ago, *T.rubrum* was limited to a small geographic region of West Africa and Southeast Asia. It is now the most common dermatophyte worldwide, having migrated to Europe and the Americas during the late nineteenth and early twentieth centuries. Colonization of endemic areas of Asia and Africa by Europeans was a factor. The movement of soldiers in World War I and II also contributed to its spread ***(Schwartz and Janngier 1996).***

A similar pattern may be linked with a black mould called *Hendesonula toruloidea* (renamed *Scytalidium dimidatum)*; a pathogen of tropical plants and fruit trees. Immigrants from endemic areas such as India, Pakistan, the Caribbean, New Zealand, and Kenya may have brought the organism with them to Europe and North America ***(Kortajaras et al., 1988).***