

**PREVALENCE OF TONSILLOMYCOSES
IN SCHOOL-AGE CHILDREN**
(A MYCO-HISTOPATHOLOGICAL STUDY)

thesis

*submitted in partial fulfillment of
M.Sc. Degree in Otorhinolaryngology*

By

Ashraf Abd El Tawab Hassanien

Supervisors

Prof. Dr. Sherif Shaaban

*Professor of Otorhinolaryngology
Faculty of Medicine
Cairo University*

Dr. Mohamed Salah

*Lecturer of Medicine
Faculty of Medicine
Cairo University*

Dr. Samira Abd-Alla

*Lecturer of Pathology
Faculty of Medicine
Cairo University*

Faculty of Medicine

Cairo University

1999



جامعة القاهرة / كلية الطب

القصر الرئيسي

بجانب

احتياجا لجنة الحكم على الرسالة المقدمة من

الدكتور / أحمد محمد عبد الحليم

توابعه المحصول على درجة الماجستير / الدكتوراه

في الأمراض الجلدية

تحت عنوان: Prevalence of tonsillitis, coser in school age children

باللغة العربية : انتشار التهابات اللوزتين في المدارس

بناءً على موافقة الجامعة بتاريخ ١٣٩٩/٥/٢٨ تم تشكيل لجنة التقييم والمناقشة للرسالة

المذكورة أعلاه على النحو التالي :-

(١) د. محمد عبد الحليم من الشرفيين

(٢) د. أحمد محمد عبد الحليم من داخلي

(٣) د. أحمد محمد عبد الحليم من خارجي

بعد فحص الرسالة بواسطة كل فئة و مناقشة كتابه تقارير منفردة لكل منهم أتمتت اللجنة صحتها

في يوم الجمعة ١٦/٥/١٣٩٩ بتسليم الأستاذ المساعد الدكتور أحمد محمد عبد الحليم

بالكلية الطب - جامعة القاهرة وذلك لمناقشته الطالب في جلسة علنية في موضوع الرسالة والتناقض

التي توصل اليها وكذلك الاسرار العملية التي قام عليها البحث.

قرار اللجنة :

قبول الرسالة (٢٠)

توقيعات أعضاء اللجنة :-

الشرفاء : أحمد محمد عبد الحليم

الداخلي : أحمد محمد عبد الحليم

الخارجي : أحمد محمد عبد الحليم

١

٢

٣

٤

٥

٦

٧

٨

٩

١٠

١١

١٢

١٣

١٤

١٥

١٦

١٧

١٨

١٩

٢٠

٢١

٢٢

٢٣

٢٤

٢٥

٢٦

٢٧

٢٨

٢٩

٣٠

٣١

٣٢

٣٣

٣٤

٣٥

٣٦

٣٧

٣٨

٣٩

٤٠

٤١

٤٢

٤٣

٤٤

٤٥

٤٦

٤٧

٤٨

٤٩

٥٠

٥١

٥٢

٥٣

٥٤

٥٥

٥٦

٥٧

٥٨

٥٩

٦٠

٦١

٦٢

٦٣

٦٤

٦٥

٦٦

٦٧

٦٨

٦٩

٧٠

٧١

٧٢

٧٣

٧٤

٧٥

٧٦

٧٧

٧٨

٧٩

٨٠

٨١

٨٢

٨٣

٨٤

٨٥

LIST OF ABBREVIATIONS

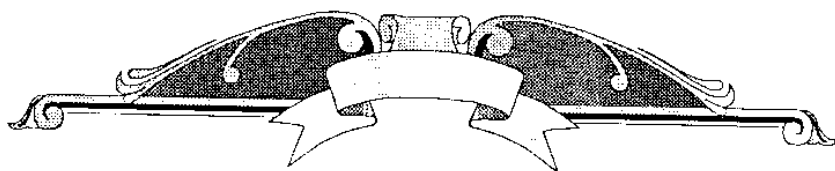
AIDS	Acquired immunodeficiency syndrome
APCs	Antigen-Presenting cells
ASCS	Antibody-Secreting cells
BLPB	β -lactamase producing bacteria
Entero	Enterobacteriaceae sp.
GABHS	Group A beta-haemolytic streptococci
GALT	Gut associated lymphoid tissue
GC	Germinal center
GMS	Gomori's methenamine silver stain
HE	Hematoxylin and eosin stain
Hinf	Hemophilus influenzae
HIV	Human immunodeficiency virus
MALT	Mucosa associated lymphoid tissue
M cells	Membrane cells
Morax	Moraxella catarrhalis
NALT	Nasal associated lymphoid tissue
Nies	Neisseria
OTH	Obstructive tonsillar hypertrophy
Paer	Pseudomonas aeruginosa
PAS	Periodic acid-Schiff stain
PDH	Progressive disseminated histoplasmosis
PMNs	Polymorphonuclear leukocytes
PT	Palatine tonsils
RT	Recurrent tonsillitis
Saur	Staphylococcus aureus
SIgA	Secretory immunoglobulin A
SIgM	Secretory immunoglobulin M
Svir	Streptococcus viridans
Th	T helper
Ts	T suppressive

LIST OF TABLES

	<i>Page</i>
Table (1): The approximate lymphocytic distribution in various human tissues.....	7
Table (2): Some important differences between fungi and bacteria	36
Table (3): Useful stains for demonstrating fungi and actinomyces in tissue sections	40
Table (4): Medical conditions predisposing to fungal infection	44
Table (5): Iatrogenic Factors Predisposing to Fungal Infection	44
Table (6): Clinical classification of oral candidiasis	47
Table (7): Mean \pm SD of tonsillar diameter and the statistical comparison between tonsillar specimens with and without Actinomyces	61
Table (8): Distribution of the studied tonsillar specimens with and without Actinomyces in relation to superficial ulceration of the mucosal surface.....	62
Table (9): Correlation between epithelial hyperplasia and cases with and without Actinomyces	63
Table (10): Incidence of hyperkeratosis of squamous epithelium in case with and without Actinomyces	64
Table (11): Correlation between interstitial fibrosis and cases with and without Actinomyces	65
Table (12): Distribution of the studied tonsillar specimens with and without Actinomyces in relation to congested blood vessels	66

CONTENTS

	<i>Page</i>
Introduction	1
Aim of the work	2
Review of Literature	4
<i>Immunological view</i>	4
<i>Embryogenests of Waldeyer's ring</i>	10
<i>Surgical anatomy of Waldeyer's ring</i>	15
<i>Physiology of Waldeyer's ring</i>	20
<i>Histopathology of tonsils</i>	25
<i>Clinical microbiology of Waldeyer's ring</i>	30
<i>Basic mycology</i>	35
<i>Fungal infections of oral cavity</i>	42
Materials and Methods	55
Results	57
Discussion	80
Conclusion	84
Summary	86
References	87
Arabic summary	



Introduction



INTRODUCTION

Approximately 11 percent of all school age children will seek medical care for pharyngitis, accounting for 5 percent of pediatric visits annually. In addition, this complaint is responsible for 40 million adult visits to a clinician. These figures all reflect many hours of lost school and work time (*Francis, 1987*).

The tonsils and adenoids are situated at the entrance of the respiratory and alimentary tracts and represent the first site of contact with a variety of microorganisms and other antigenic substances present in food and inhaled air (*William et al., 1987*).

The palatine tonsils are most active between the ages of 4 to 10 years with a marked decrease after the age of 20. However, other researchers are of the opinion that the palatine tonsils are in a very active state in much younger children, and even in infants who have experienced no tonsillar disease (*Stoltenberg et al., 1995*).

The tonsils of children suffering from recurrent adenotonsillitis had an abnormal oro- and nasopharyngeal flora, which reverted to a non-pathogenic microflora after adenotonsillectomy, in the absence of surgical intervention, a complexity of factors must be responsible for the perpetuation of this abnormal bacteriology (*Sheena et al., 1981*).

Chronic non-specific tonsillitis is a controversial condition, the organisms are usually cocci. Colonies of actinomycetes are by no means uncommon. Careful microscopic examination of sections, however, may show unequivocal superficial invasion of the tonsillar parenchyma by the mycelium (tonsillomycosis). Any of deep mycoses may involve one or both

tonsils, histoplasmosis and rhinosporidiosis being perhaps likelier than others to be found in these sites. Rhinosporidiosis of the tonsils may cause polypoid superficial lesions or a more uniform enlargement of the affected part; the characteristic sporangia are conspicuous in histologic sections (*Friedmann, 1986*).

Failure to achieve bactericidal level of the antibiotic inside the tonsil results in bacterial survival. It is possible that the fibrous capsule, formed at the tonsillar bed after repeated infections, serves as a barrier to antibiotic penetration, and only about $\frac{1}{2}$ cm of tissue can be reached by the cryosurgical unit. So, pathogenic bacteria in deep foci within the tonsil are not affected by this method and the best treatment for these patients is by surgical extirpation (*Rosen, et al. 1977*).

All tonsils excised ought to be submitted for histopathological investigation with modern methods employed in the study of lymphoreticular tissue in health and disease. Now that wholesale tonsillectomies are no longer performed no department of histopathology would be inundated by "normal" tonsils (*Friedmann, 1986*).