
شبكة المعلومات الجامعية


# بسم الله الرحمن الرحيم


# شبكة المعلومات الجامعية

# التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

## قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

## يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

**To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%**

# بعض الوثائـــــــق الاصليـــــة تالفـــة

# بالرسالة صفحات لم ترد بالاصل

# Morphometric, DNA, And Proliferating Cell Nuclear Antigen (PCNA) Measurements In Benign Melanocytic Lesions And Malignant Melanoma



**Thesis**
**Submitted to the Faculty of Medicine,**
**University of Alexandria, in partial fulfillment of**
**the requirements of the degree of**

**M.D. in Pathology**

By

**Manal Ibrahim Mohamed Sheta**

M.B.B.ch.,
Ms. Path. (Alexandria).

Department of Pathology
Faculty of Medicine
University of Alexandria
1999

# SUPERVISORS

**Prof. Dr. Leila Ahmed Abdou**

Professor of Pathology,
Faculty of Medicine
University of Alexandria

**Prof. Dr. Suzane William Skander**

Professor & Head of the Department of Pathology
Medical Research Institute
University of Alexandria

**Prof. Dr. Hoda Abou Seif Helmy**

Professor of Pathology,
Medical Research Institute
University of Alexandria

# Co-Workers

**Prof. Dr. Samira Hussein El-Gohary**
Professor of Pathology,
Faculty of Medicine
University of Alexandria

**Dr. Iman Labib Salem**
Assistant Professor of Plastic and Reconstructive Surgery
Faculty of Medicine
University of Alexandria

# ACKNOWLEDGMENT

Thanks to **Allah**, Master of the Universe, most gracious, most merciful.

My utmost thanks, deepest gratitude and respectful appreciation are to Prof. Dr. **Leila Ahmed Abdou**; Professor of Pathology, Faculty of Medicine, Alexandria University; for the precious time, expert guidance, knowledge given, sympathy and kind care that have enlightened the way.

Words can not describe how grateful I am to Prof. Dr. **Suzane William Skander** Head of Pathology Department, Medical Research Institute, Alexandria University; who devoted much of her precious time, giving me valuable suggestions and helpful remarks and who showed an infinite patience and generous guiding.

I feel indebted to Prof. Dr. **Hoda Abou-Seif Helmy**, Professor of Pathology, Medical Research Institute, University of Alexandria; for spending much of her valuable time giving generous guidance, close supervision and encouragement.

My deepest thanks and gratitude are to Prof. Dr. **Samira Hussein El-Gohary** Professor of Pathology, Faculty of Medicine, Alexandria University, for her continuous interest, encouragement, unlimited assistance shown in all aspects of this work.

My sincere thanks and appreciation are to Dr. **Iman Labib Salem**, Assistant Professor of Plastic and Reconstructive Surgery, Faculty of Medicine,

Alexandria University, for her sympathy, kind care and stimulating cooperation especially in the clinical part of this work.

I am grateful to all members of Pathology Department, Faculty of Medicine, Alexandria University, headed by Prof. Dr. **Soheir Morshedi Hamam**, for their continuous support and encouragement.

Many thanks are also directed to my professors and colleagues in Medical Research Institute.

Last, but not least, I would like to express my profound gratitude to my family spending years sharing and caring.

# LIST OF ABBREVIATIONS

| | | |
|---|---|---|
| PCNA | = | Proliferating cell nuclear antigen |
| DNA | = | Deoxyribonucleic acid |
| EM | = | Electron Microscopy |
| CAN | = | Common acquired nevi |
| BN | = | Blue nevi |
| SN | = | Spitz's nevi |
| CN | = | Congenital nevi |
| DN | = | Dysplastic nevi |
| MM | = | Malignant melanoma |
| SSM | = | Superficial spreading melanoma |
| FCM | = | Flow cytometry |
| ICM | = | Image cytometry |
| IA | = | Image analysis/analyzer |
| ABC | = | Aspiration biopsy cytology |
| PI | = | Proliferation index |
| SPF | = | S-phase fraction |
| DI | = | DNA index |
| 5C-ER | = | 5C-exceeding rate |
| MI | = | Mitotic index |
| NA | = | Nuclear area |
| CA | = | Cell area |
| N/C | = | Nuclear cytoplasmic ratio |
| NAV | = | Nuclear area variance |
| CAV | = | Cell area variance |
| IDN | = | Intradermal nevus |

MC = Mitotic count

Prog. I = Prognostic index

# ERRATA

| | | |
|---|---|---|
| P2 | L19 | it is rare to see |
| P8 | L9 | c) compound nevus |
| P20 | L11 | the later |
| P24 | L5 | Lentigo maligna |
| P33 | L1 | Acral lentiginous |
| P37 | L4 | nucleolar |
| P37 | L9 | 3-5μm |
| P42 | L23 | FCM |
| P53 | L14 | the same case |
| P54 | L3 | < 2.5C |
| P56 | L17 | Haematoxylin |
| P96 | L2 | Acral lentiginous |
| P115 | L2 | 5C-ER |
| P129 | L9 | pleomorphic |
| P142 | L19 | P = 0.0283 |
| P154 | L13 | syndrome |
| P193 | L2 | 0.003% |

# INTRODUCTION & REVIEW

# INTRODUCTION

Malignant melanoma is the most common potentially fatal neoplasm of the skin. Its incidence has increased over the last several Decades more rapidly than that of any other cancer, except those related to smoking. In young adults, it is now among the leading causes of cancer mortality. Malignant melanoma is still uncommon compared with the major killers, such as lung, colon, or breast cancer[1].

The recognition of intermediate lesions between ordinary nevi and malignant melanomas has been used to configure the developmental biology of primary human malignant melanoma[2].

In Clark's model, melanocytic transformation progresses in a stepwise sequence from nevus to dysplastic nevus, to radial growth phase melanoma, to vertical growth phase melanoma[3].

The development of a reliable, objective and quantitative cell proliferating markers such as PCNA immune reaction. DNA ploidy and morphometric studies, which can be used in formalin fixed, paraffin embedded material and therefore of great potential value in studying this succession of melanocytic lesions.

# REVIEW OF LITERATURE

Melanocytes are neuroectodermally derived cells located in the basal layer of the skin, skin adnexae and some mucous membranes.[4,5] The melanocyte is a dendritic cell derived from a melanoblast which originates in the primordial neural crest and migrate to the skin, mucous membranes, ocular structures, leptomeninges, and others.[6] It is smaller than mature functioning melanocyte.

Histologically, melanocytes are dendritic cells that are normally restricted to the basal layer of the epidermis, the melanocytes appear to be separated from their neighbors by up to 10 keratinocytes, although their dendrites, which ramify among the surrounding keratinocytes, may contact one another to their extremities. A single melanocyte and its territory of keratinocytes constitute the so-called the epidermal-melanin unit. The density of melanocytes is greatest in the genital and intertriguous skin, intermediate in the skin of the face and lowest in that of the trunk[7]. (Figure 1)

The ratio of melanocytes to basal keratinocytes varies from 1: 4 to 1: 10 depending on the site of the body. The racial differences in skin pigmentation are due to differences in the amount of melanin contained in the keratinocytes rather than the number of melanocytes[6,7].

Although normal melanocytes are capable of proliferation[8], especially in response to stimuli such as ultra light, it is to see two or more normal melanocytes lying together with their cell bodies in contiguity, perhaps because there is a mechanism of mutual repulsion[1,9].