BASAL CELL CARCINOMA
A CLINICO-PATHOLOGICAL STUDY

A THESIS

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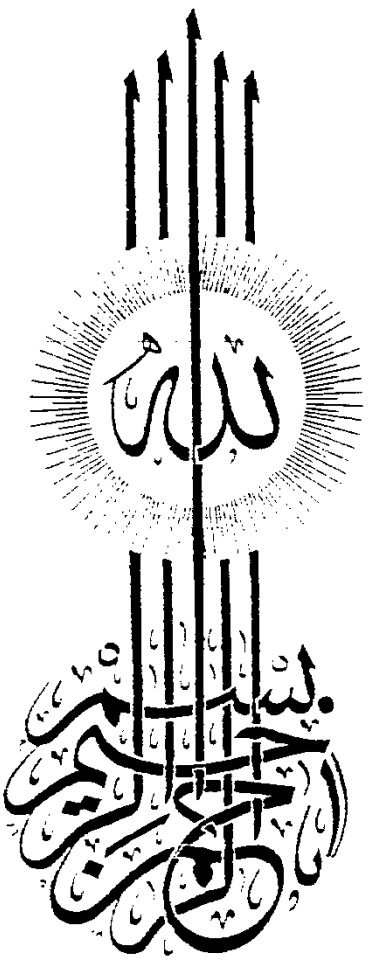

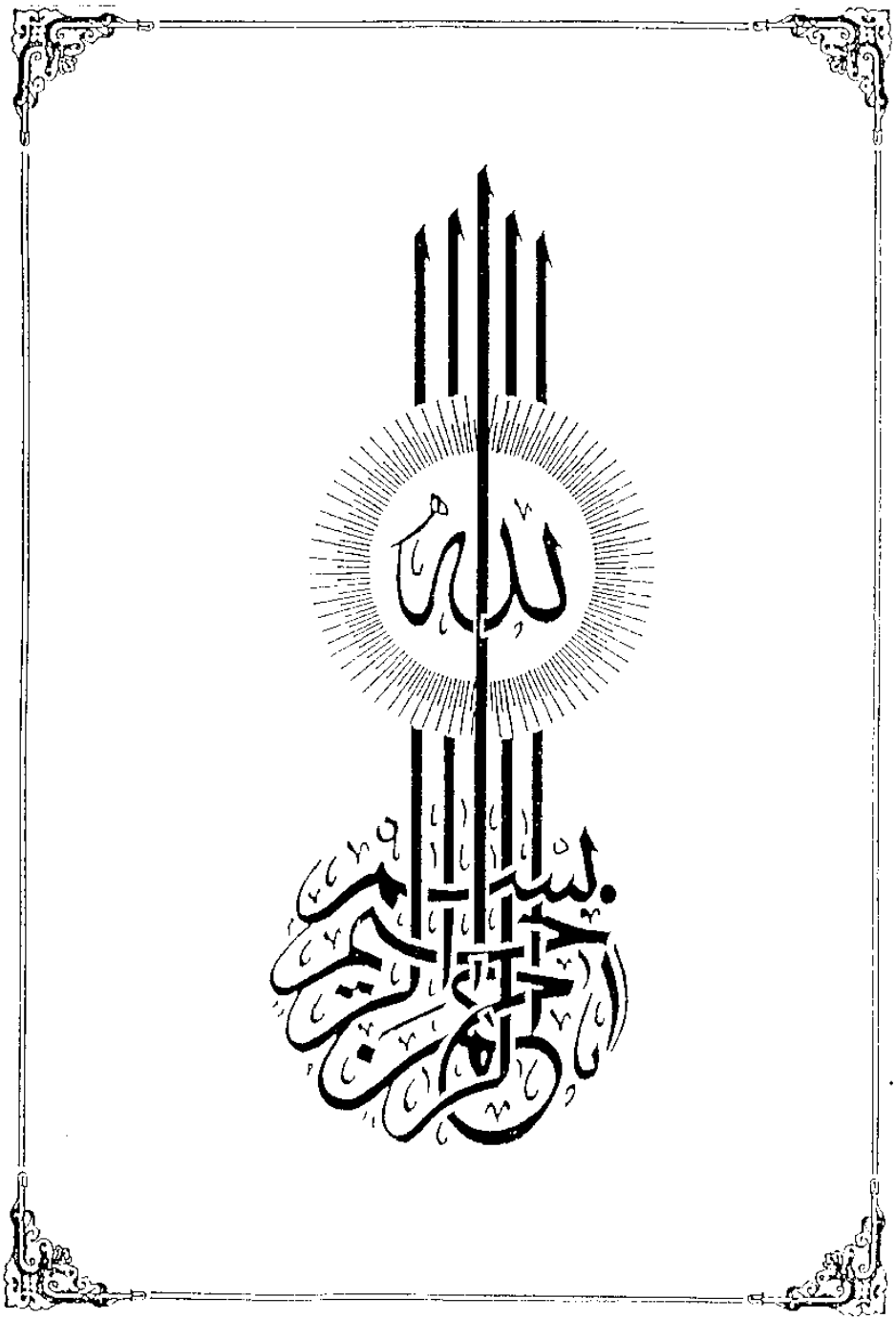

C O N T E N T S

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INTRODUCTION

The term basal cell carcinoma is prefered to the various other titles that have been proposed, such as rodent ulcer, rodent cancer, non Malpighian epithelioma and adnexal carcinoma, for the commonest malignant tumour of the skin. It is the term which is generally recognised by clinicians and pathologists [Rook et al.,1979].

As regards the cells of origin, it was thought that this tumour is a cacinoma of basal cells of the epidermis. Infurther studies, it is suggested that such tumours are not carcinomes and are not derived from basal cells but rather are nevoid tumours or hamartomas, derived from primary epithelial germ cells. In other wards , basal cell carcinomas originate from incompletely differentiated immature cells [Lever and Lever, 1983].

In the files of Pathology Department of Cancer Institute, Cairo University, the incidence of basal cell carcinoma constituted 66% of all skin cancers which represented 12 % of all malignant tumours in the material of Cancer Institute [Ahmed et al.,1971].

Lever and Lever [1983] mentioned that five clinical types of basal cell carcinoma occur. These are :

1. Nodulo-ulcerative type including rodent ulcer.

2. Pigmented basal cell carcinoma.
3. Morphea-like or fibrosing basal cell carcinoma.
4. Superficial basal cell carcinoma, and
5. Fibroepithelioma.

Histopathologically, basal cell carcinoma is characterised by the presence of basiloma cells with a rather uniform nuclei that have no anaplastic appearance [Lever and Lever, 1983].

Rook et al.[1979] recommended cautery or diathermy as a line of treatment especially for those lesions situated on the central part of the face. They mentioned that radiotherapy is inferior to surgery.

AIM OF THE WORK

This work aims at study of the predisposing factors clinicopathological types, clinical syndromes associated with basal cell carcinoma and then outline the commonest type seen in Ain Shams University Hospitals.

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MICROSCOPIC ANATOMY OF THE SKIN

The skin proper consists of three principal layers: epidermis, dermis and hypodermis [Abdel-Rahim et al.,1984]. The border between the epidermis and the dermis is irregular due to the presence of dermal papillae that extend upward ito the epidermis [Lever and Lever, 1983].

Two types of cells constitute the epidermis : Keratinocytes and denderitic cells. The keratinocytes are arranged in four layers :

1. Basal cell layer [stratum germinativum]:

   This single layer is formed of columnar cells that have deeply basophilic cytoplasm and a dark staining oval or elongated nucleus. The cells are inter-connected by intercellular bridges and attached, at their base, to the subepidermal basement membrane zone which can be demonstrated only with special stain.

2. Squamous cell layer :

   The cells of squamous cell layer are polygonal and usually are five to ten layers thick. They become flattened towards the surface . The cells are separated by spaces that are traversed by intercellular bridges.

3. Granular cell layer :

The cells of this layer are diamond-shaped or flattened. Their cytoplasm is filled with keratohyaline granules that are deeply basophilic and irregular in size and shape. The thickness of this layer is one to three layers thick except in the palms and soles where it may be ten layers in thickness.

4. Horny layer :

The cells of this layer are non-nucleated . It stains eosinophilic. The thickness of this layer is often difficult to ascertain in formaline-fixed specimens because of the frequent detachment of the outer cells. The lowest portion of the horney layer appears as a homogenous eosinophilic zone referred to as the stratum lucidum. This zone is most pronounced in areas in which the horney layer is thick especially on the palms and soles. The stratum lucidum differs from the rest of the horny layer by being rich in protein bound phospholpids [Lever and Lever , 1983].

The denderitic cells are three types of cells; the melanocytes, the langerhans cells and the intermediate denderitic cell. The melanocytes appear as clear cells with small , dark staining nucleus and are found wedged between the basal cells

of the epidermis. Melanocytes possess denderitic processes that can be detected with dopareaction or with silver stain. The other two types of denderitic cells can be identified with certainity only with electron microscope [Lever and lever 1983]

FUNCTIONS OF THE SKIN

The skin acts as a protective coat through mechanical protection of the deeper structures. Also the skin protects against light as melanin pigments protect the nuclear structures against the hazardous effects of ultraviolet rays. Moreover, the skin protects against invasion of micro-organisms [Abdel Rahim et al.,1984].

An important function of skin is heat regulation because heat lost from the body is regulated to a large extent by varying the amount of blood flowing through the skin [Ganog, 1977]. In cold, insultation is maintained by piloerection, reduction in the cutaneous blood flow and counter-current heat exchange between arteries and veins. In the heat, there is an increased blood flow and in convection and radiation at the skin surface. Furthermore , the whole body is supplied with eccrine sweat glands that serves in regulation of body temperature through evaporation of their secretion causing cooling of the skin [Rook et al.,1979].

An important function of the skin is to mediate

sensation [Rook et al.,1979] as it contains touch, cold, warmth and pain receptors [Ganog, 1977].

The skin is concerned also with formation of vitamine D. It can be also considered as one of the excretory organs as it excretes certain substances as water , sodium chloride, lacticacid and urea through sweat glands [Abdel Rahim et al.,1984].

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PATHOLOGY OF BASAL CELL CARCINOMA

1. AGE INCIDENCE

Basal cell carcinoma may occur at any age . However, the majority of cases occurs in older age group ; the peak of age incidence is between the sixth and eighth decades [Ackerman and Regato,1962].

Gellin et al.[1965] found that the average age for males was 62 years and for females 59 years and 25% of their patients were above 70 years .

During their study on pigmented basal cell carcinoma, Smith et al.[1960] found that the age of the patients varied from 23-75 years .

It is to be mentioned that in basal cell carcinoma developing on top of xeroderma pigmentosa, the condition may start as early as infancy and favour the development of cancer before the age of 20 years and most of cases die before the age of thirties [Rook et al.,1979]. Lever and Lever , [1983] mentioned that basal cell carcinoma generally occurs in adults , even though in rare instances , it may be seen in children . However, in two rare forms of basal cell carcinoma namely, the linear basal cell nevus and nevoid basal cell carcinoma syndrome numerous lesions are present

at birth and childhood respectively.

Ahmed et al.[1971] in their study of 166 cases of basal cell carcinoma in Egyptians found that the patients age varied from 19-78 years, the mean age was 52.5 years , the youngest patient was 19 years and was suffering from xeroderma pigmentosa. The mean age in females was 47 years and in males was 54 years.

The observation that females are affected at an earlier age than males may be attributed to the fact that the epidermis is thinner in females, and so the carcinogenic effect of ultraviolet rays can accumulate at a higher dose [Lever and Lever, 1983].

2. SEX

Men are more frequently subjected to basal cell carcinoma perhaps because a greater number are doing outdoor jobs and because of the chronicity of exposure to ultraviolet rays of the sun . In carcinoma of unexposed area like trunk, the proportion of males and females is usually comparable [Ackerman and Regato, 1977] On the lower leg , the incidence in women is three times as great as in men [Rook et al.,1979].

Hayes [1962] in his report on 506 cases of basal cell

carcinoma found 253 [53%] males and 224 [47%] females . In another study Nicola and Milad [1970] reported that male-female ratio is 2:1.

In their study on Egyptians , Ahmed et al.[1971] found that the majority of cases weremales. The to female ratio was 3.3 - 1. This might be attributed to the fact that a large number of females in our country are indulged in home-work. With the advance of industerilization and the advent of the principles of equality between males and females , new cases are expected to appear and sex incidence in our country may change . It is to be mentioned that in a later study , El Kotpy [1978] mentioned that male to female ratio among Egyptian patients is 1.6-1.

3. SITE OF THE LESION

The face is the commonest site for basal cell carcinoma, the tumour is encountered on all areas of the face with the exception of anterior aspect of the ear [Ackerman and Regato, 1962]. In his study, Broders [1919] reported that out of 268 cases of basal cell cacinoma, 90.7% occured on the face and 96.28% occured above the clavicle and only 0.74 % on the ext-remities. Eisenklam [1931] however reported the first case of basal cell carcinoma in the nail bed. Schreiner and Wehr [1933] reported one case of basal cellcarcinoma on the sole of the foot near the heal . Also they reported 20 cases

of basal cell carcinoma on the hands . Hyman and Barsky [1965] reported the occurance of basa cell carcinoma on the palm .

Basal cell carcinoma is reported to affect the mucus membrane. One case was reported to occur on the dorsum of the tongue , the other on the dorsal surface of soft palate [Saint,1951].

Keen and Elzay [1964] reported a case of basal cell carcinoma involving the mucosa of lower lip. Wiliamson et al. [1967] reported a case on the mandibular gingiva . The genitals may be also involved . Fox[1966] reported a case of basal cell carcinoma on the glans penis. Bean and Backer [1968] reported the occurence of basal cell carcinoma on the vulva.

Ahmed et al.[1971] in their study of basal cell carcinoma in Egyptians found that 96% occured on head and neck especially common on the nose, around the eyes and on the cheecks.

In another study among Egyptians , El Kotpy [1978] mentioned that the tumour affects mainly the nose [38.2%],the eye region [34%], the cheeks[12%] , the ear [2%] , forehead and scalp [5%] and lips [3.6%].

4. SIZE OF THE LESION

Basal cell carcinoma usually begins as 2-4 mm. pearly nodules which coaleasce and form the irrgularly rounded tumour [Rook et al.,1979].

Ferrara [1960] found that the medium sized lesions [0.5-1 cm] form 75.2% , large lesion [1-5 cm in diameter] form 22.6% and extralarge lesions [over 5cm in diameter] form only 2.2 % .

Milstone and Helwig [1973] in their study of 22 cases of basal cell carcinoma in children found that the diameter of the lesions varied from 0.3 - 0.4 cm.

In a study of basal cell carcinoma in Egyptians ,Ahmed et al.[1971] found that the majority of cases were of medium and large sizes. The lesions below 1 cm.form 2.4%, between 1-2 cm. form 3.6%, between 2 - 5 cm form 88% and more than 5 cm. form 6 %.

5. NUMBER OF LESIONS

Basal cell carcinoma usually occurs as a single lesion although the occurence of multiple lesions either simultaneously or subsequently is not infrequent [Lever and Lever, 1983].