LENTIGO

THESIS

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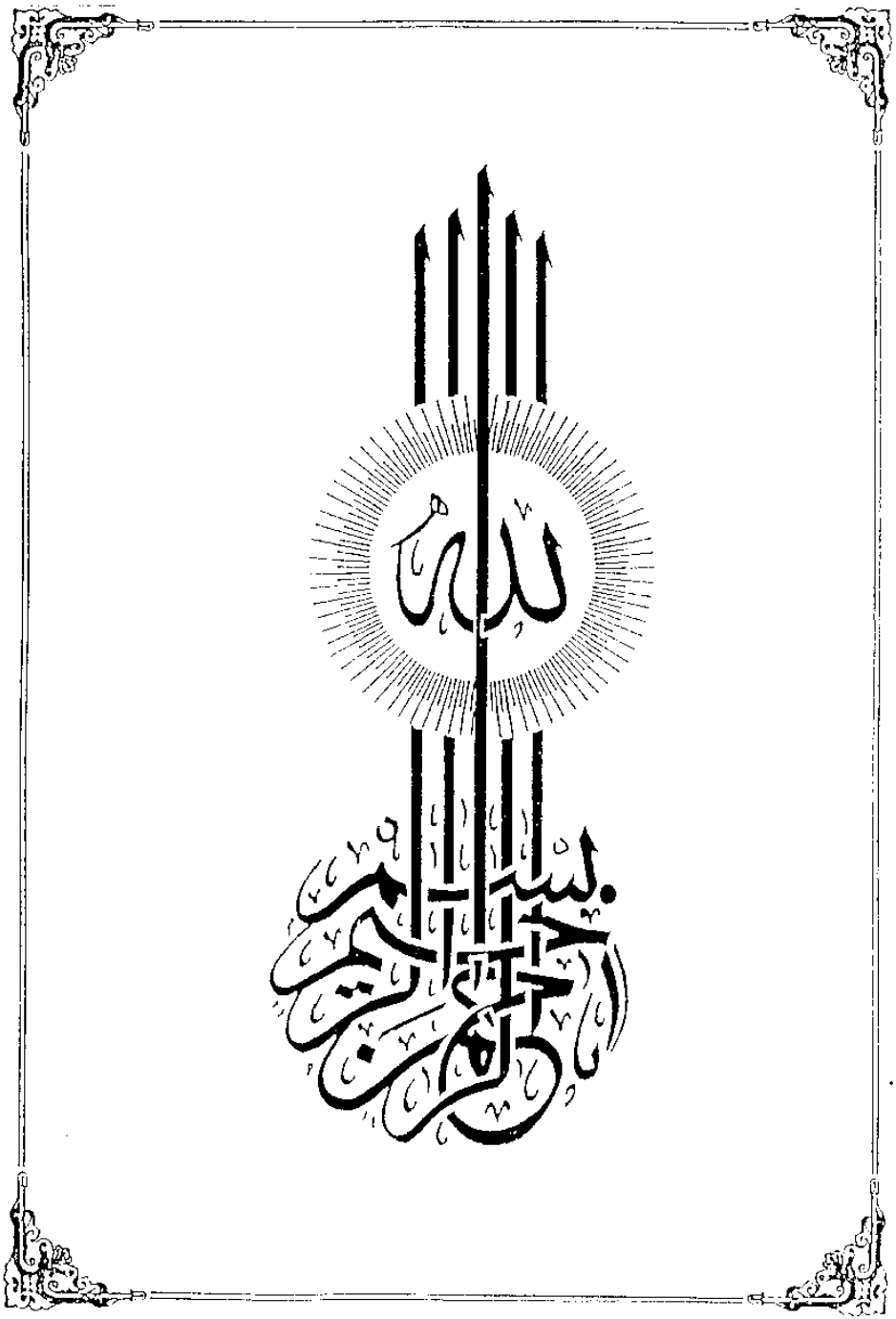

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INTRODUCTION

Lentigo is a hypermelanotic disorder that is produced as a result of increased number of melanocytes at the dermoepidermal junction without any focal proliferation. (Rook, 1979).

It is a circumscribed brown hypermelanotic macule of genetic origin, developing without a preceeding inflammatory skin disease, due to proliferation of melanocytes at the dermoepidermal junction (Rook, 1979; Bleehen and Ebling, 1979). Three types are recognized: simplex, senilis and maligna (Sober et al., 1979; Lever and Schaumberg - Lever, 1983). However, Sober et al. (1979) suggested that there is no relation between lentigo simplex, senilis and the lentigo maligna and that this nomenclature was unfortunate.

There are many special forms of lentigo simplex. It may appear in a widespread profusion all over the body, early in childhood, in a physically and mentally healthy individuals lentiginosis profusa, or may be incorporated with multisystemic affections resulting in many syndromes such as LEOPARD , NAME

and LAMB syndrome. Lastly, it may appear with a characteristic configurational shape in the so called solitary naevus spilus.

Lentiginosis is a disfiguring skin condition causing much annoyement to the affected individuals. It may represent a signal for multisystemic affection that calls for the need of a series of investigations to search for the underlying internal organ affection.

Lentigo senilis is a benign macule which commonly develops over the dorsa of hands in the elderly peopole.

Lentigo maligna is a precancerous lesion that leads over years to the development of lentigo maligna melanoma.

The aim of this work is to throw a light on this hypermelanotic disorder as regarding its different types, their clinical picture, histopathology and treatment.

BRIEF ACCOUNT ON MELANOCYTES

The major determinant of human skin colour is melanin, Human skin colour is related to the number , size, type and distribution of cytoplasmic organelles called melanosomes that contain melanin. These organelles are products of melanocytes that are located at the epidermodermal junction and rest on the basal lamina sending their dendrites into the epidermis of the skin and mucous membrane. These melanosomes are given to the keratinocytes, thereby distributed throughout the epidermis. Therefore no skin colour is visible unless melanin enters into the keratinocytes after being synthesized in the melanocytes (Fitzpatrick and Szabo, 1959).

Each melanocyte has several long dendrites which connect them to the surrounding malpighian cells. Each melanocyte is in intimate connection with four to ten malpighian cells into which its formed melanin granules can be transferred and distributed throughout the epidermis. This connection is called an epidermal unit (Fitzpatrick et al., 1967 and Cochran, 1970).

In section stained with hematoxylin and eosin, melanocytes appear as clear cells having a small dark staining nucleus and a clear cytoplasm. They are wedged in between the basal cells of the epidermis (Lever and Schaumberg - Lever, 1975). With Bloch's dopa reaction, melanocytes are stained black, because the tyrosinase melanogenic enzyme they contain changes the colourless dopa of the staining solution through oxidation into dopa melanin (Hunter et al., 1970). Dopa melanin is easily distinguished from the naturally formed melanin by light microscopy, since dopa melanin appears black and homogenous rather than the brown and granular natural melanin (Okun et al., 1970). Melanin is both argyrophilic and argentaffin. Because melanin is argyrophilic, it can be impregnated with silver nitrate solutions and stains black. As melanin is argentaffin, the Fontana Masson stain can be used (Zelickson and Mottaz, 1968). The dendritic processes of the melanocytes can be visualized with the dopa reaction and usually they also can be seen on staining with silver, provided that they contain a sufficient amount of melanin (Cochran, 1970).

The highest concentration of melanocytes has been found on the face and the male genitals about (2000 melanocytes/mm^2), and the lowest on the trunk (about 800 melanocytes/mm^2). No significant difference in the density of distribution of melanocytes for any given area of the skin exists between negroid and caucasoid skin. However, negroid skin contains larger and more highly dendritic uniformly highly reactive melanocytes than caucasoid skin (Staricco and Pinkus, 1957).

Electron microscopic examination shows that the melanocytes differ from the keratinocytes by possessing no tonofilaments or desmosomes. However, at their base, melanocytes show structures resembling the half desmosomes of basal keratinocytes (Tarnowski, 1970). Each of these structures consists of a cytoplasmic dense plate attached to the inner leaflet of the trilaminar plasma membrane. Anchoring filaments extend from the outer leaflet of the plasma membrane to the basement membrane. However, there is subbasal cell dense plaque as in the case of basal keratinocytes. The cytoplasm like that of other cells, contains ribosomes, mitochondria, Golgi membranes, vesicles, centriols and rough surfaced endoplasmic reticulum.

Melanocytes are derived from the neural crest, then migrate to reachall regions of the body the eyes, ears, gastrointestinal tract and leptomeninges. It is because all of these organs to some degree depend on the pigment cells for their proper development that genetic disorders of pigment cells in the skin frequently are associated with abnormalities in other tissues (Klein and Nordlund, 1981).

Zimmermann and Becker (1959) showed that melanoblasts first appear in the negrofetus during the tenth week of development. The first few epidermal melanocytes are present during the eleventh week. Epidermal melanocytes become numerous between the twelve to fourteen weeks of gestation. Therefore dermal pigment cells precede the appearance of epidermal melanocytes by about two weeks. The melanocytes are thought to colonize the epidermis by the way of the dermis. The dermal melanocytes gradually decline in number and are restricted to a few localised area (Mongolian spots) after birth.

LENTIGO SIMPLEX

LENTIGO SIMPLEX

Historical review :

Darier (1902) described a case who developed innumerable yellow spots following an attack of German measles. The lesions darkened to brown then faded in early adulthood. he described the skin eruption as (Lentiginose profuse). He also considered the case of Balzer et al., (1897)which showed brown widespread macules that suddenly appeared during convalescence from typhoid fever, to be a similar case. Zeisler and Becker (1936) considered Darier's case to be post inflammatory melanosis. They described cases of generalised lentigines that differed from those of Darier by the lack of abrupt onset. They used the term (Lentiginosis profusa) to denote cases of lentigines that appeared early in life in widespread profusion and were unrelated to exantheam or other inflammatory diffuse dermatosis.

Becker and Reuter (1939) reported cases of familial pigmentary dermatosis occurring in subsequent generations in a similar pattern, but unfortunately they did not reach a diagnosis in such conditions. However, Capute et al ., (1969) suggested that they resembled lentigines.

Clinical picture :

Lentigo simplex appears as small, often oval and flat brown macules, that may vary in hue from dark brown to black. It is usually uniformly coloured (Sober et al., 1979). The lentigines are distributed all over the body surface even on the palms and soles (Van Scott et al., 1957) or on the mucosae.

Lentigines appear most frequently in childhood and increase in number up to 20 years of age, then subsequently decrease due to depigmentation of small lesions (Brown, 1943). However, they may appear at any age (Gartmann, 1978). There is no relation between lentigines distribution and sun exposed areas. They may appear in dark as well as in light skinned people.

They differ clinically from freckles in that they appear at an earlier age (Hodgson, 1963), are commonly disseminated over exposed and unexposed areas, and are not affected by actinic stimulation. However, ephiledes characteristically occur on exposed skin and become more numerous and prominent in sun light (Nicholls, 1968).

Lentigo simplex is indistinguishable clinically from a junction naevus. However, the latter rarely appears in abundant numbers as do lentigines (Voron et al., 1976). Lentigo like skin pigmentation is one of the pigmentation abnormalities in Garment or bathing trunk naevus (Dobecki, 1969).

Rheumatic children may show great number of lentigines and many of them had chronic suppurative sinusitis (Brown and Wasson, 1942). Chorea is reported to preceed the onset of lentigines (Snelling and Erb, 1935). Recurrent intense prolonged infection was associated with more numerous, increasingly pigmented lentigines which may even hypertrophy to form mole, if infection persisted. Depigmentation of the papular lentigo (mole) resulted in a papilloma that became molluscum fibrosum due to subcutaneous atrophy (Brown, 1943). However, larger lentigines retained their melanin, became sclerosed with surface irregularities resulted in naevus verrucousus(Brown, 1943; Davis and Shaw, 1964).

Grollman (1931) believed that the adrenal cortex controls pigmentation and hypoadrenia encourages lentigines formation. Lentigines were found in Addissonian patients and allergic children especially asthmatic, who were suggested to have hypoadrenia. Both infection and hypoadrenia encouraged lentigines formation, and the two conditions frequently coexisted to produce a vicious circle. Hypoadrenia favored infection and infection damaged the adrenal gland further. This concept was confirmed by the fading of Addissonian pigmentation after the use of adrenal cortex extracts (Brown, 1943).

Abnormal lentigines distribution :

Multiple lentigines confined to one side of the body was reported by Cappon (1948) in a mentally deficient patient. The author considered the possibility of these lesions to represent a forme fruste of multiple neurofibromatosis as the patient had large café au lait spots on the same affected side. Partial unilateral lentiginosis and goiter have been recorded by Thompson and Diehl (1980). The lentigines were distributed over the lower right side of the