



# **Study of Skin lesions of surgical importance in different endocrinal surgical diseases Essay**

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## **list of contents**

|                                                                                                                    |     |
|--------------------------------------------------------------------------------------------------------------------|-----|
| 1-Introduction.....                                                                                                | 1   |
| 2-Aim of work.....                                                                                                 | 9   |
| 3-Pathophysiology, predisposing factors & Clinical picture of<br>skin lesions of different endocrine diseases..... | 11  |
| 4- Diagnosis of skin lesions of different endocrine diseases.                                                      | 64  |
| 5- Management of skin lesions of different endocrine diseases.<br>.....                                            | 91  |
| 6-summary and conclusion.....                                                                                      | 126 |
| 7-References .....                                                                                                 | 144 |
| 8-Arabic summary .....                                                                                             | 177 |

## **list of figures**

|            |                                                                                                                                                                                               |    |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Figure 1:  | bilateral erythematous infiltrative plaques in the pretibial areas.                                                                                                                           | 15 |
| Figure 2:  | Thyroid acropachy imitates the appearance of clubbing and is an uncommon finding in patients with thyroid ophthalmopathy.                                                                     | 16 |
| Figure 3:  | Dry skin with Hypothyroidism.                                                                                                                                                                 | 17 |
| Figure 4:  | Alopecia Areata with hypothyroidism.                                                                                                                                                          | 17 |
| Figure 5:  | Hyperpigmented scar on diffusely hyperpigmented (tanned) skin.                                                                                                                                | 23 |
| Figure 6:  | Physical findings in Cushing syndrome.                                                                                                                                                        | 27 |
| Figure 7:  | Cutis verticis gyrata. Cutaneous hypertrophy with cerebriform aspect of scalp, anteroposterior disposition in parietal regions and horizontal in occipital region in patient with Acromegaly. | 29 |
| Figure 8:  | calcinosis cutis on the elbow area. Dermatologic manifestations of parathyroid-related disorders.                                                                                             | 36 |
| Figure 9:  | Acanthosis nigricans and multiple acrochordons in a patient with MEN1.                                                                                                                        | 38 |
| Figure 10: | Café'-au-lait macule with parathyroid-related disorders.                                                                                                                                      | 38 |
| Figure 11: | cutaneous amyloidosis on the back in a patient with MEN2a. Dermatologic manifestations of parathyroid-related disorders.                                                                      | 38 |
| Figure 12: | collagenomas on the lower back in patient with MEN1. Dermatologic                                                                                                                             | 39 |

|             |                                                                                                                                                                                                                                |    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|             | manifestations of parathyroid-related disorders.                                                                                                                                                                               |    |
| Figure 13A: | Early stage of calciphylaxis showing the mottled and reticulated dusky erythema on the thigh in a patient with renal failure.                                                                                                  | 41 |
| Figure 13B: | Progressive necrosis of the calciphylaxis lesions in the same patient with ulceration and black eschar formation.                                                                                                              | 41 |
| Figure 14:  | An isolated lesion of calciphylaxis manifesting as an enlarging necrotic plaque on the lower extremity of a patient undergoing dialysis. The stellate purpuric morphology can be appreciated surrounding the area of necrosis. | 46 |
| Figure 15:  | Thickened, dystrophic, and brownish fingernails and toe nails in a patient with chronic mucocutaneous candidiasis. Dermatologic manifestations of parathyroid-related disorders.                                               | 46 |
| Figure 16:  | Diabetic dermopathy of the pretibial regions, which is a common cutaneous marker of diabetes, and atrophic hyperpigmented circumscribed patches.                                                                               | 48 |
| Figure 17:  | Diabetic bullae of the posterior heel. Fluid-containing bullae are usually sterile. The majority are not scar forming and are mostly confined to the hands and feet.                                                           | 49 |
| Figure 18:  | Necrobiosis lipoidica diabetorum of the lower extremity with well-circumscribed                                                                                                                                                | 51 |

erythematous plaque.

- Figure 19: Acanthosis nigricans in the axillary region of a diabetic patient. Acanthosis nigricans is frequently associated with obese diabetic patients. 53
- Figure 20: Acanthosis nigricans in the posterior aspect of the neck with a hyperpigmented, velvety appearance. 53
- Figure 21: Eruptive xanthomas. Yellow-orange papules and type 2 DM. 54
- Figure 22: Lichen planus on the flexor part of the wrist. 55
- Figure 23: Diabetic neuropathic plantar ulcer of the foot. Peripheral neuropathy leading to loss of sensation is an early warning sign. 56
- Figure 24: Necrolytic migratory erythema in a patient with glucagonoma syndrome. Annular erythematous plaques, vesicles, and erosions involving the whole perineal area are shown. 58
- Figure 25 : Close-up view of an annular plaque showing necrolytic migratory erythema in a patient with glucagonoma syndrome. 58
- Figure 26: Large, violaceous nodule of Merkel cell carcinoma on the antecubital fossa. 61

## **list of abbreviations**

**ACTH:**Adrenocortico tropic hormone.

**ANA:** Antineutrophilic antibody.

**ANCA:** antineutrophil cytoplasmic antibodies.

**anti-Tg AB:** antithyroglobulin Antibodies

**Anti-TPO AB:** Anti-thyroid peroxidase Antibodies.

**CRH:** corticotrophin -releasing hormone .

**IGF-1:** insulin-like growth factor 1.

**NLD:** Necrobiosis lipoidica.

**NME:** Necrolytic migratory erythema.

**PTH:**Parathroid hormone.

**PTM:** pretibial myxedema.

**RAIU:** Radioactive iodine uptake.

**T3:** triiodothyronine

**T4:** thyroxine

**TFTs:** thyroid function tests.

**TSH:**Thyroid stimulating hormone.

# ***Introduction***

## Introduction

### Introduction

The skin often signals systemic changes. Some neoplastic diseases that affect internal organs may trigger several cutaneous manifestations. Endocrine pathology associated with skin diseases include: thyrotoxicosis; hypothyroidism; Cushing syndrome; Addison disease; acromegaly; hyperandrogenism; hypopituitarism; primary hyperparathyroidism; hypoparathyroidism; and manifestations of diabetes mellitus. The striking features of Cushing syndrome are centripetal obesity, moon facies, buffalo hump, supraclavicular fat pads, and abdominal striae. In Addison disease, the skin is hyperpigmented, mostly on the face, neck and back of the hands. Virtually all patients with acromegaly have acral and soft tissue overgrowth, with characteristic findings, like macrognathia and enlarged hands and feet and facial features are coarser. Conditions leading to hyperandrogenism in females present as acne, hirsutism and signs of virilization. Some of the cutaneous manifestations of diabetes mellitus include necrobiosis, diabetic dermopathy, and acanthosis nigricans (*Jabbour, 2003*).

Symptoms associated with hypercortisolemia include weight gain, lethargy, weakness, menstrual irregularities, loss of libido, depression, hirsutism, acne, purplish skin striae, and

## **Introduction**

hyperpigmentation. Associated problems such as diabetes mellitus or hypertension may also bring the patient to medical attention. Signs that differentiate Cushing's syndrome from pseudo - Cushingoid states most reliably include the presence of proximal myopathy, easy bruising, and thinness and fragility of the skin (**John et al., 2008**).

Addison disease is a disorder that occurs when the adrenal glands do not produce enough hormones. The symptoms of Addison's disease develop gradually and may become established before they are recognized such as Chronic diarrhea, vomiting, and Extreme weakness, fatigue, dehydration. Another common initial symptom of Addison's disease is the development of patches of skin that are darker than the surrounding skin (hyperpigmentation). This discoloration most commonly occurs near scars, skin creases such as the knuckles, and on the mucous membranes. Skin changes are due to overproduction of corticotropin, which the pituitary makes to try to stimulate the adrenal glands. Corticotropin also stimulate the production of melanin, which causes darkening of the skin (**Chaker and Vaidya, 2010**).

Diabetes can affect every part of the body, including the skin. Many people with diabetes will have a skin disorder caused or affected by diabetes at some time in their lives. In

## **Introduction**

some cases, skin problems can be the first sign that a person has diabetes. In some cases, people with diabetes develop skin conditions that can affect anyone. Examples of these conditions include bacterial infections, fungal infections, and itching. However, people with diabetes also are more prone to getting certain conditions. These include diabetic dermopathy, necrobiosis lipoidica diabetorum, and eruptive xanthomatosis (***Grandinetti and Tomecki, 2010***).

Thyroid disease is associated with changes in the skin, which may sometimes be the first clinical sign. A variety of cutaneous findings may present in the setting of either a hyperthyroid or hypothyroid state. There may be evidence of the effect of altered concentrations of thyroxine on skin, with changes in texture and hair growth. Associated increases in thyroid stimulating hormone concentration may lead to pretibial myxedema. Cutaneous manifestations generally appear subsequent to the development of thyroid disease, but may be the first presenting sign or even precede the diagnosis by many years. Skin manifestations of thyroid dysfunction may be divided into two main categories: (I) direct action of thyroid hormone on skin tissues, and (II) autoimmune skin disease associated with thyroid dysfunction of autoimmune etiology. (***Paus, 2010***)

## **Introduction**

In hyperthyroidism, the skin is warm, soft, and smooth. Hyperhydrosis, especially on palms and soles, may be observed. Scalp hair may be fine and soft, and may be accompanied by a diffuse non scarring alopecia. Patients with hyperthyroidism commonly demonstrate nail changes. Nails may be soft and friable (**Jabbour, 2003**). Pretibial myxedema (thyroid dermopathy) is a term used to describe localized lesions of the skin resulting from the deposition of hyaluronic acid, usually as a component of thyroid disease (**Subramanyam et al., 2013**). In hypothyroidism, the skin is cold, xerotic and pale. The coldness is due to reduced core temperature and cutaneous vasoconstriction (**Leonhardt and Heymann, 2002**). The classic skin findings of hypoparathyroidism also include a dry, rough, keratotic, and puffy skin. Nails may be ridged, lusterless, and distally split; hair is coarse and brittle (**Jabbour, 2003**).

Dermatologic manifestations of parathyroid-related disorders, although rare in sporadic cases, are not uncommon in familial syndromes. Patients with familial hyperparathyroidism have several types of skin lesions. In multiple endocrine neoplasia 1, patients commonly have angiofibromas (85%) and collagenomas (70%). They can also present with lipomas or café-au-lait spots. Cutaneous

## **Introduction**

amyloidosis. Metastatic calcification is an entity commonly encountered in patients with hyperparathyroidism and renal failure. It can be complicated by infections and necrosis. Hypoparathyroidism presenting in the context of polyglandular failure type 1 is characterized by mucocutaneous candidiasis **(Fuleihan and Rubeiz, 2006)**.

Multiple endocrine neoplasia type 1 (MEN1) is a rare hereditary endocrine cancer syndrome characterised primarily by tumours of the parathyroid glands (95% of cases), endocrine gastroenteropancreatic tract, eg gastrinomas, insulinomas and carcinoid tumours (30-80% of cases) and anterior pituitary, eg prolactinomas (15-90% of cases). MEN1 has autosomal dominant inheritance with a high degree of penetrance. Cutaneous tumours are common in MEN1 and include multiple angiofibromas, collagenomas, and lipomas. Recognising these benign tumours is important because they can serve as markers for this tumour syndrome **(Darling et al., 1997)**.

Pancreatic neuroendocrine tumors (PNETs) are rare tumors representing <5 % of all pancreatic malignancies. PNETs are classified by the hormonal products that they produce. A glucagonoma is an extremely rare variant in which glucagon is the primary hormonal product.

## **Introduction**

Hyperglucagonemia may result in the “glucagonoma syndrome” characterized by a rash known as necrolytic migratory erythema (NME), diabetes mellitus, and other features (**Batcher et al., 2011**). NME is characterized by erythematous, well-demarcated plaques that are pruritic and painful, and often involve the intertriginous areas, perineum, and buttocks (**Eldor et al., 2011**).

Carney complex was originally described in 1985 by J. Aidan Carney as “the complex of myxomas, spotty skin pigmentation and endocrine over activity”. The most common type of endocrine tumors in Carney complex is the primary pigmented nodular adrenocortical disease (present in two-thirds of the patients), a form of bilateral adrenal hyperplasia that leads to adrenocorticotrophic hormone (ACTH)-independent Cushing syndrome. Carney complex patients also display growth hormone or growth hormone and prolactin (GH-PRL)-secreting (mammosomatroph) pituitary adenomas. Other endocrine glands that can be affected in the Carney complex include (1) the thyroid with thyroid nodules present in up to 75% of the patients and cancer developing rarely; and (2) the gonads: large-cell calcifying Sertoli cell tumors, adrenal crest tumors. Two different breast tumors, which can coexist, have been reported in Carney complex

### **Introduction**

patients: myxoid fibroadenomas, which are abnormalities of the mesenchyma, and ductal adenomas, which are abnormalities of the epithelium. Female Carney complex patients often develop ovarian cystadenomas and rarely cancer (*Salpea and Stratakis, 2014*).