

## XXIII. Diseases of the Endocrines

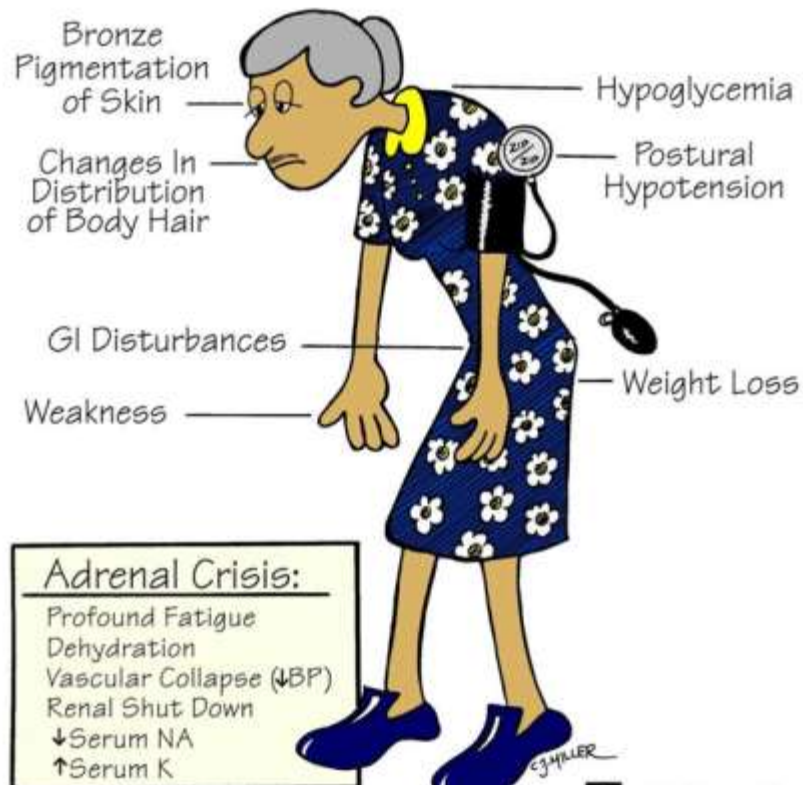
**Addison's disease****Adrenal gland:**

- Is slightly diminished in size marked destruction of cortical tissue
- Necrotic changes and caseation

**N.B.I:****Causes of Addison's disease (chronic adrenal insufficiency):**

1. Tuberculosis (as in the presented case).
2. Atrophy.
3. Necrosis due to idiosyncrasy to drugs, or chemical poisoning.
4. Hypoplasia.
5. Amyloidosis.
6. Metastatic tumours (carcinomatous).
7. Inflammatory changes and auto-anti-body-formations.
8. Fibrosis.
9. Gummata.

## ADDISON'S DISEASE





### **Addison's disease:**



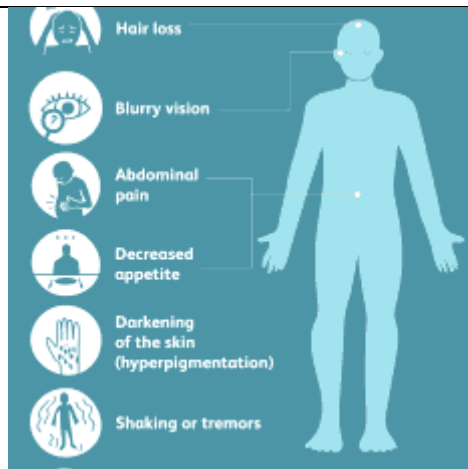
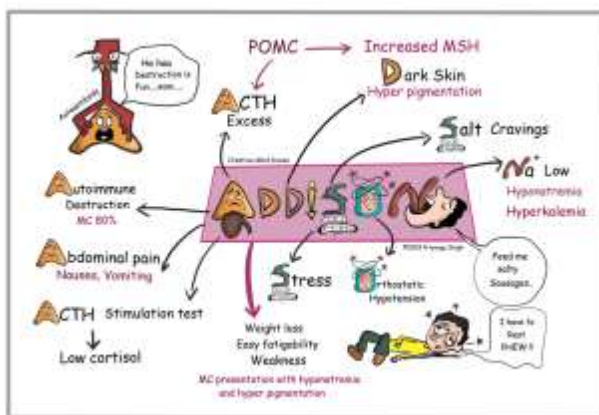
- Note the generalised skin pigmentation (in a Caucasian patient) but especially the deposition in the palmar skin creases, nails and gums.

- She was treated many years ago for pulmonary TB. What are the other causes of this condition?

### **Clinical manifestations:**

1. Progressive debility and asthenia (weakness; anaemia; loss of weight).
2. Feeble heart action:
  - Low blood pressure.
  - Loss of chlorides and water.
  - Diminution of sodium.
  - Accumulation of potassium.
  - Anaemia.
3. Gastro-intestinal irritability.
4. Pigmentation of skin (melanin).
5. Hypoglycaemia.
6. Haemoconcentration.
7. Males show fine scanty hair on face and on body.

A common feature observed at autopsy is **the association of hyperplasia of the lymphoid tissues with enlargement of the thymus.**





**N.B.2:**

- **Over-activity of the adrenal cortex (tumour or hyperplasia) may lead to:**
  1. Cushing's syndrome.
  2. Adreno-genital syndrome.

**ADDISON'S DISEASE**  
Adrenocortical insufficiency

**ADDISON'S DISEASE Symptoms:**  
 Bronze Pigmentation of Skin  
 Changes in Distribution of Body Hair  
 IR Disturbance  
 Weakness  
 Hyponatremia  
 Postural Hypotension  
 Weight Loss

**Adrenal Cortex:**  
 Cortisol  
 Aldosterone  
 Androgens  
 Mineralocorticoids  
 Glucocorticoids

**ADRENAL GLAND**  
(hormones)

**ADRENAL GLAND Hormones:**  
 Glucocorticoids (Cortisol, Corticosterone)  
 Mineralocorticoids (Aldosterone, Dehydroepiandrosterone)  
 Androgens (Androstenedione, Testosterone)  
 Catecholamines (Adrenaline, Noradrenaline)  
 Peptides (Arenin, Angiotensin)

**Cushing's Syndrome**

**Cushing's Syndrome Symptoms:**  
 Moon Face  
 Buffalo Hump  
 Osteoporosis  
 Hypertension  
 Hyperglycemia  
 Hirsutism  
 Acromegaly  
 Fat Redistribution (Central Fat)  
 Proximal Myopathy  
 Thin Skin  
 Purple Striae  
 Edema & Puffiness

# ADRENOGENITAL SYNDROME



<p>Group of symptoms caused by adrenal hyperactivity</p> 	<p>Affects 1 in 14,000 livebirths</p> 	<p>Risk factors include positive family history</p> 	<p>Caused by increased production of androgens by adrenal glands</p> 
<p>Congenital or secondary to an adrenal tumor</p> 	<p>Genetic cases are caused by deficiency of 21-hydroxylase enzyme</p> 	<p>Symptoms include masculine traits in female or premature puberty in males</p> 	<p>Untreated children experience precocious sexual development</p> 
<p>Diagnosed by history &amp; abnormal serum hormones on lab tests</p> 	<p>Treated by surgery or hormone therapy</p> 	<p>Complications include hypertension, adrenal crisis, infertility &amp; death</p> 	

## **Adreno-genital syndrome.**

- The symptoms of disturbance of sexual development vary with age and sex.
- **In children:** Precocious development of sex-organs with intensification of maleness → adrenal virilism.
  - **In males** → premature puberty; no development of female characters.
  - **In females** → marked development of primary and secondary male characters, enlarged clitoris; hirsutism.
- **In adults:**
  - **Males** → no sexual changes (or very rare changes).
  - **Females** → atrophy of sex-organs :
    - Amenorrhea.
    - Obesity.
    - Deep voice and increased muscularity.
    - Growth of hair on face and upper lip.
    - Tendency to virilism (or pseudo-hermaphroditism).
- **After menopause**, the female shows :
  - No sexual disturbances.
  - Hypertension of cortical origin.

Children



Increased androgen production results in ambiguous genitalia in newborn girls.



6 year old girl

