Sheehan’s Syndrome

By
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- Named after Harold L. Sheehan who described the syndrome in 1937 while working as the scientific director at the Royal Maternity Hospital in Glasgow.

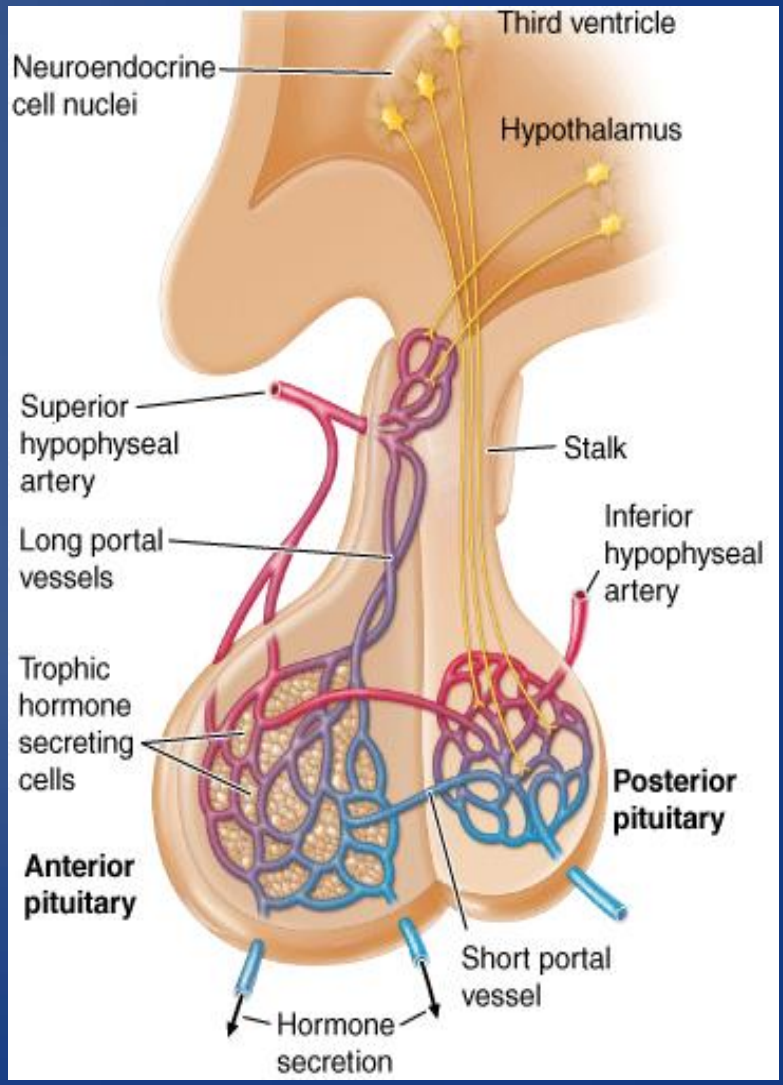
Overview

- Partial or complete pituitary insufficiency due to postpartum necrosis of the anterior pituitary gland in women with severe blood loss and hypotension during delivery
- Clinically significant Sheehan syndrome is a relatively uncommon consequence of obstetric hemorrhage in the developed world
- Accounts for roughly 0,5% of cases of hypopituitarism in women.
- The clinical picture can range from very mild with only a few constitutional symptoms to full-blown with hypothyroidism and adrenal suppression.

Patophysiology

- During pregnancy there is a physiologic hypertrophy and hyperplasia of the prolactin producing cells of the anterior pituitary without a similar increase in blood supply.

- The anterior pituitary (unlike the posterior which has an arterial supply) gets it's blood through a low pressure portal venous system which is prone to collapse during severe hypotension.

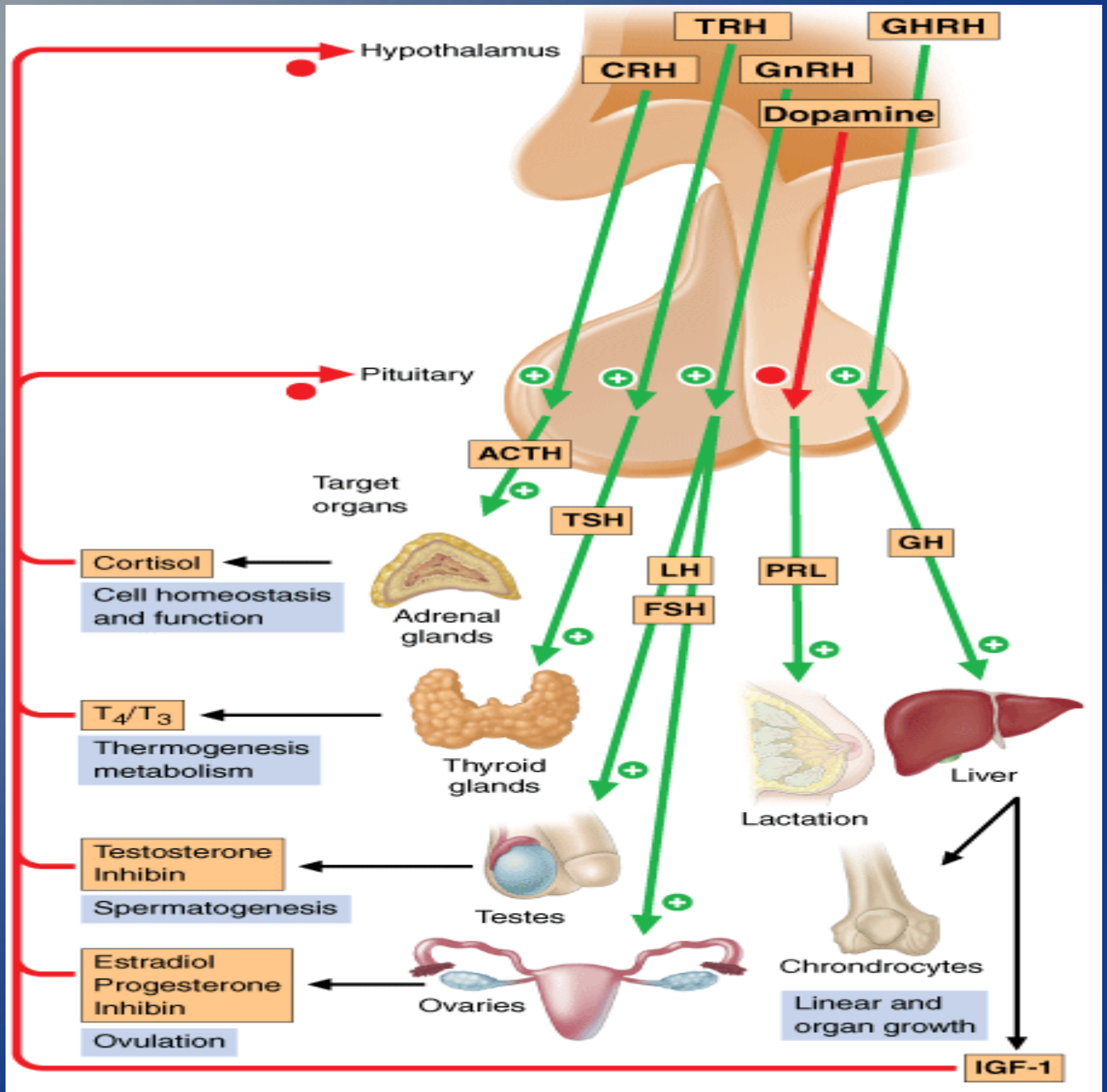


Pathophysiology

- If during or after delivery there is severe hemorrage, the portal system of the ant. pituitary may collapse leading to necrosis of the gland.

- Blood loss of 800ml or more is needed in most cases to develop Sheehan's, however up to 10% cases have no history of bleeding or hypotension

- Any factor that increases the risk of bleeding during delivery (placental abnormalities, hemophilia, DIC…) increases the risk of developing Sheehan’s syndrome


TRH
GHRH
Hypothalamus
CRH
GnRH
Dopamine
Pituitary
ACTH
Target organs
TSH
GH
Cortisol
Cell homeostasis and function
Adrenal glands
LH
PRL
FSH
T4/T3
Thermogenesis metabolism
Thyroid glands
Liver
Lactation
Testosterone
Inhibin
Spermatogenesis
Testes
Chrondrocytes
Estradiol
Progesterone
Inhibin
Ovulation
Ovaries
Linear and organ growth
IGF-1

Symptoms

- Clinical manifestations depend on the extent of pituitary destruction and hormonal deficiencies.
- Oligomenorrhea or Amenorrhea
- Lack of lactation
- Weakness, fatigue
- Cold sensitivity
- Weight loss
- Loss of axillary and pubic hair
- Atrophy of breast and genital organs
- With destruction of 90% or more, symptoms of acute adrenal insufficiency predominate
- Symptoms can develop insidiously over months to years

Diagnostic Tests

- Lab tests:
  - Hormones of the pituitary axis (TSH, Tyroxin, ACTH, Cortisol, Prolactin).
  - Hyponatremia
  - Anemia
- Provocative hormonal testing may be necessary to confirm the diagnosis.
- MRI or CT to visualize the pituitary gland in order to rule out tumor.

Differential Diagnosis of hypopituitarism

- Traumatic
  - Surgical resection
  - **Head injury**
  - Radiation damage
- Neoplastic
  - **Pituitary adenoma**
  - Parasellar mass (meningioma, germinoma, ependymoma, glioma)
  - Rathke's cyst
  - Craniopharyngioma
  - Hypothalamic hamartoma, gangliocytoma
  - Pituitary metastases (breast, lung, colon carcinoma)
  - Lymphoma and leukemia
  - Meningioma
- Infiltrative/inflammatory
  - Lymphocytic hypophysitis
  - Hemochromatosis
  - Sarcoidosis
  - Histiocytosis X
  - Granulomatous hypophysitis
- Vascular
  - **Pituitary apoplexy**
  - Pregnancy-related infarction with diabetes
  - **Sickle cell disease**
  - Arteritis
- Infections
  - Fungal (histoplasmosis)
  - Parasitic (toxoplasmosis)
  - **Tuberculosis**
  - *Pneumocystis carinii*

Treatment

- Hormone replacement with:
  - Prednisone
  - Levothyroxine
  - Estrogen (given with progesterone)
  - All deficient hormones must be replaced. However, some patients with clear panhypopituitarism may recover TSH and even gonadotropin function after cortisol replacement alone
  - Some studies have shown that Growth Hormone administration can help to normalize weight, lower cholesterol levels and improve overall quality of life
- Women with persistent amenorrhea and anovulation will require fertility treatment to become pregnant.

Thank you for your attention

”I have written a large work on the pathophysiology of the kidneys which I consider my best. It has hardly been quoted”
-Harold L. Sheehan