



1st Department of Obstetrics and Gynecology
Medical School
Aristotle University of Thessaloniki

Menstrual disturbances

From symptom to diagnosis and management

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Aristotle University of Thessaloniki

Aim

- Introduction to diagnostic and therapeutic approach of menstrual disturbances
- Implementation of the theory into clinical practice

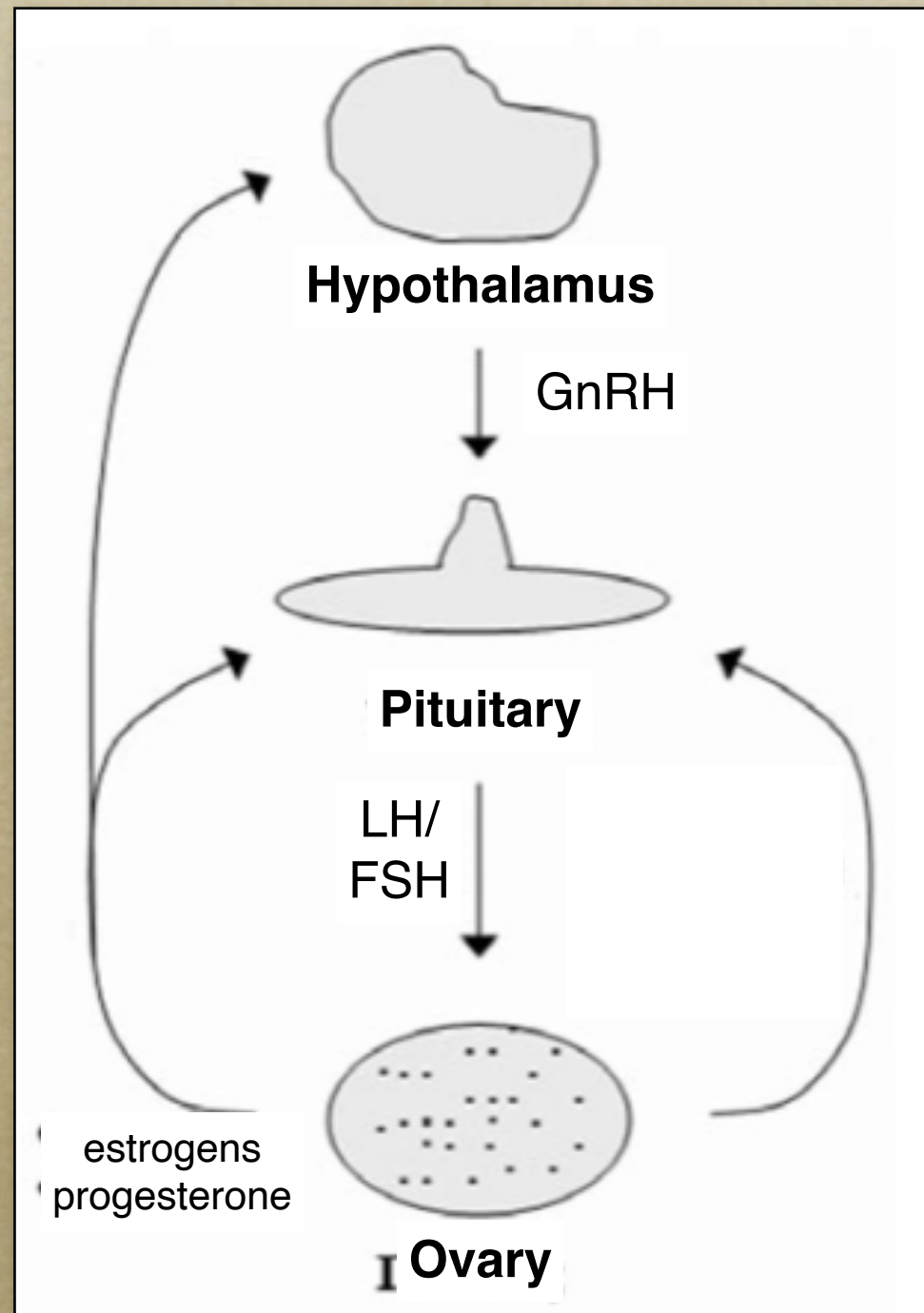
Structure

- Physiology of menstrual cycle
- Girl 16-year-old with primary amenorrhea
- Athlete 20-year-old with secondary amenorrhea
- Woman 32-year-old with oligomenorrhea and galactorrhea
- Woman 25-year-old with oligomenorrhea and hirsutism

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Hypothalamus-pituitary-ovary axis

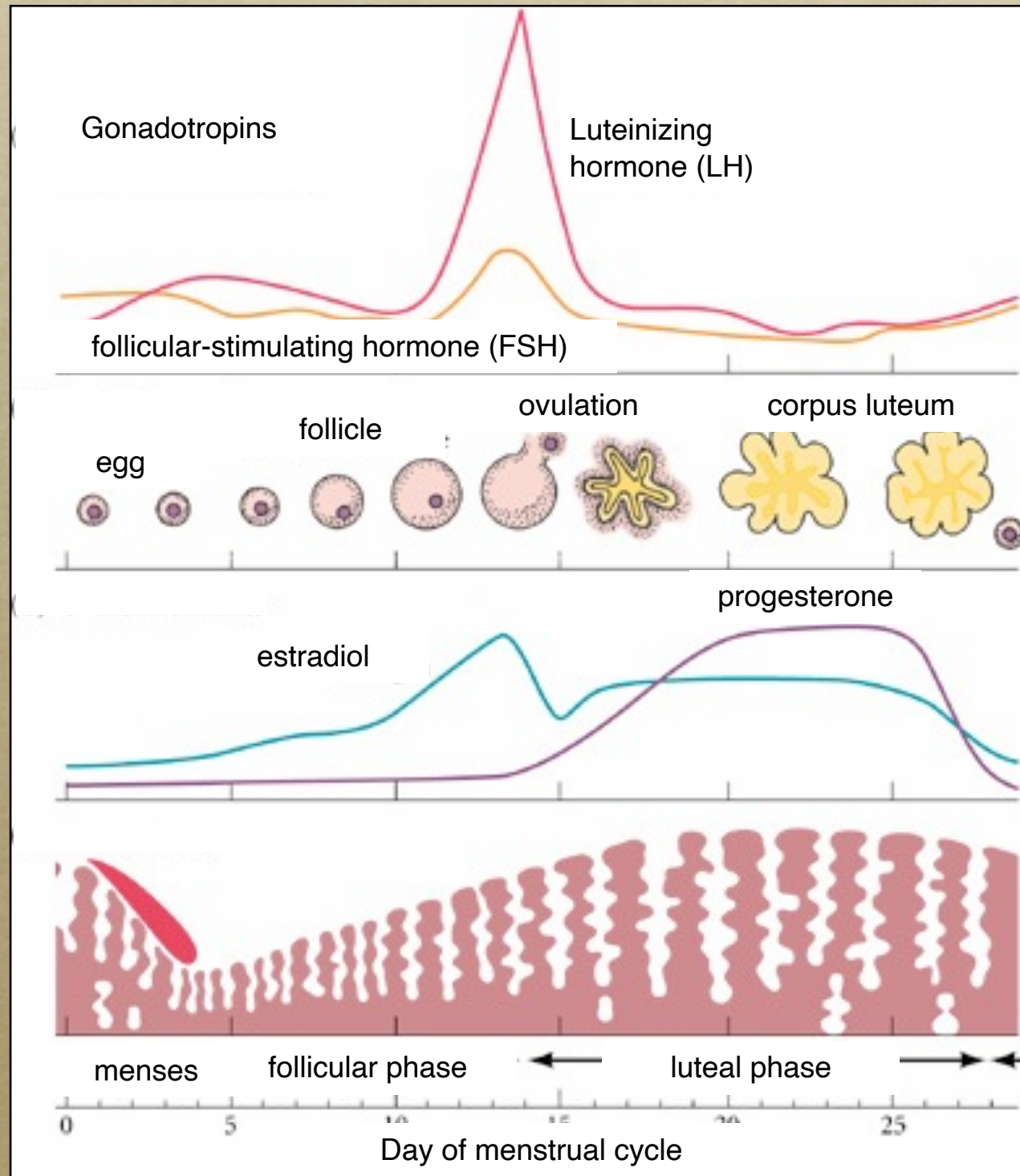


Physiology of menstrual cycle

Pituitary

Ovary

Endometrium



Definitions

- Amenorrhea
 - primary
 - secondary > 6 months
- Oligomenorrhea > 35 days
- Polymenorrhea < 21 days
- Hypomenorrhea low quantity
- Hypermenorrhea high quantity
- Menometrorrhagia irregular bleeding
- Dysmenorrhea pain

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History

- Primary amenorrhea
- Low stature

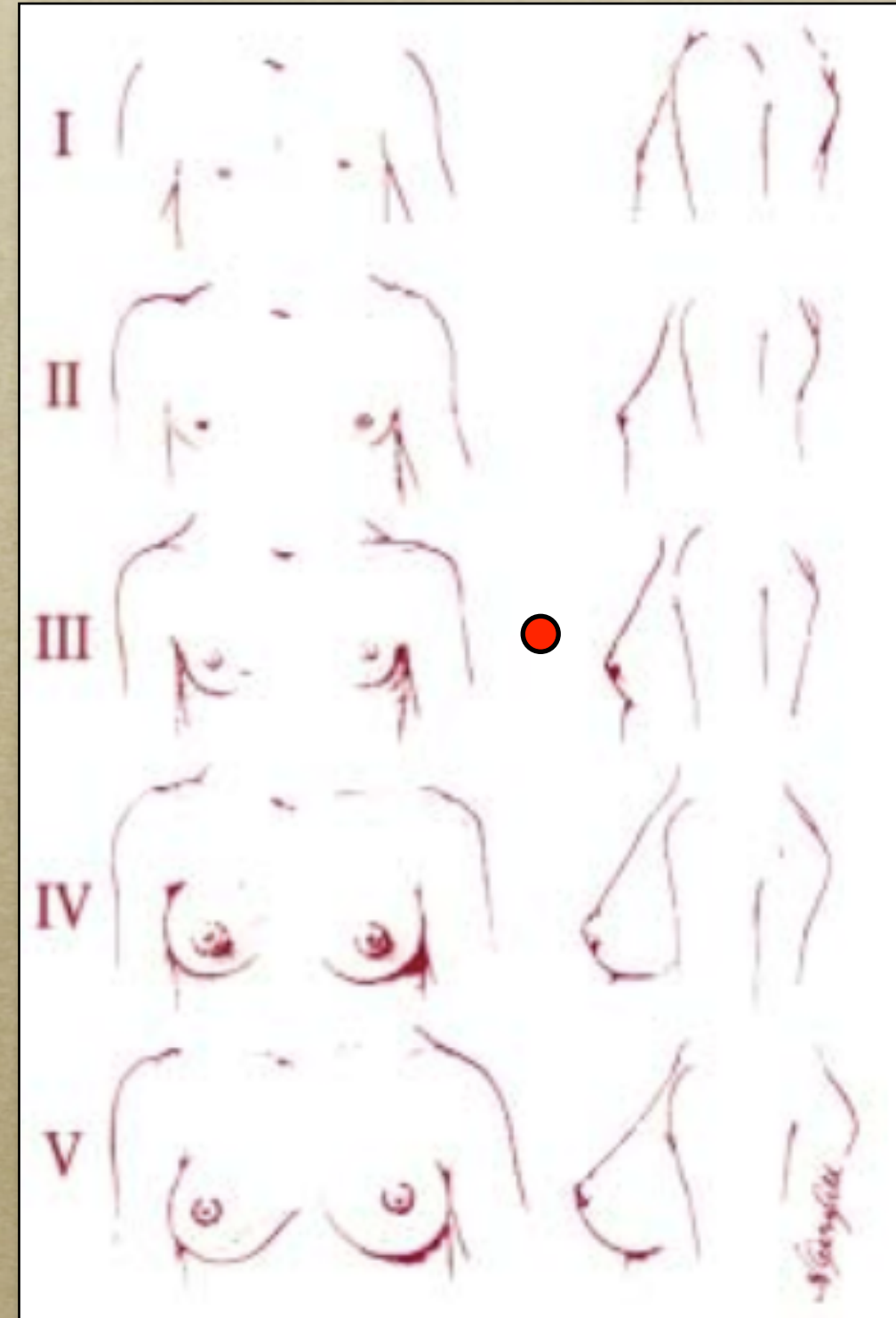
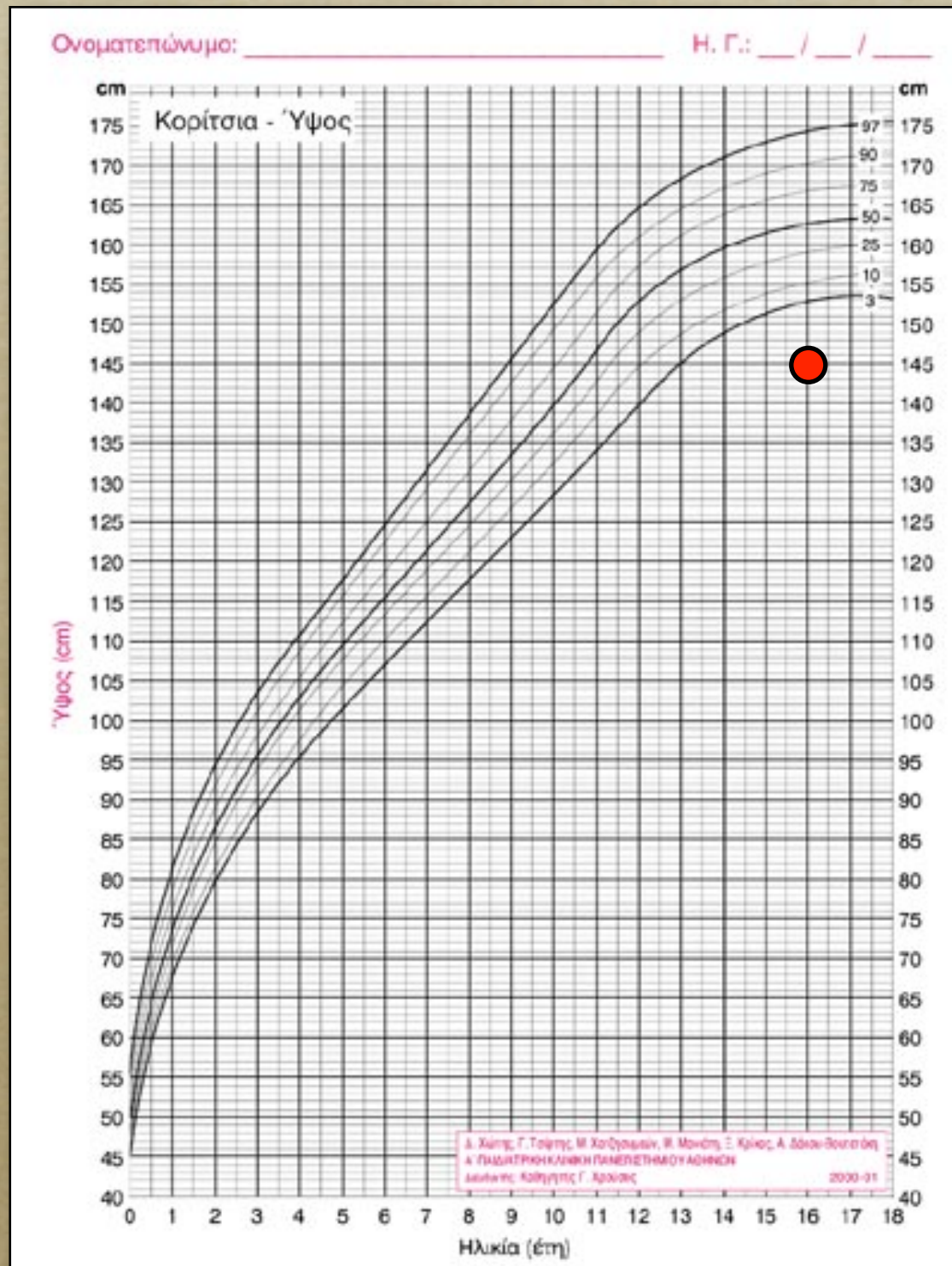
Clinical picture

- Delayed puberty
- Height: 1,45 m

Clinical picture



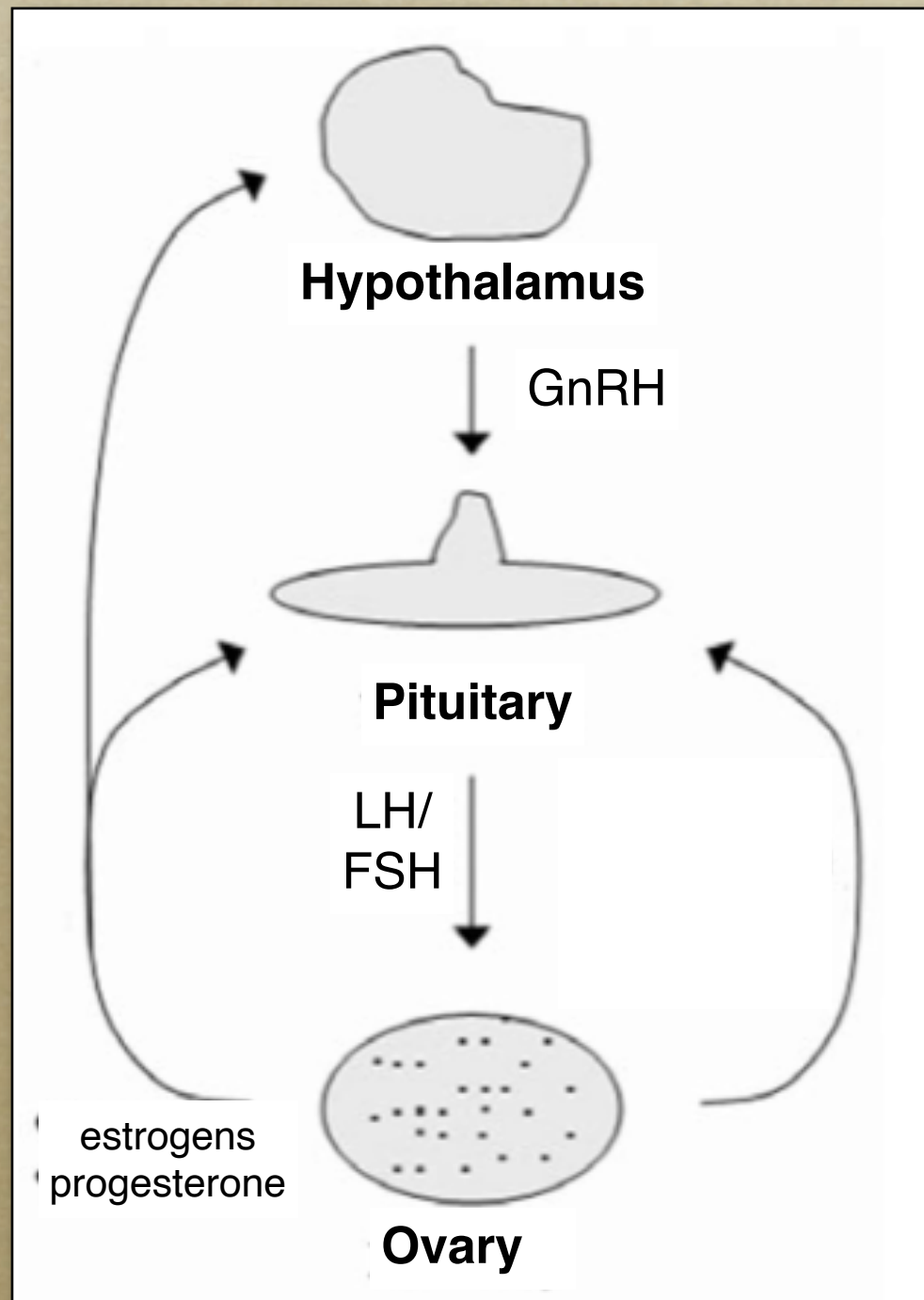
Clinical picture



Laboratory investigation

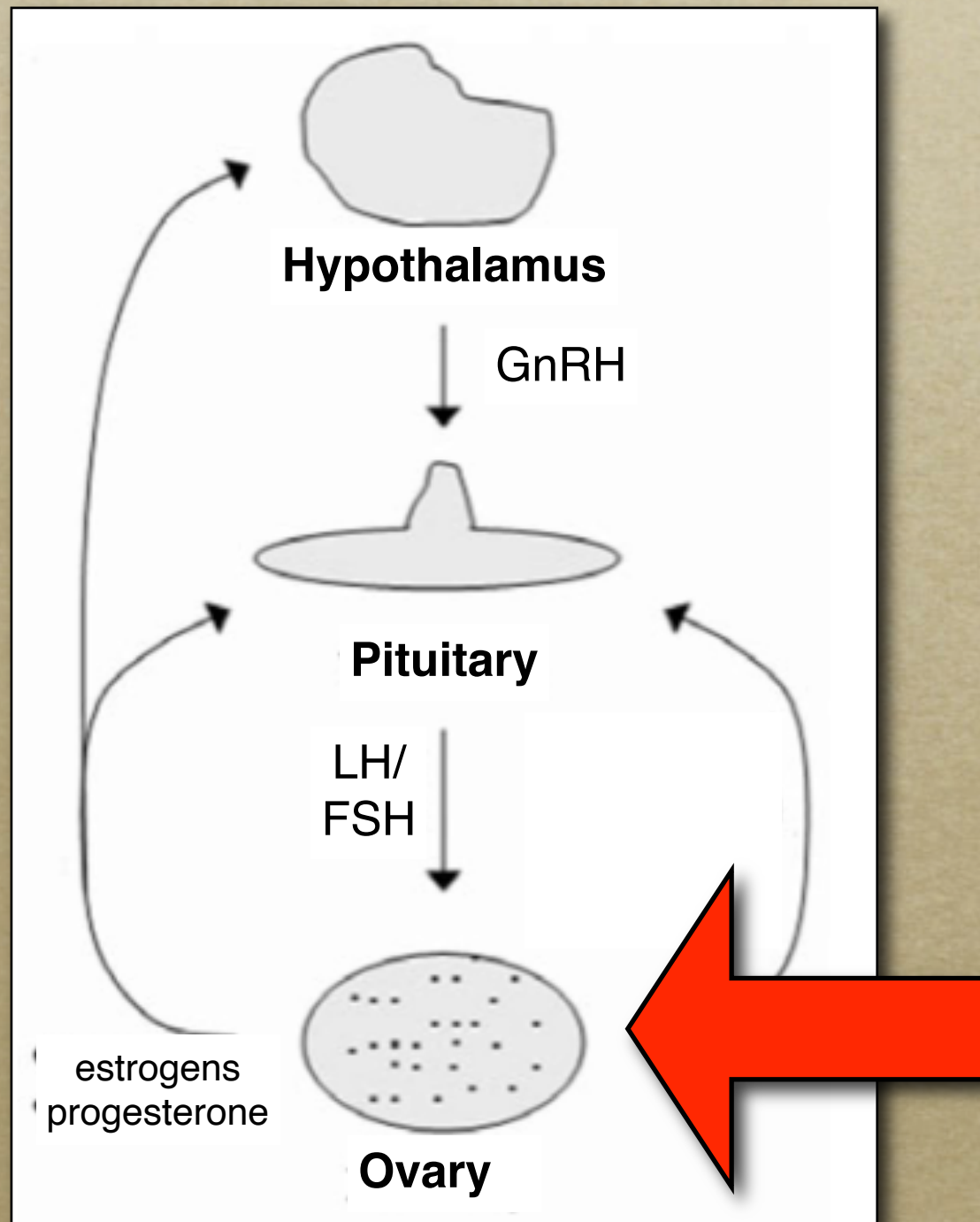
◦ FSH	47 IU/L
◦ LH	57 IU/L
◦ Estradiol	10 pg/mL
◦ Prolactin	6 ng/mL
◦ Testosterone	12 ng/dL

Diagnosis



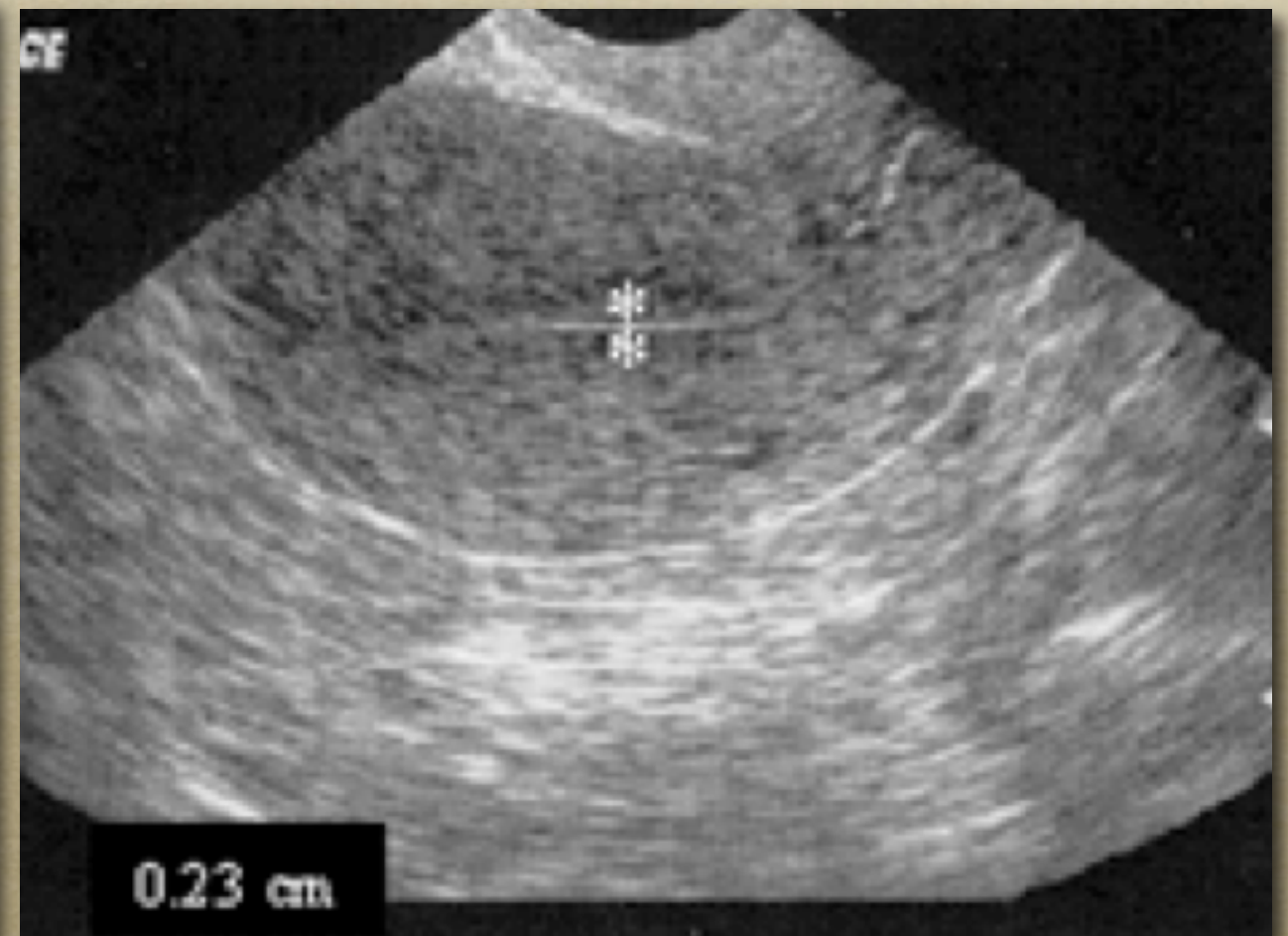
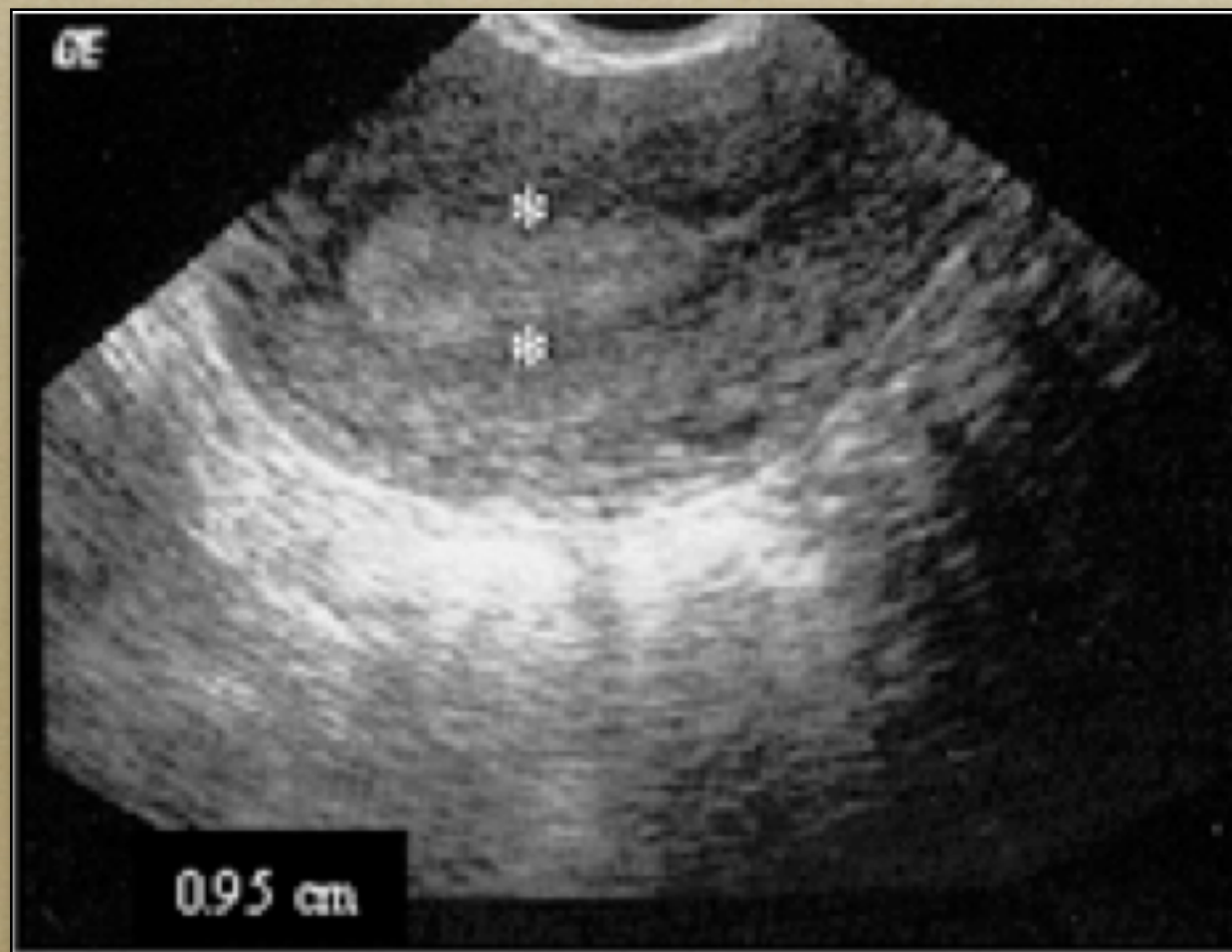
- Hypogonadism, hypergonadotropic

Diagnosis

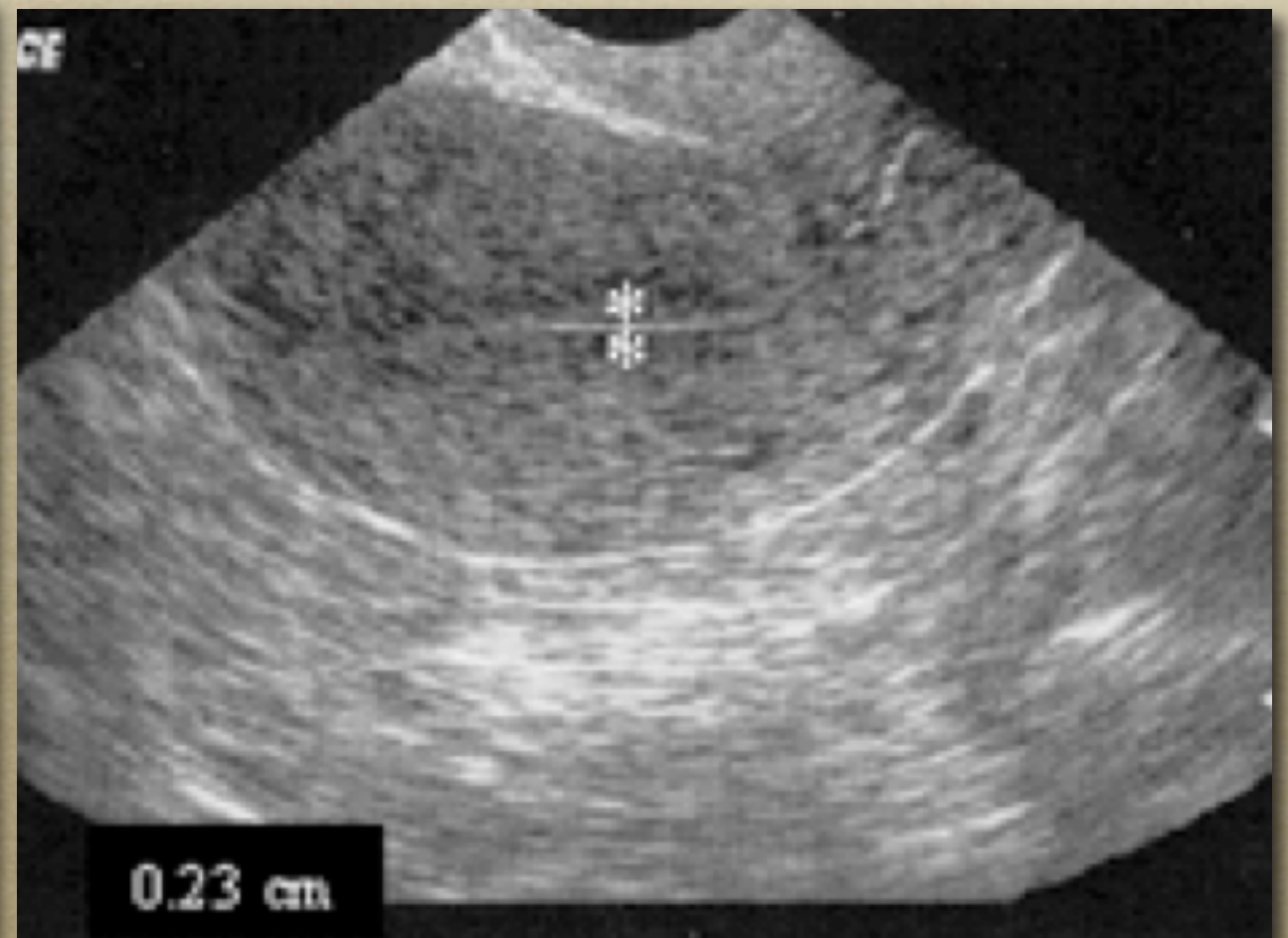
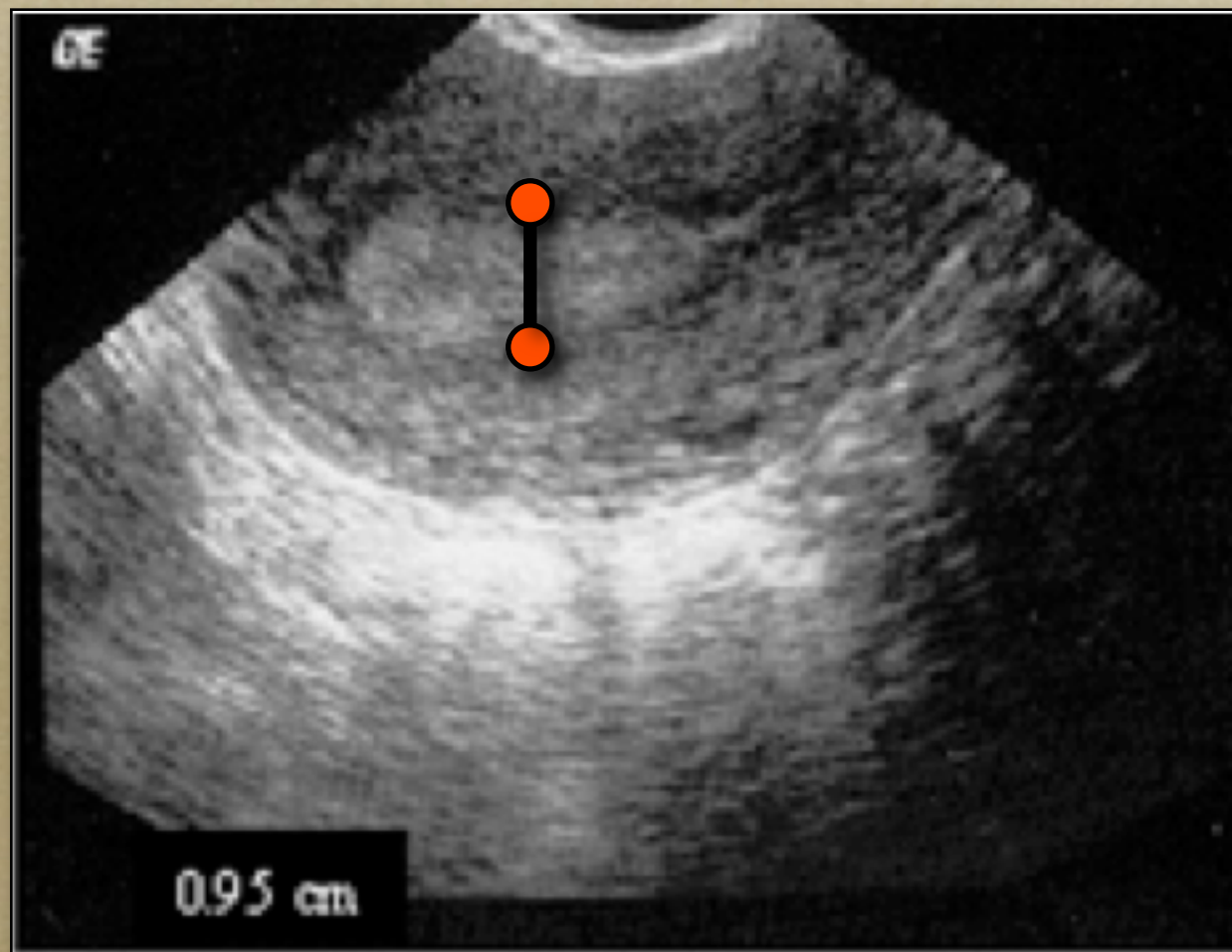


- Hypogonadism, hypergonadotropic

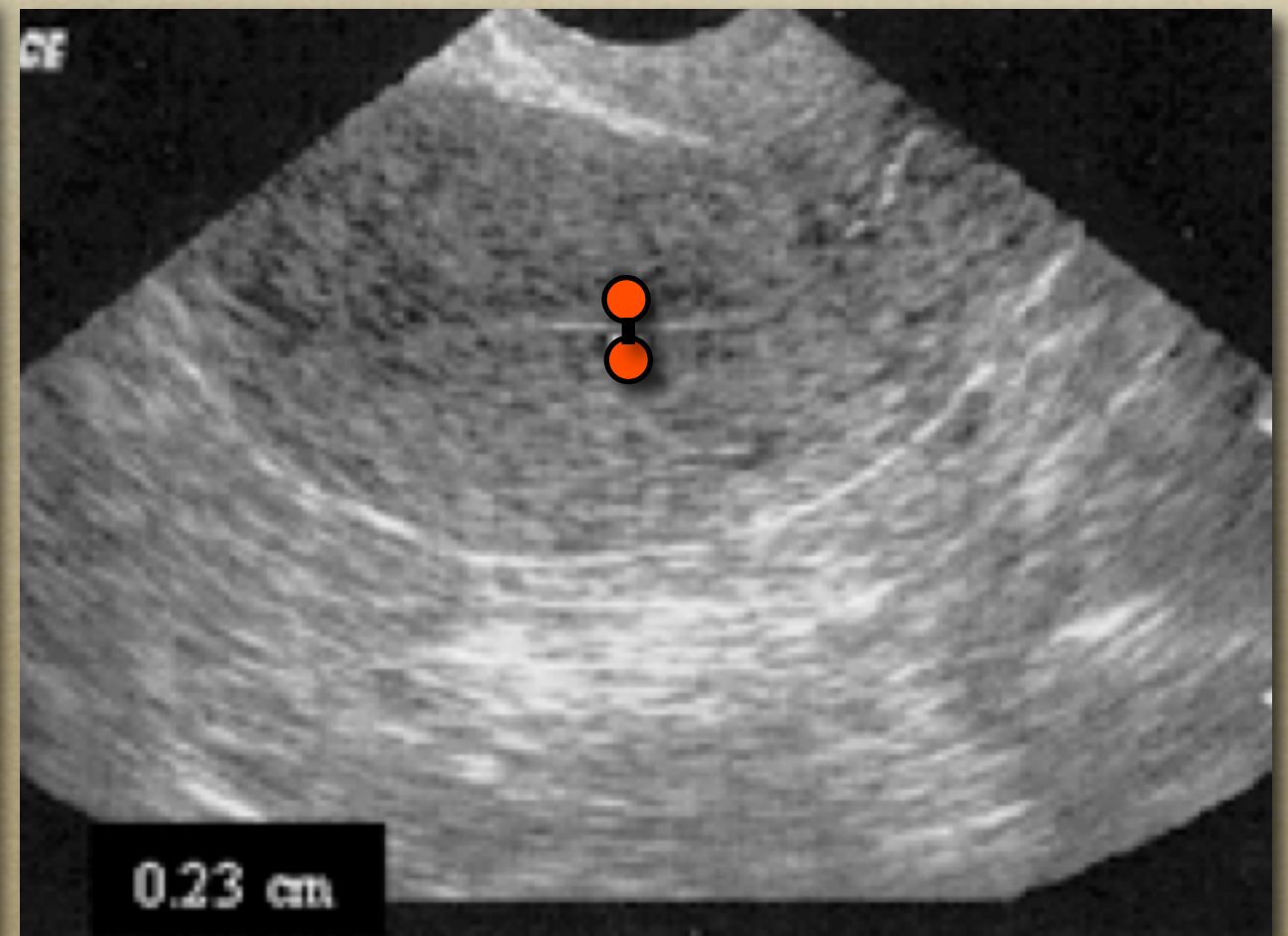
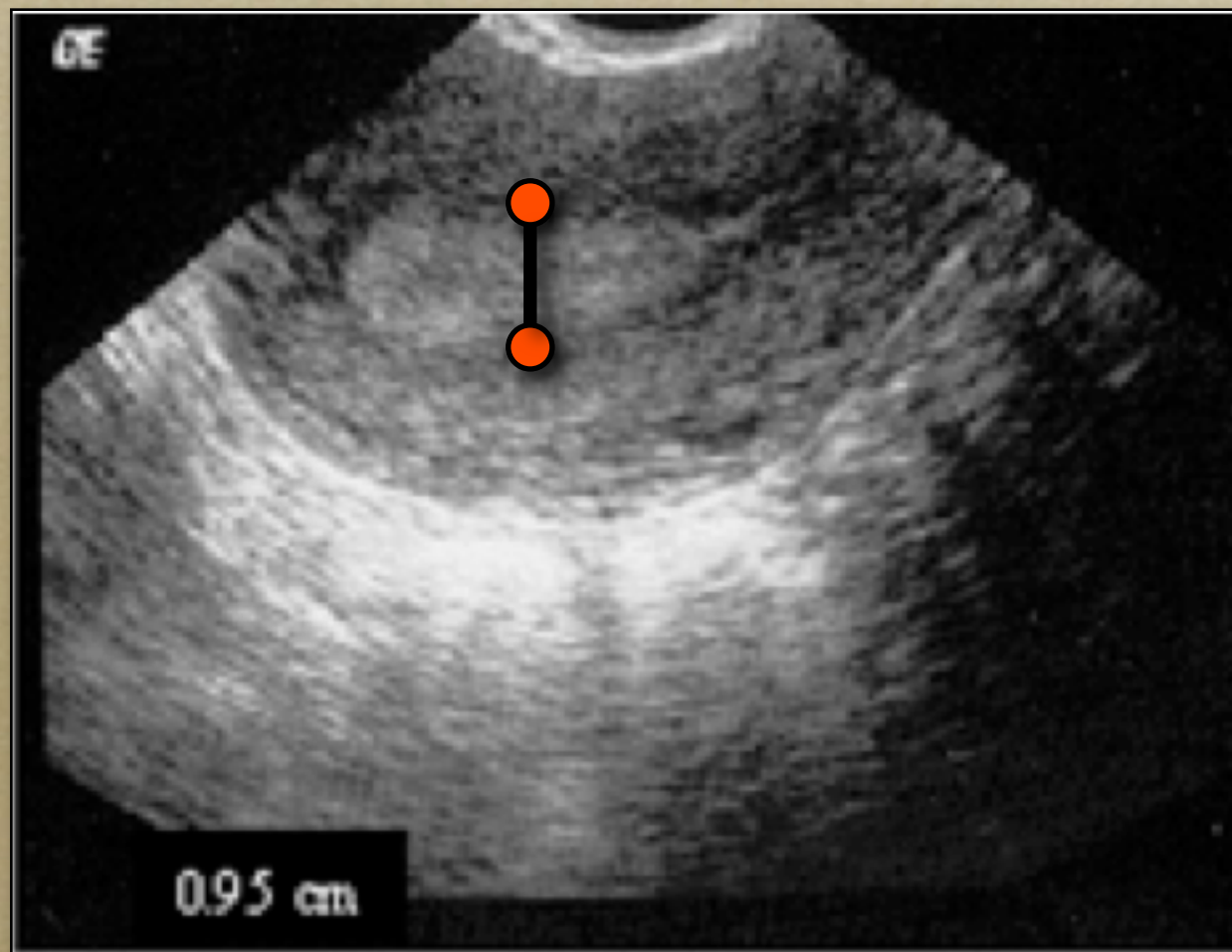
Uterine ultrasound



Uterine ultrasound



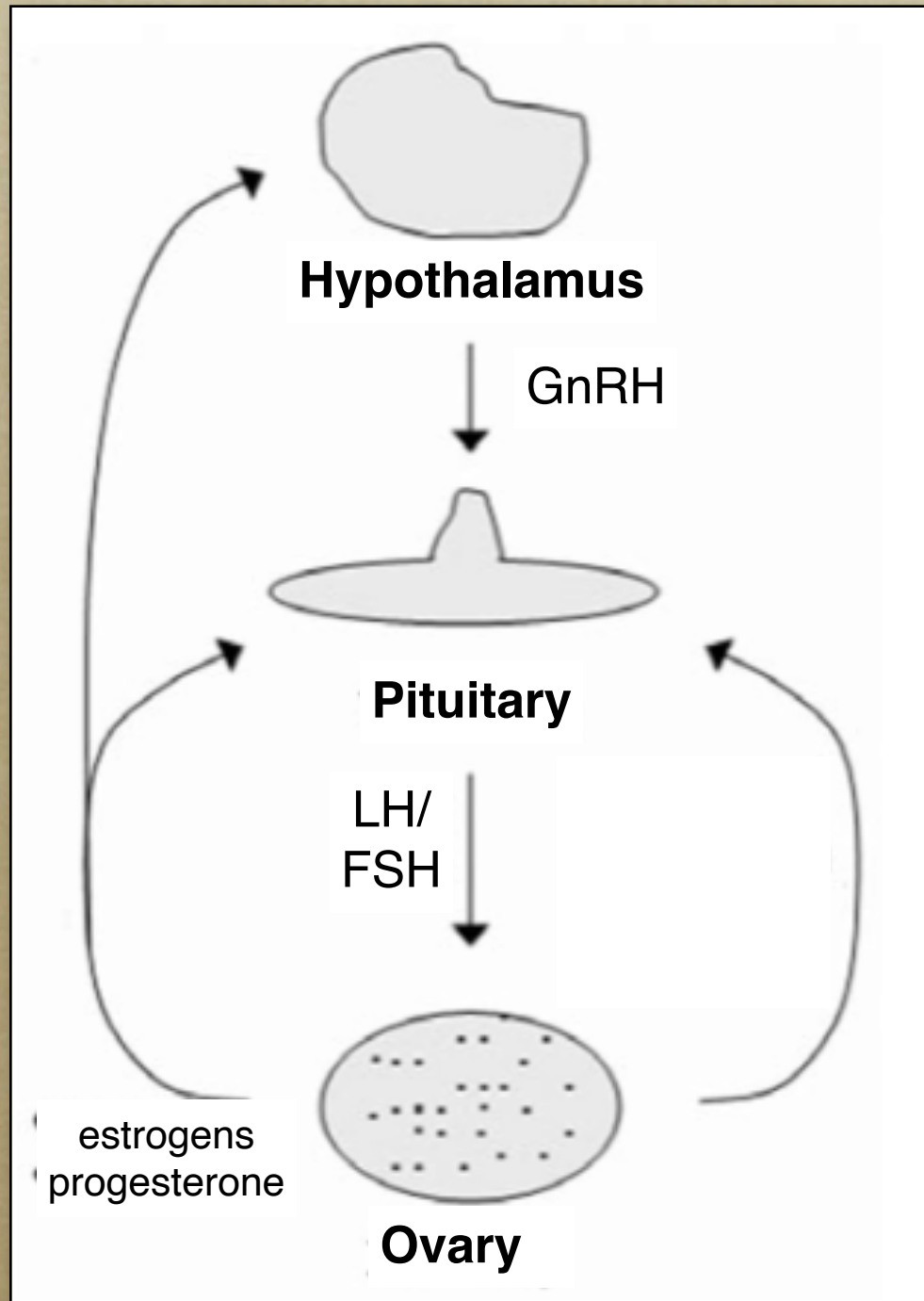
Uterine ultrasound



Progesterone challenge test

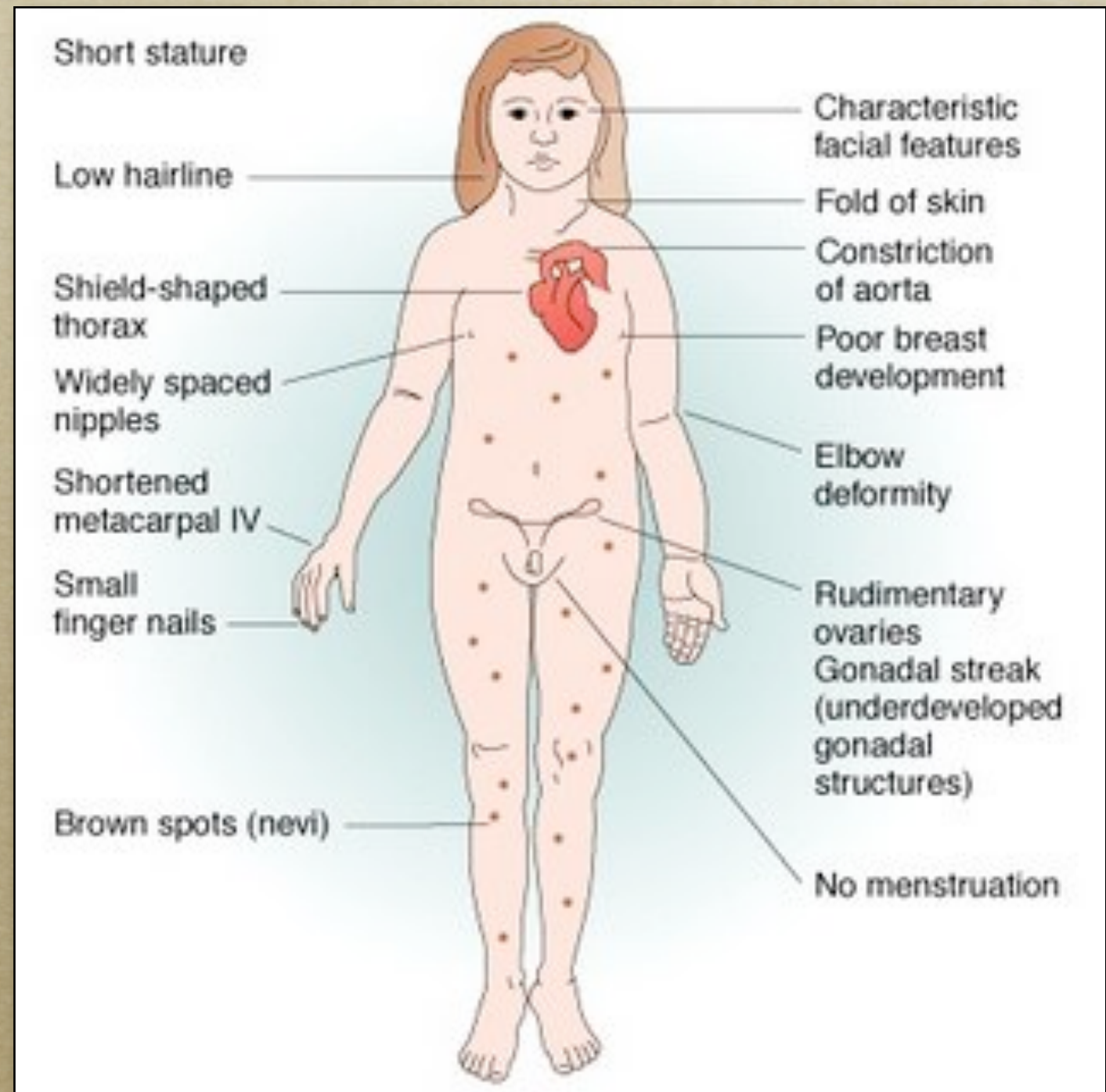
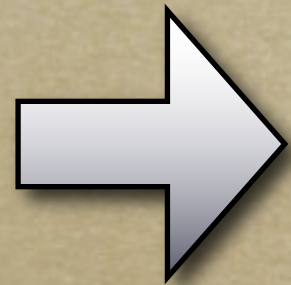
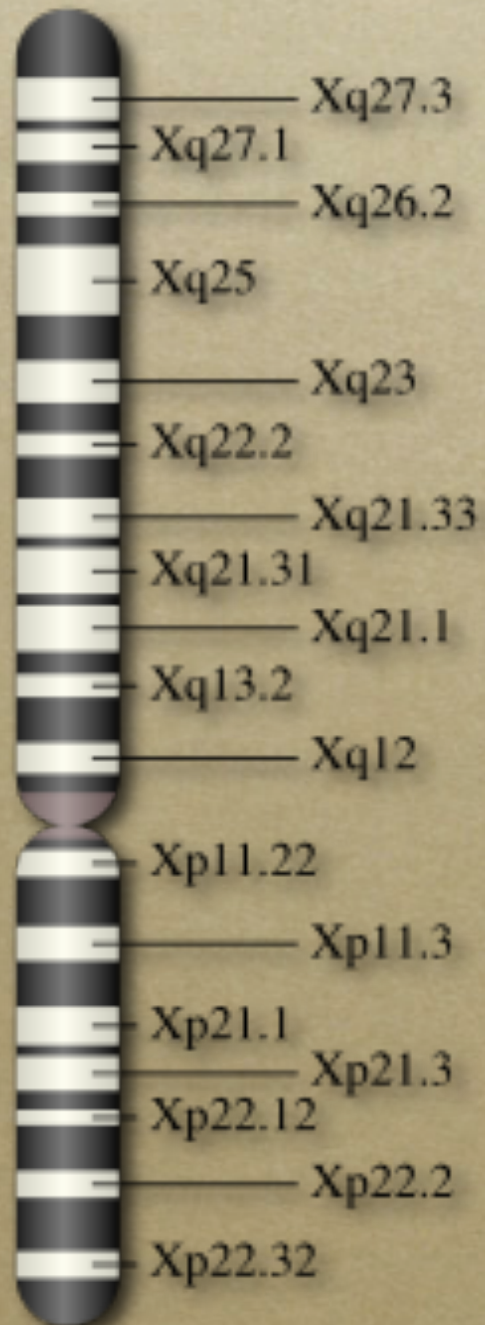
- **Use of progesterone**
 - induction of menstrual cycle
 - indication of estrogen production
 - non-induction of menstrual cycle:
 - indication of estrogen absence

Etiology

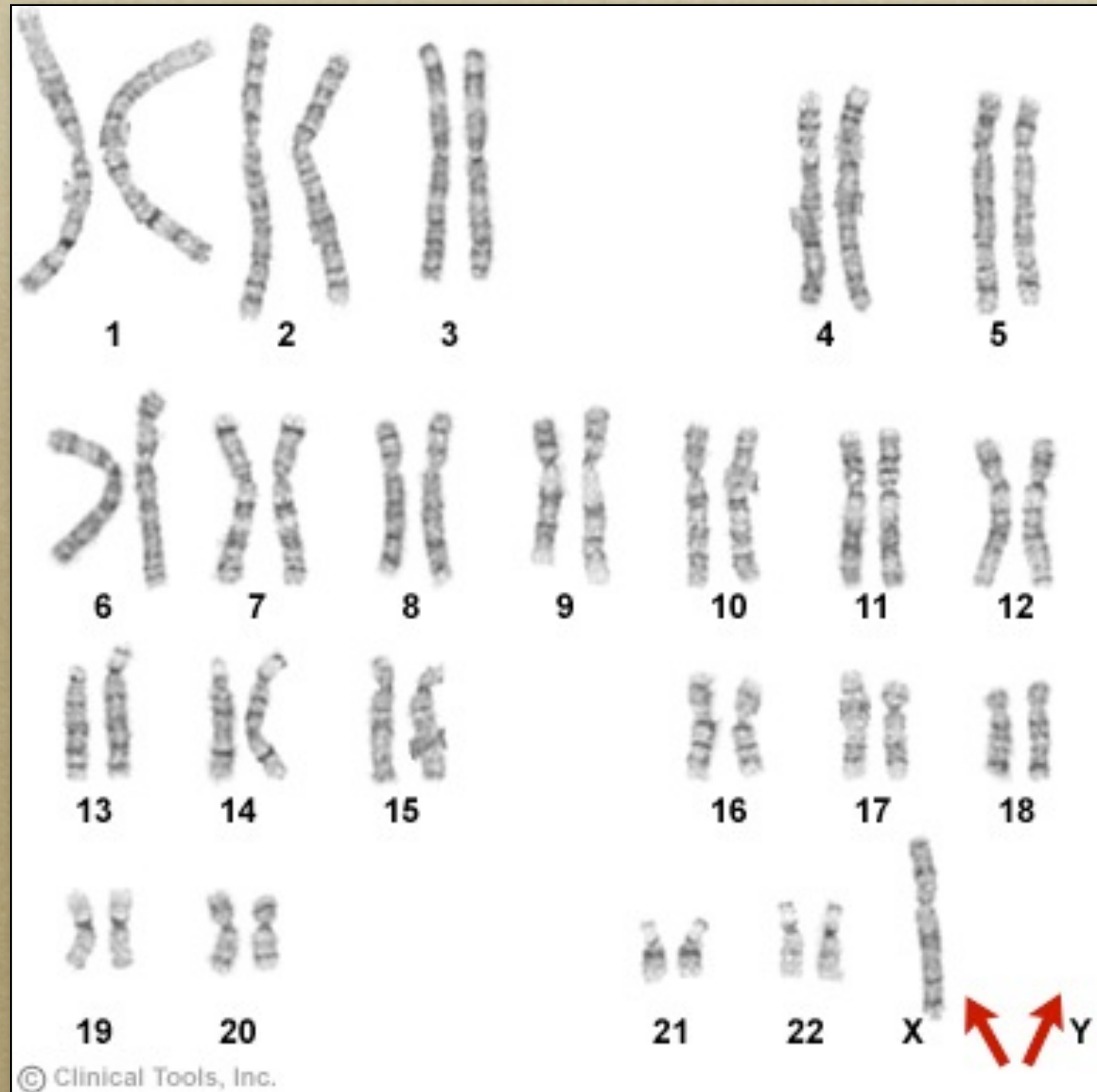


- Turner syndrome
- Radiotherapy / Chemotherapy
- Premature ovarian failure

Turner syndrome



Karyotype



Management

- Hormone replacement therapy (HRT)
- Growth hormone (GH)
- Egg donor

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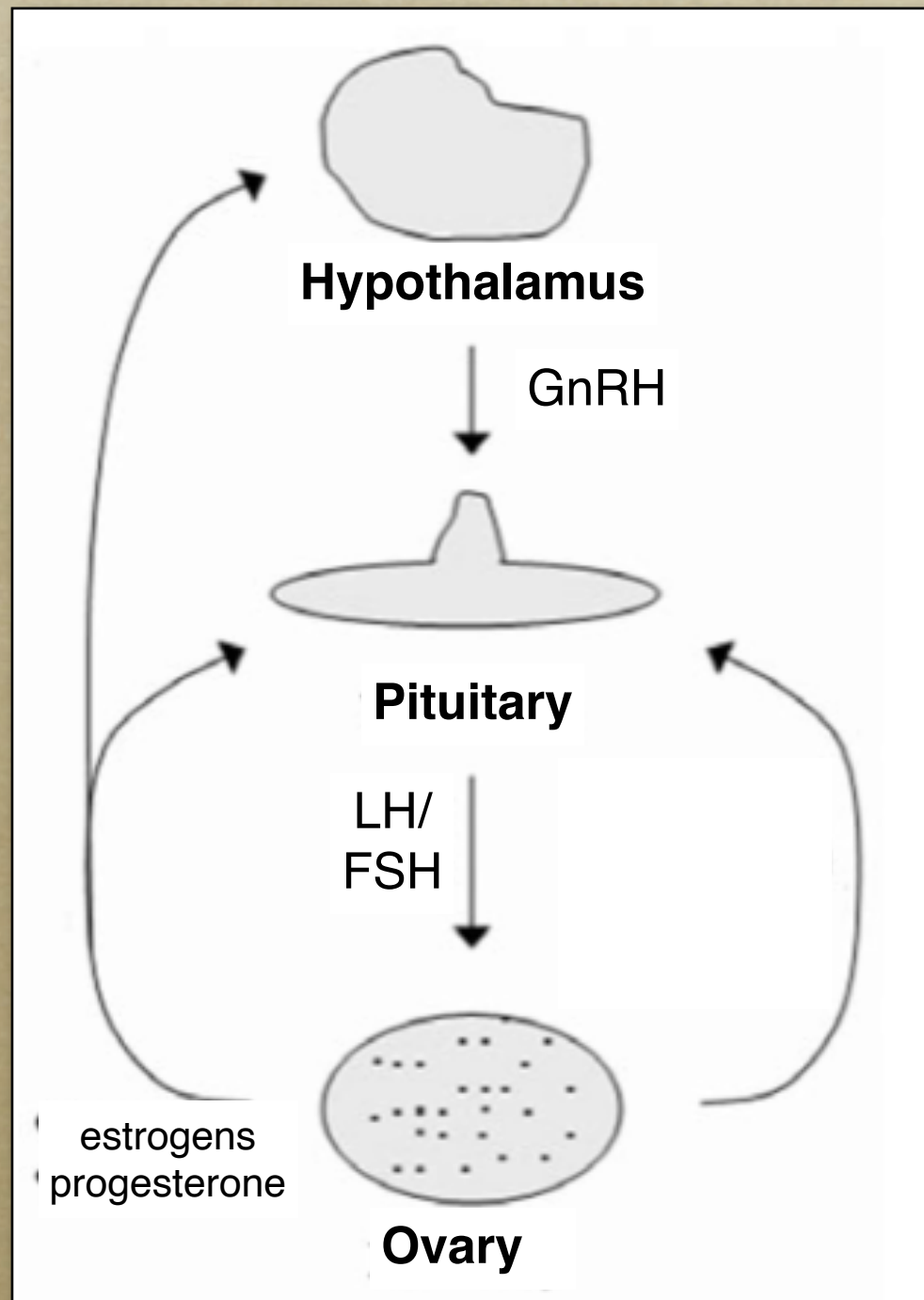
History

- Gymnast
- Secondary amenorrhea

Laboratory investigation

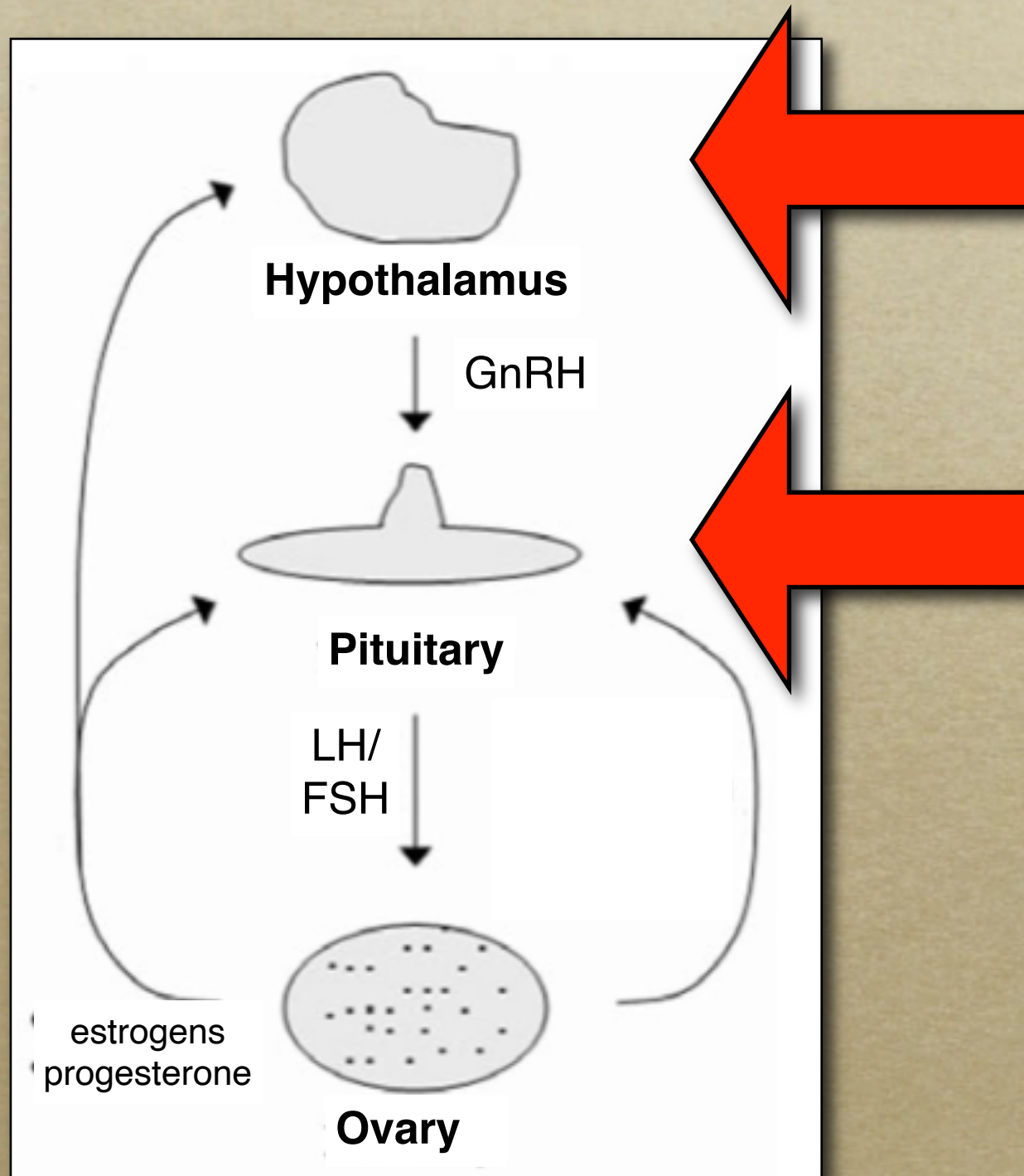
◦ FSH	2 IU/L
◦ LH	3 IU/L
◦ Estradiol	10 pg/mL
◦ Prolactin	6 ng/mL
◦ Testosterone	12 ng/dL

Diagnosis



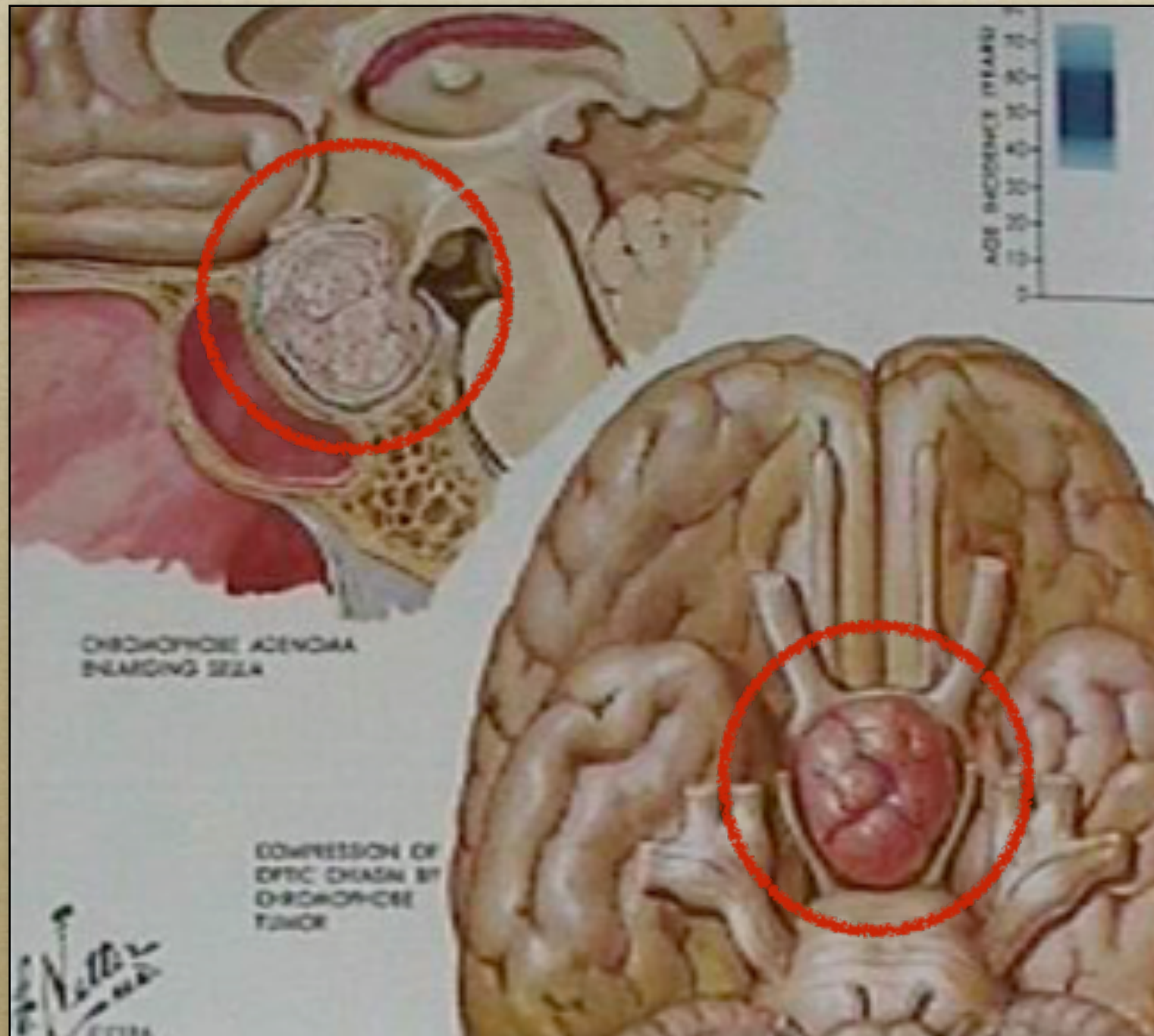
- Hypogonadism, hypogonadotropic

Diagnosis



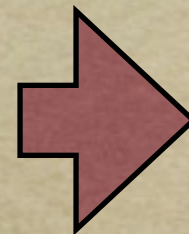
◦ Hypogonadism, hypogonadotropic

Pituitary adenoma



Additional investigations

- GnRH test
- Anterior lobe evaluation
- Pituitary MRI



GH, IGF-I

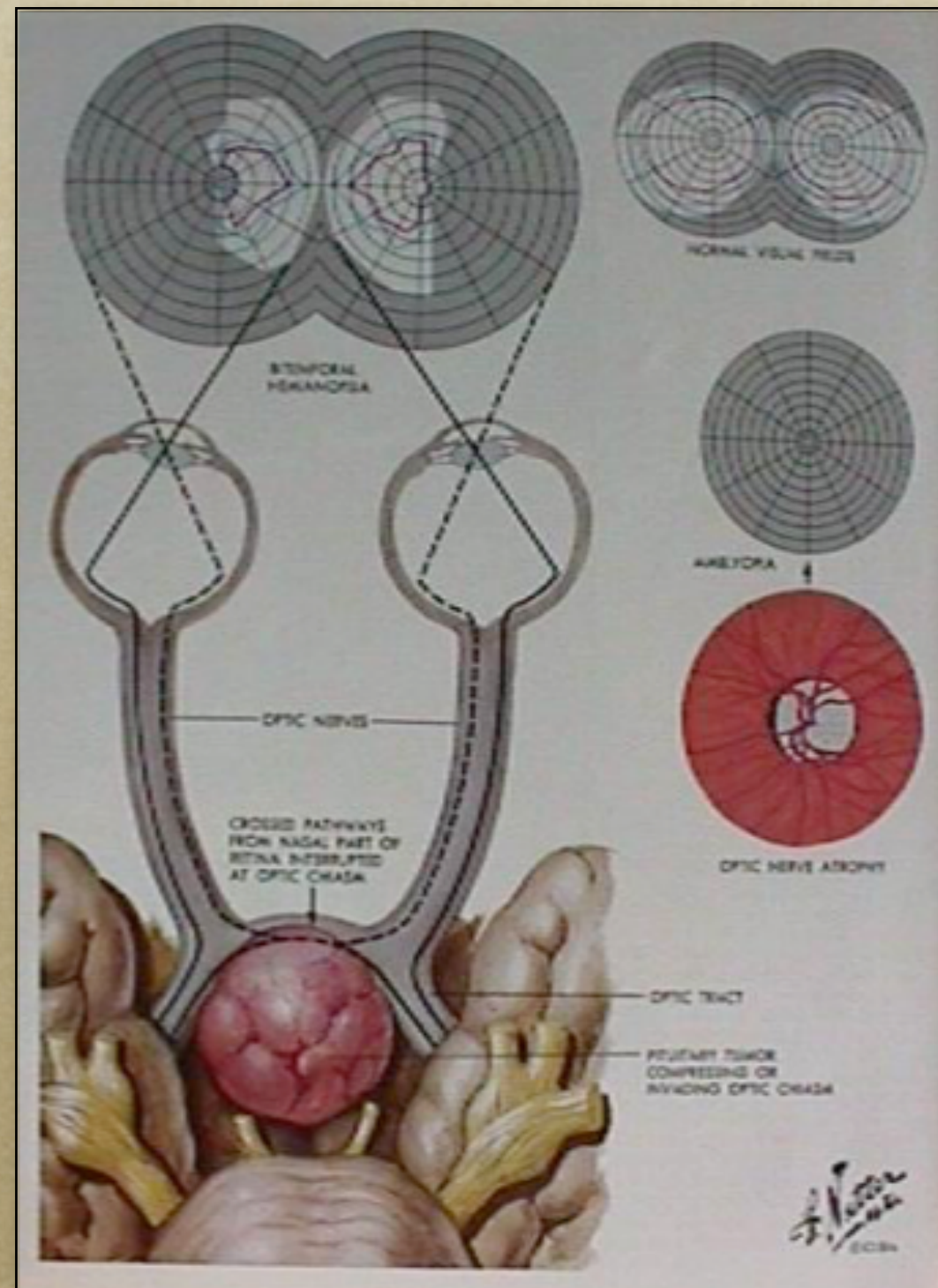
prolactin

FSH / LH

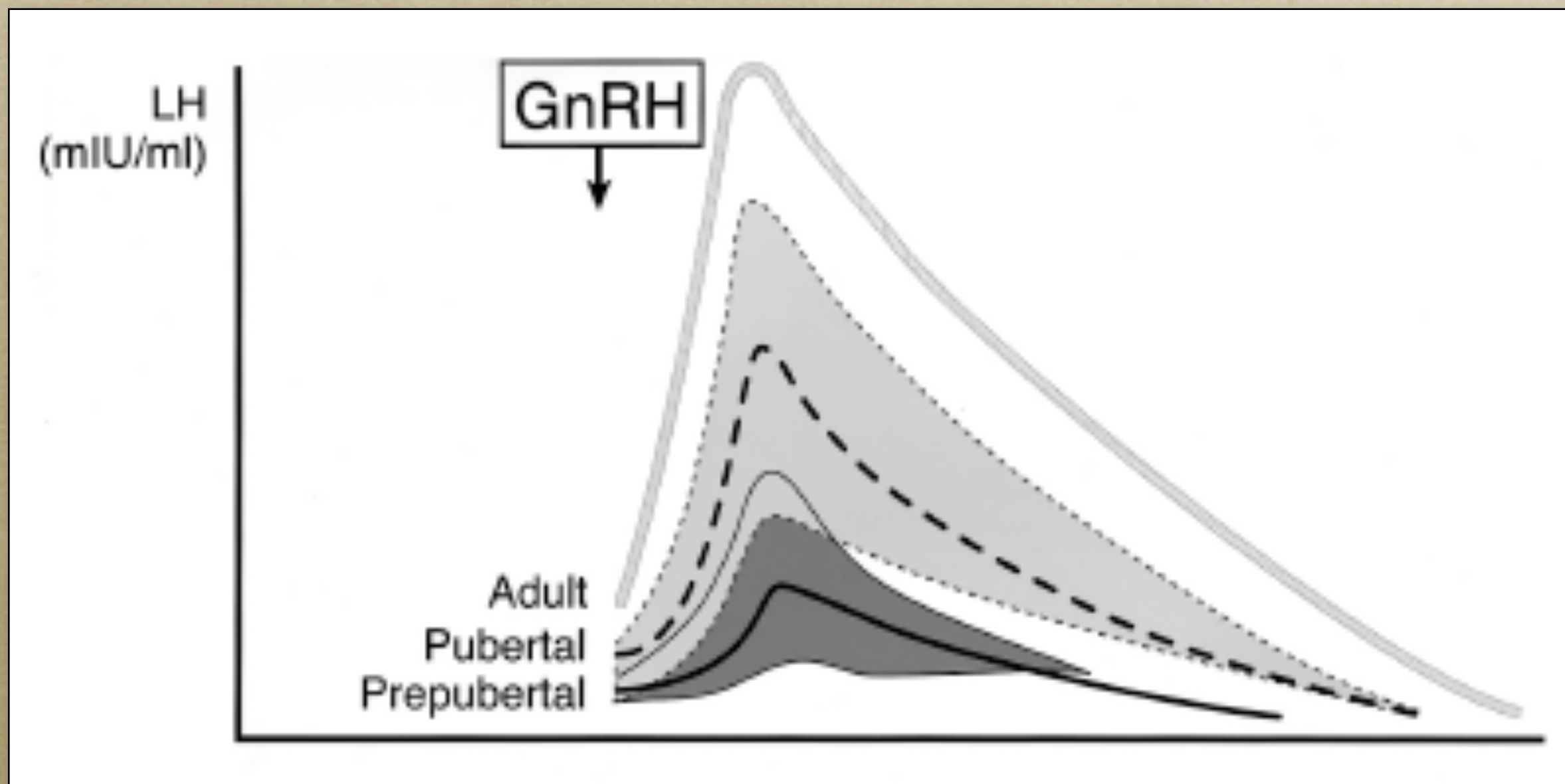
TSH / fT₄

ACTH, F

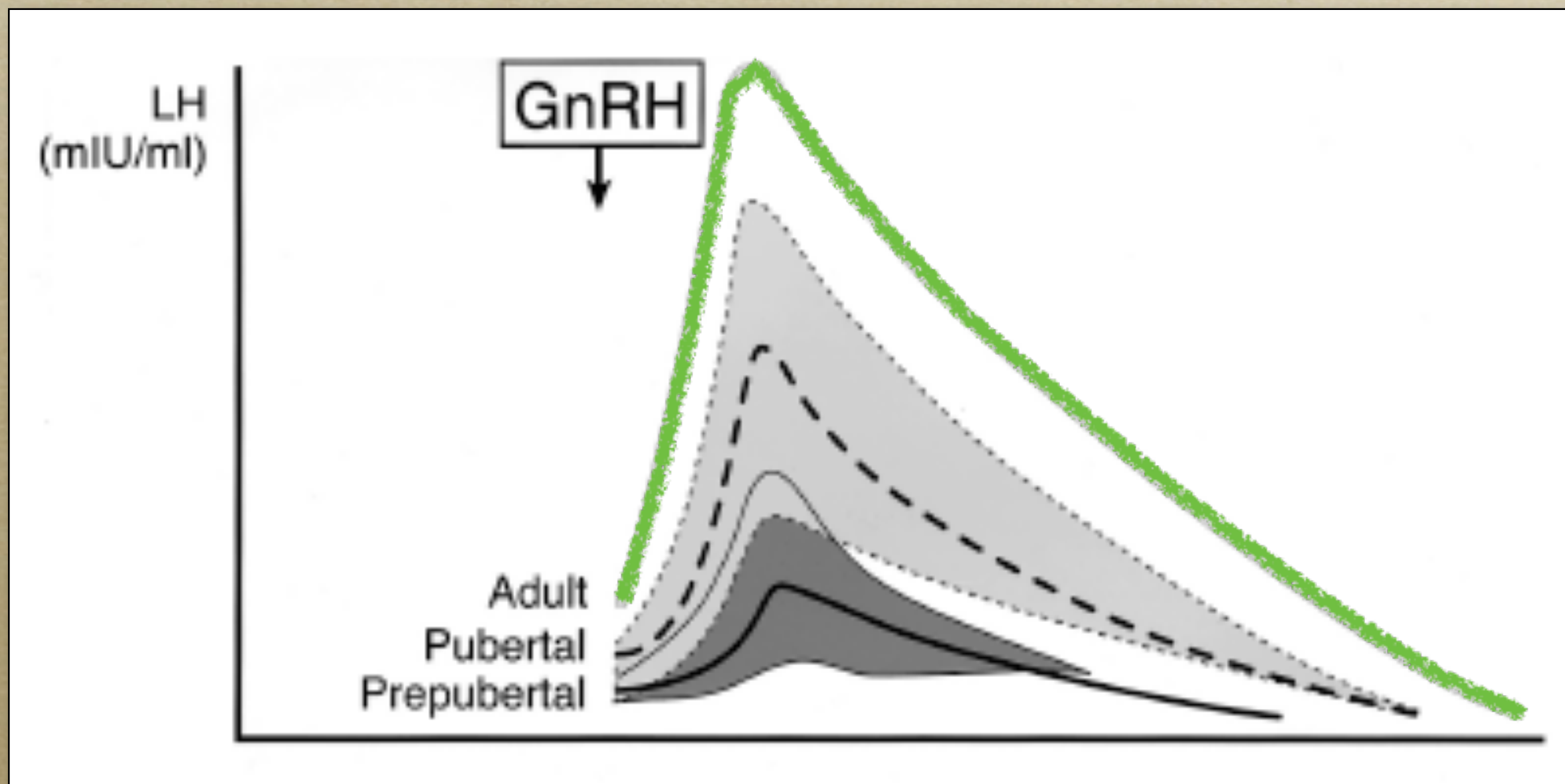
Pituitary anatomy



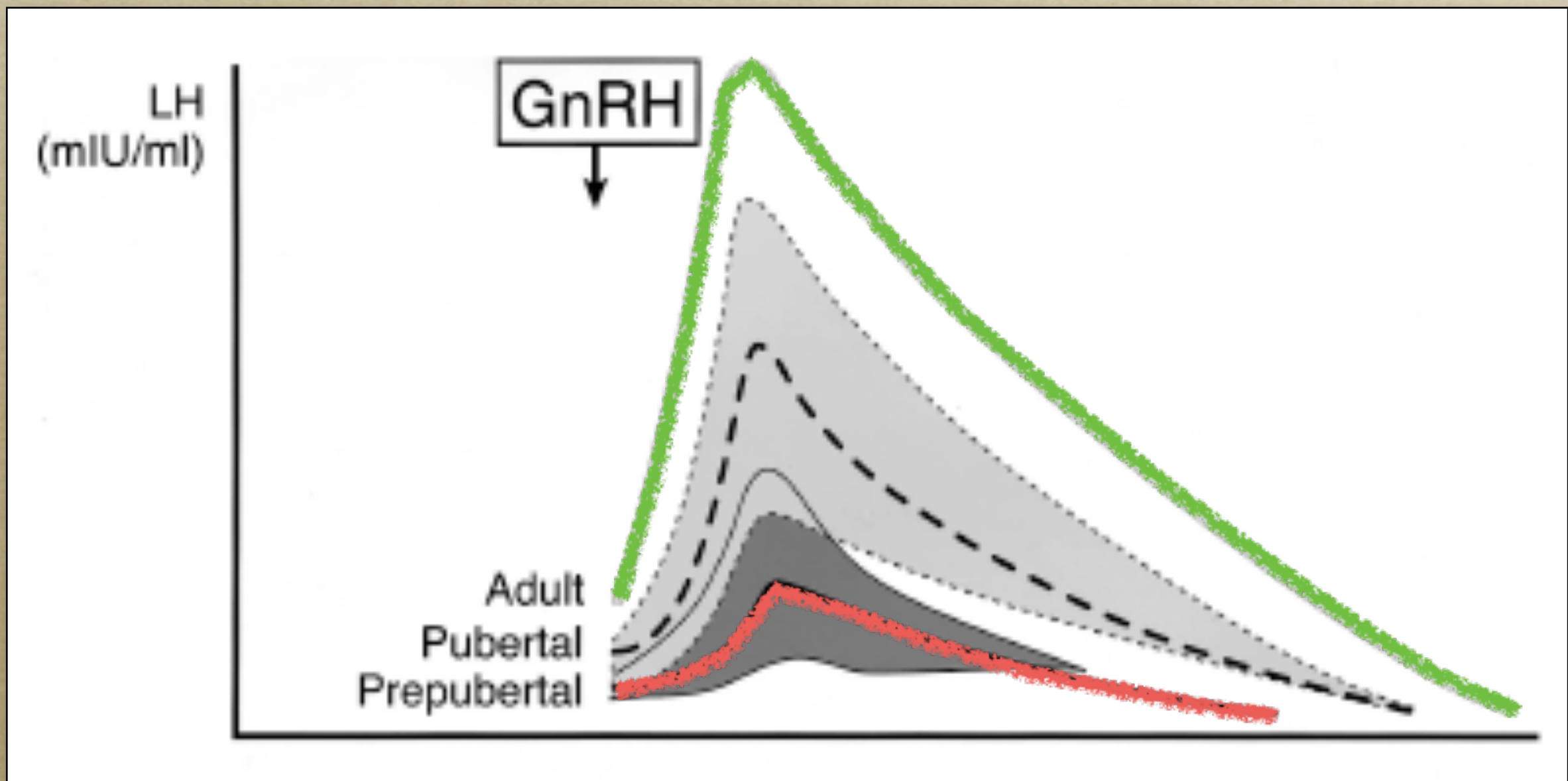
Dynamic stimulation test



Dynamic stimulation test



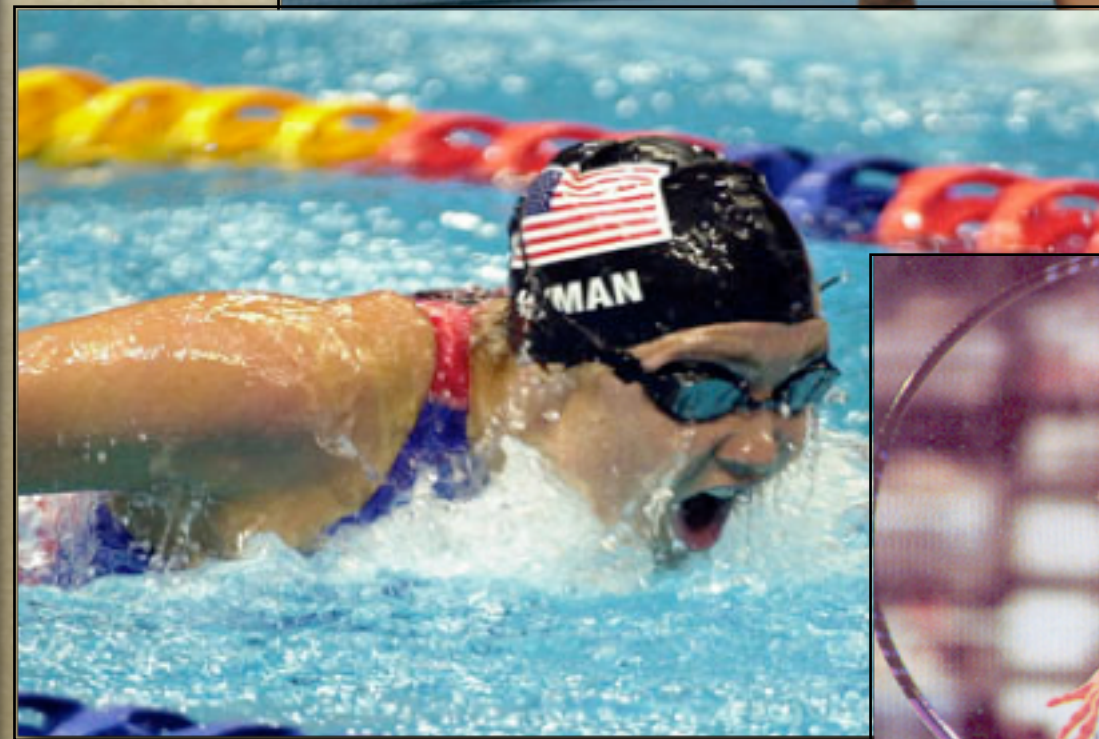
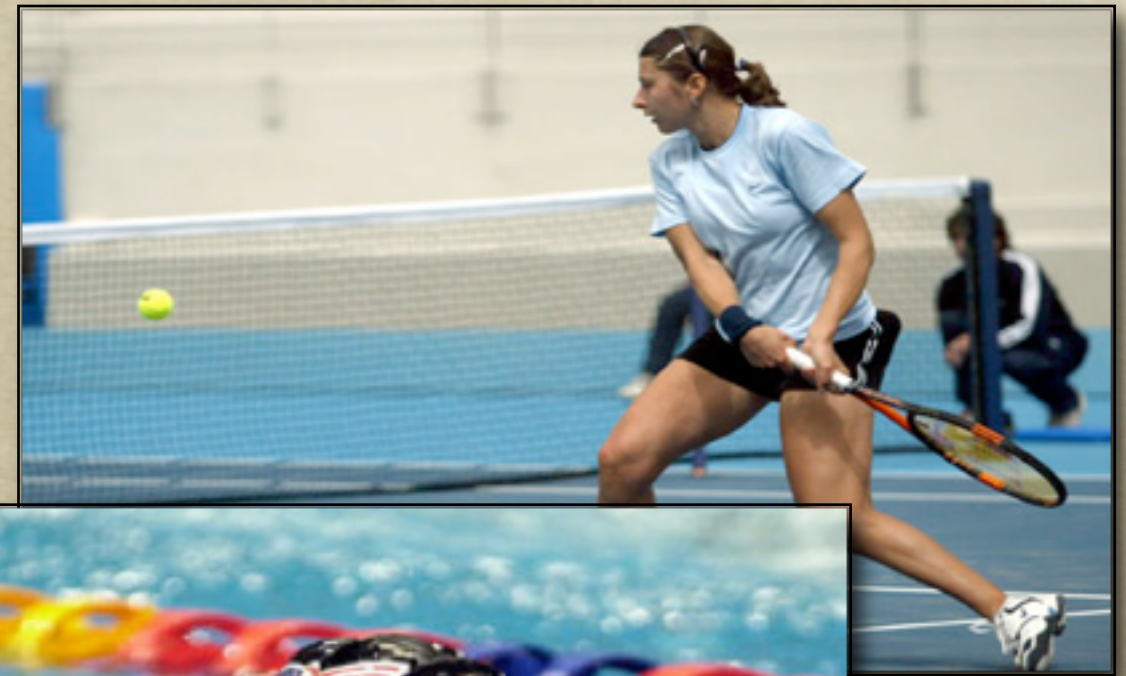
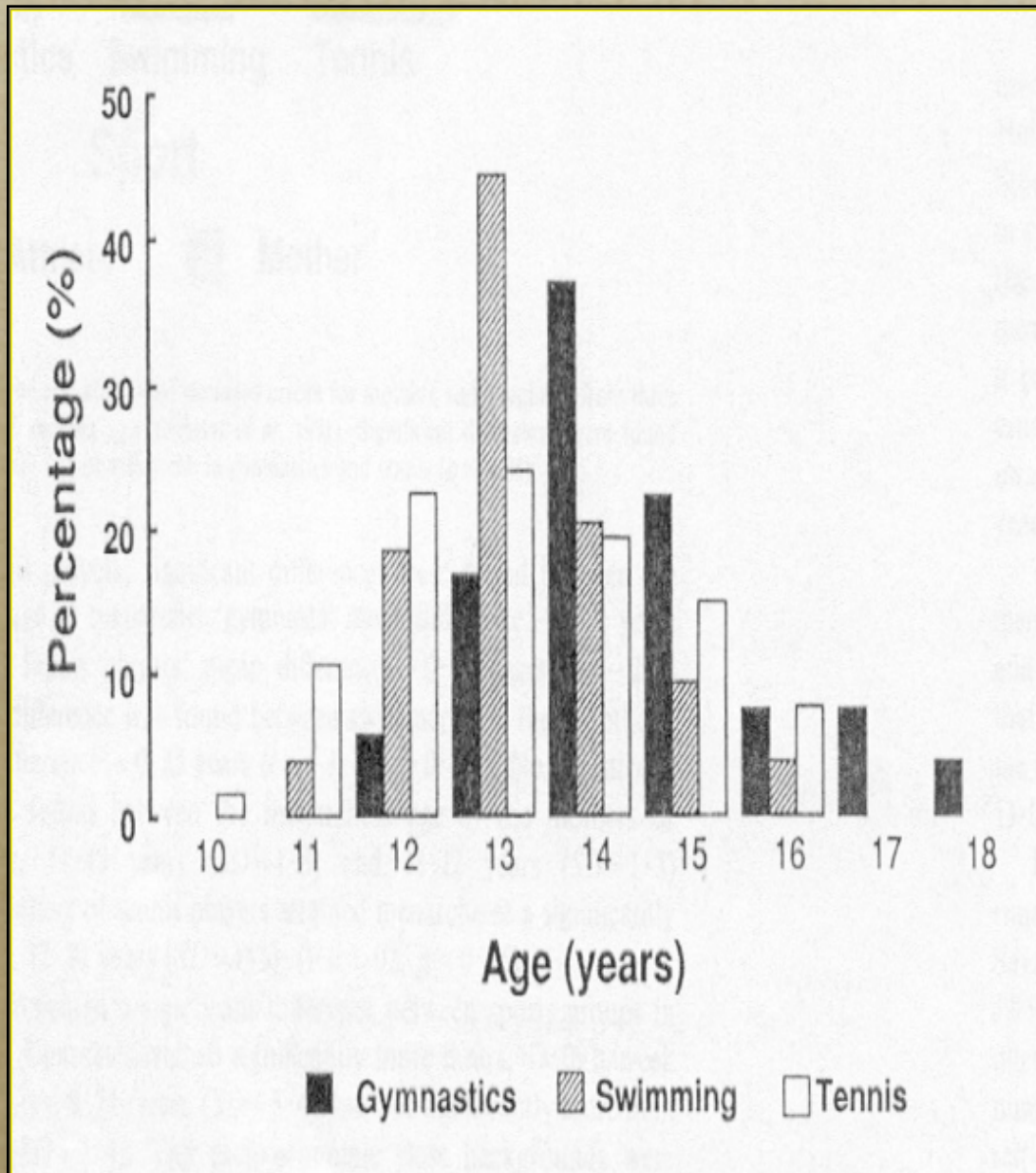
Dynamic stimulation test



Anorexia nervosa



Exercise amenorrhea

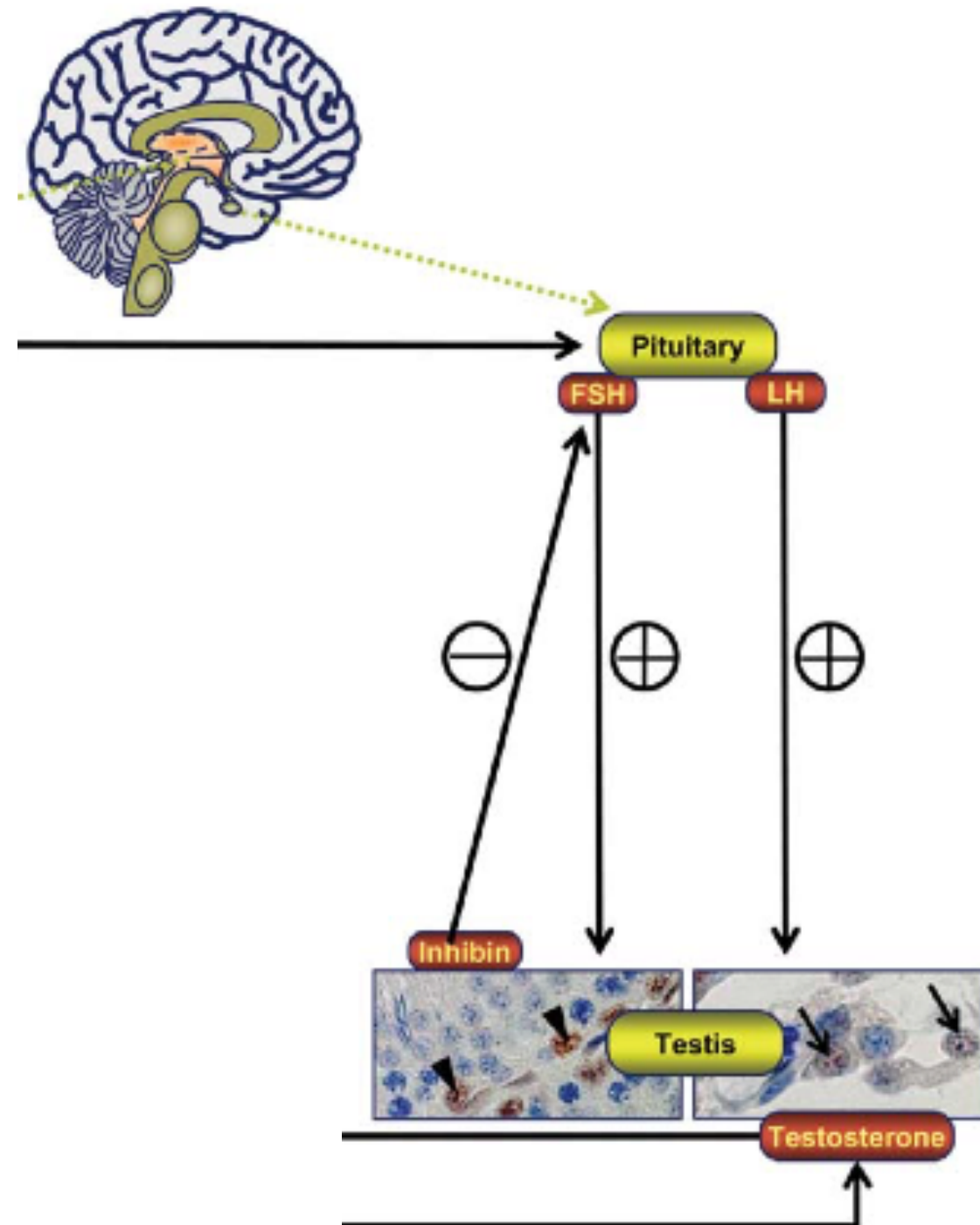


Exercise amenorrhea

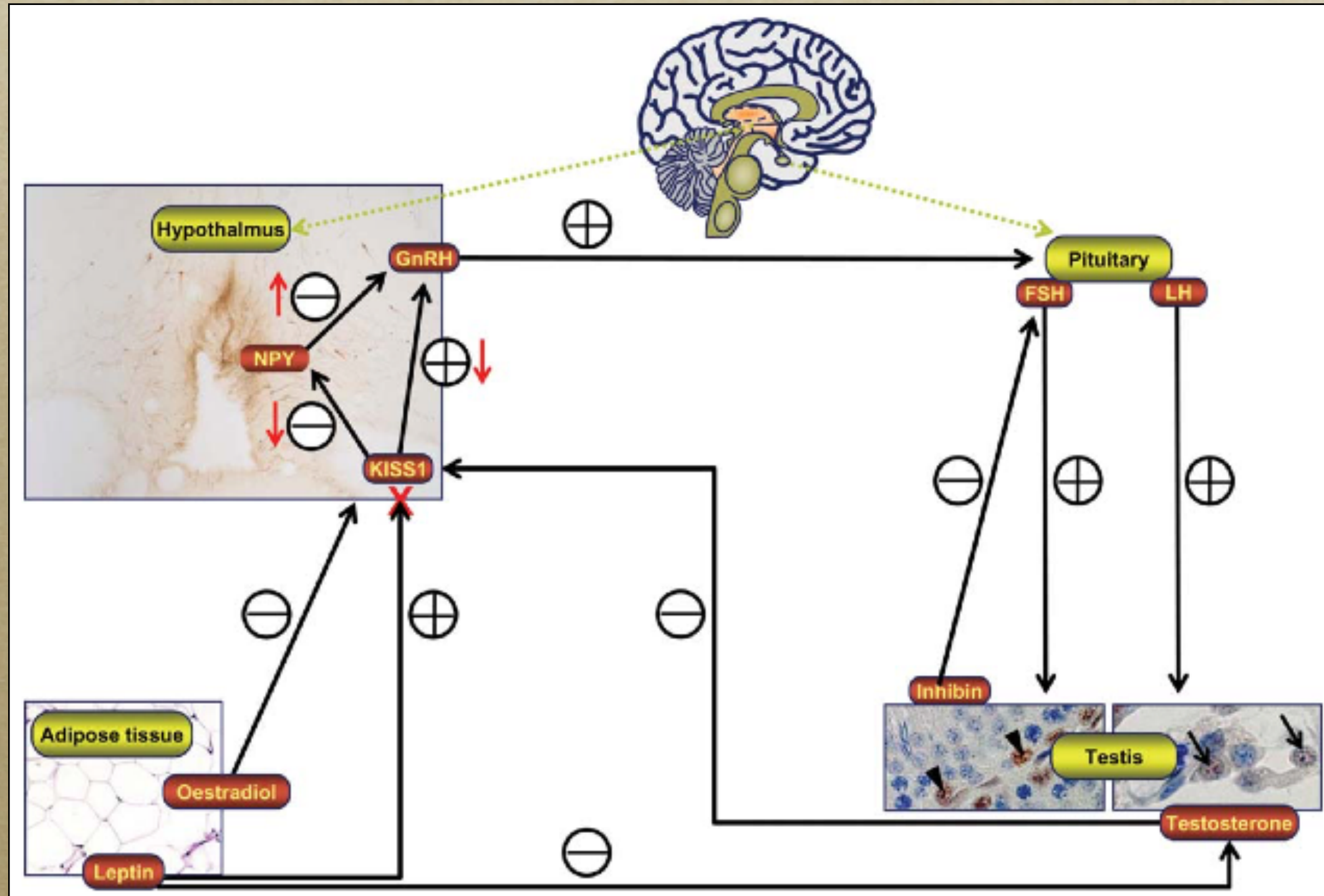
“Athlete's triad”

- Food intake disturbances
- Secondary amenorrhea
- Osteoporosis

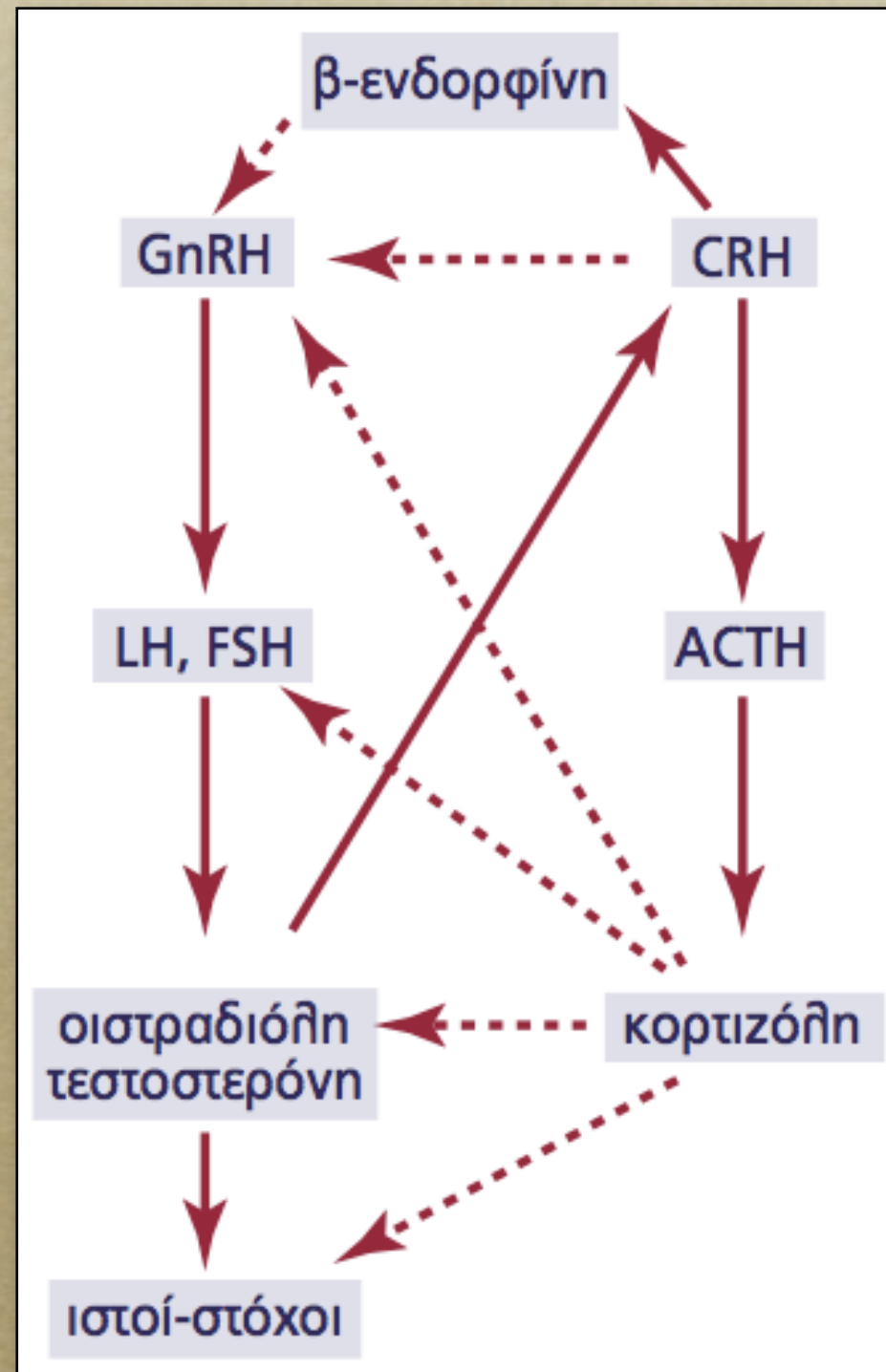
Exercise amenorrhea



Exercise amenorrhea



Stress and gonadal axis



Management

- Puberty induction
- Hormone replacement
- Ovulation induction
- Lifestyle modifications
- Psychiatric support

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History

- Secondary amenorrhea
- Galactorrhea

Clinical picture

- Galactorrhea, induced, bilateral
- Normal visual fields

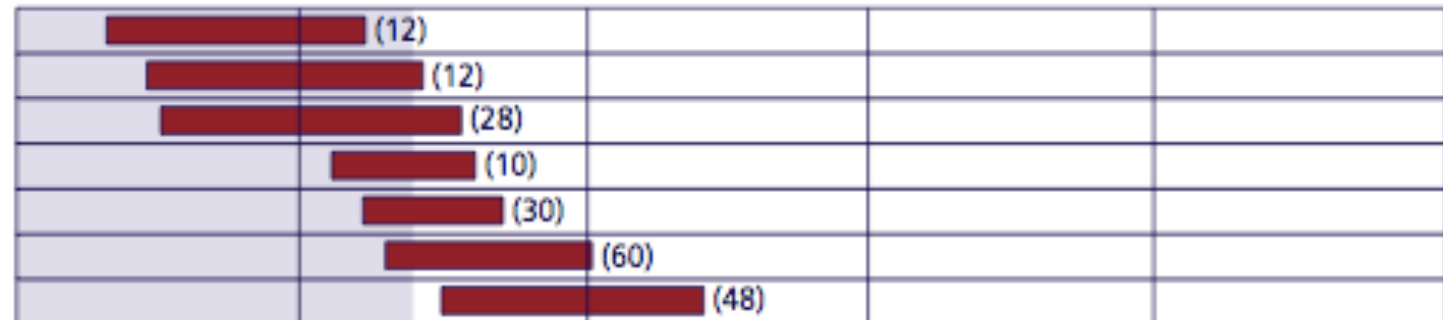
Laboratory investigation

- FSH 2 IU/L
- LH 3 IU/L
- Estradiol 10 pg/mL
- Prolactin 70 ng/mL
- Testosterone 12 ng/dL

Hyperprolactinemia

Φυσιολογικές καταστάσεις

παραγωγική φάση
εκκριτική φάση
εμμηνόπαυση
ύπνος
πρώτο τρίμηνο εγκυμοσύνης
δεύτερο τρίμηνο εγκυμοσύνης
τρίτο τρίμηνο εγκυμοσύνης



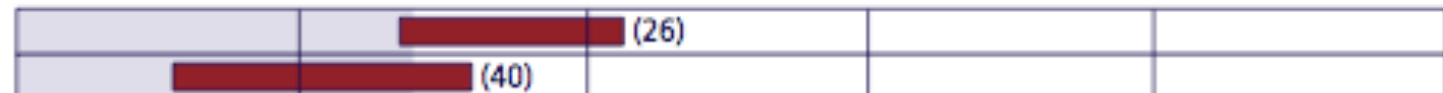
Παθολογία υπόφυσης

κενό τουρκικό εφίππιο
σύνδρομο πολυκυστικών ωοθηκών
νευρογενής ανορεξία
πρώιμη εμμηνόπαυση
γοναδική δυσγενεσία



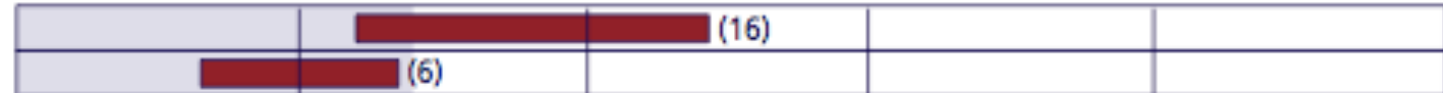
Λειτουργικές καταστάσεις

νεφρική ανεπάρκεια
υποθυρεοειδισμός



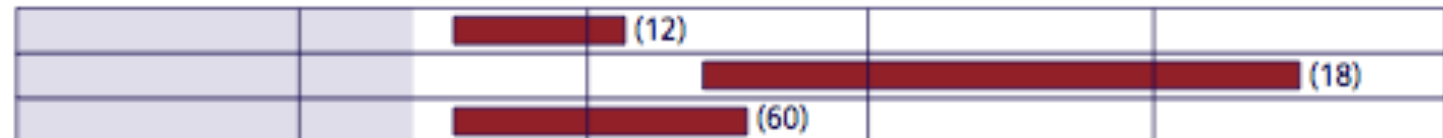
Φάρμακα

αποκλειστές υποδοχέων ντοπαμίνης
αποκλειστές υποδοχέων ισταμίνης



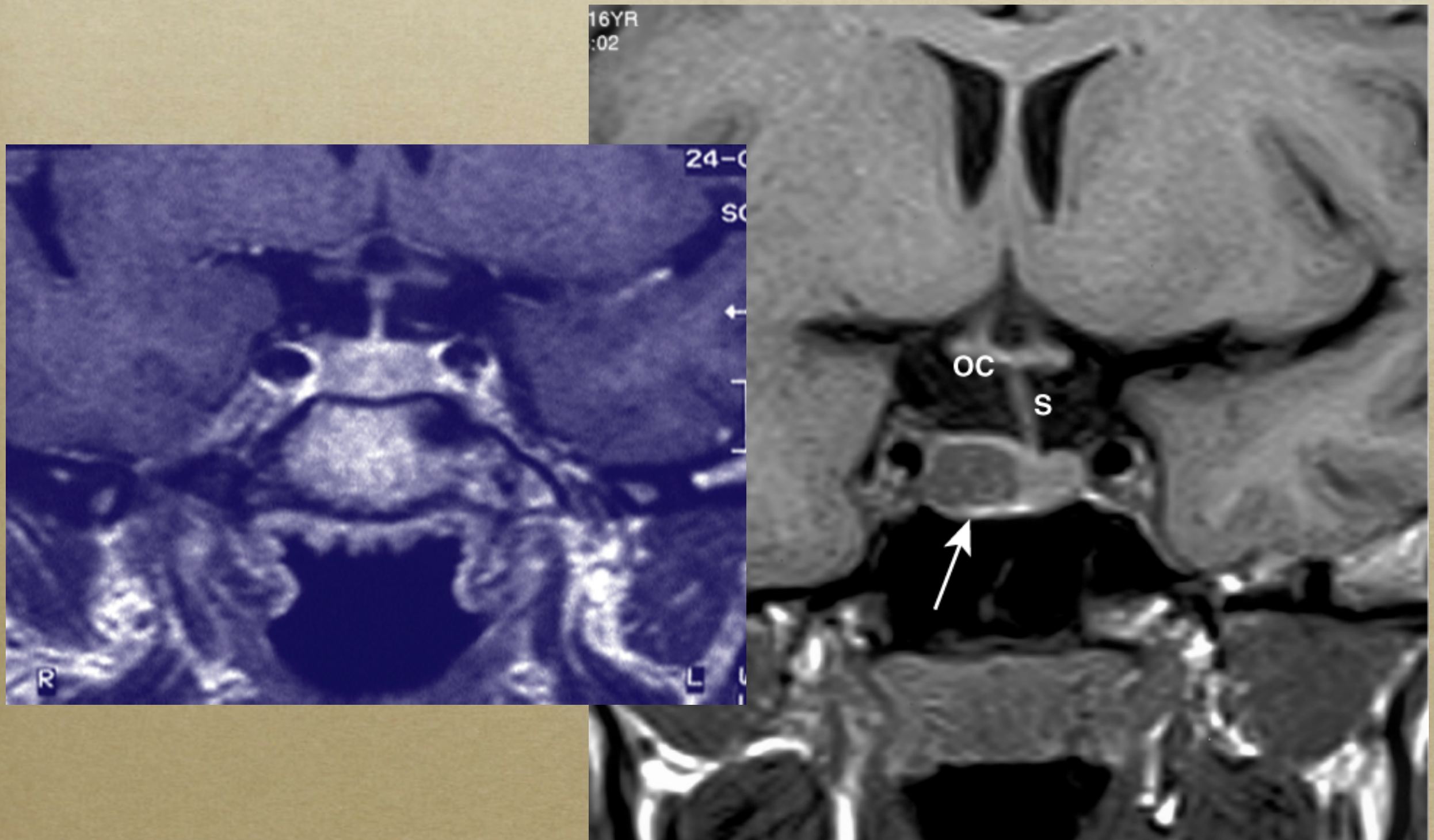
Όγκοι

υπερεφιππιακοί όγκοι χωρίς έκκριση PRL
μακροπρολακτίνωμα
μικροπρολακτίνωμα



0 10 100 1,000 10,000 100,000

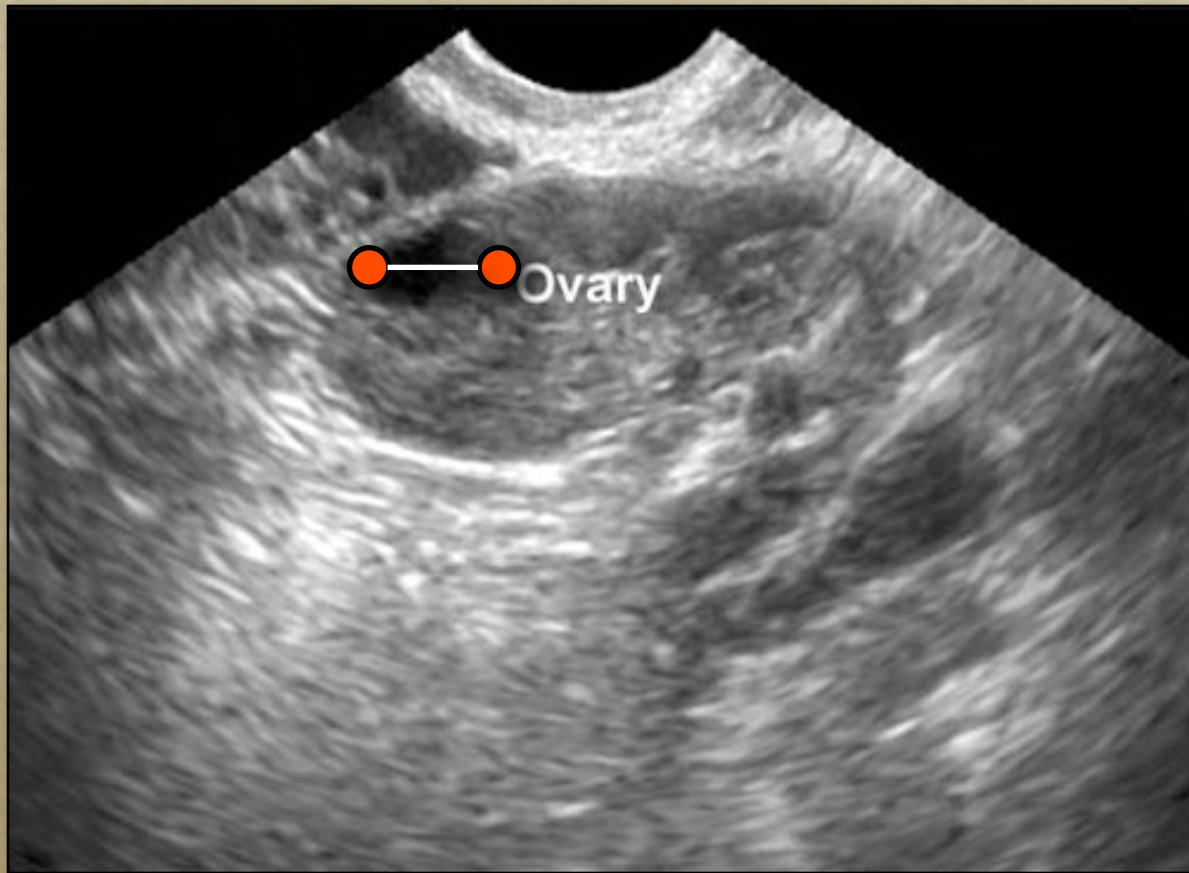
Pituitary MRI



Ovulation

- Series of ovarian ultrasound
- Serum progesterone, during the midluteal phase

Ovarian ultrasound

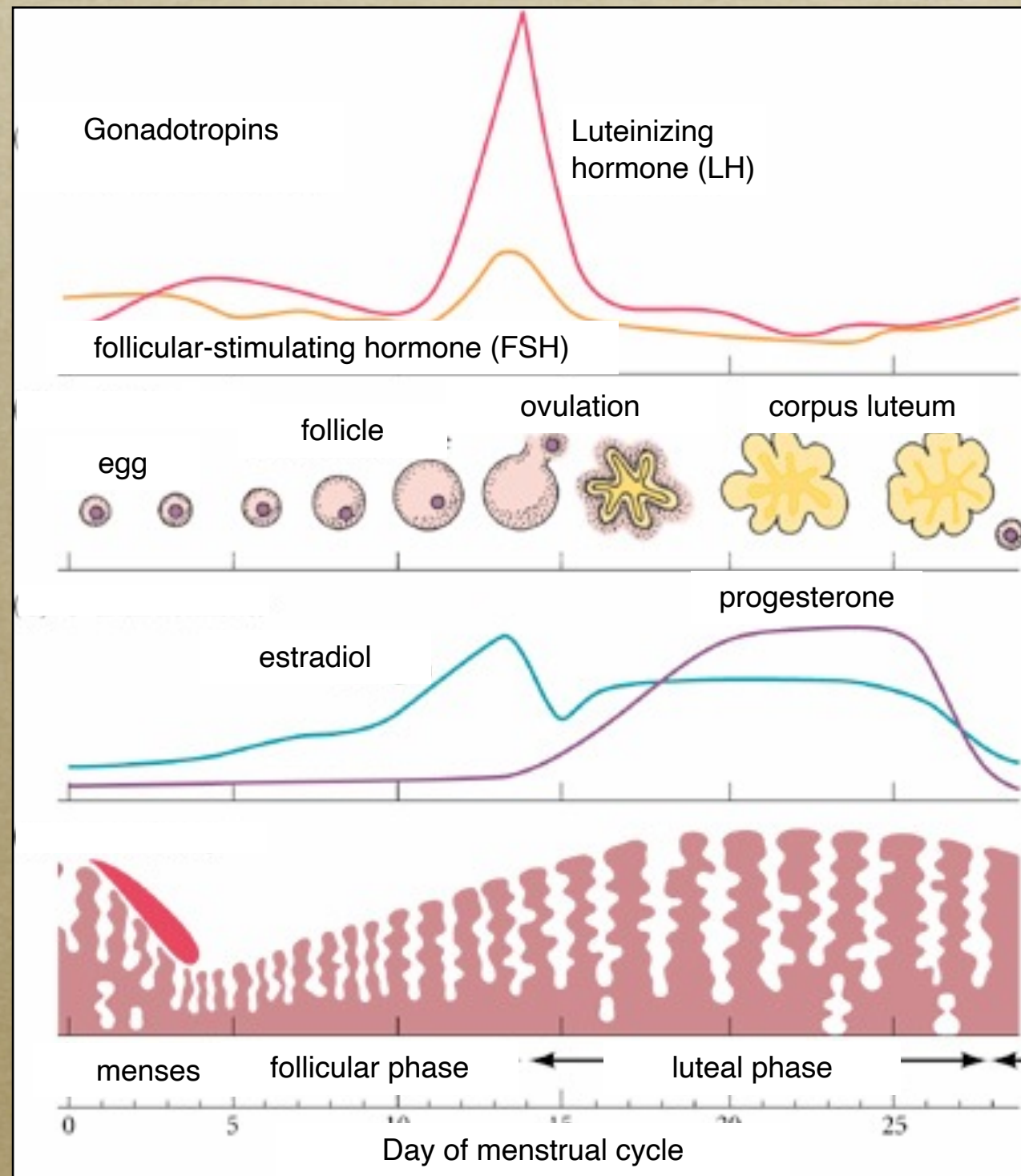


Physiology of menstrual cycle

Pituitary

Ovary

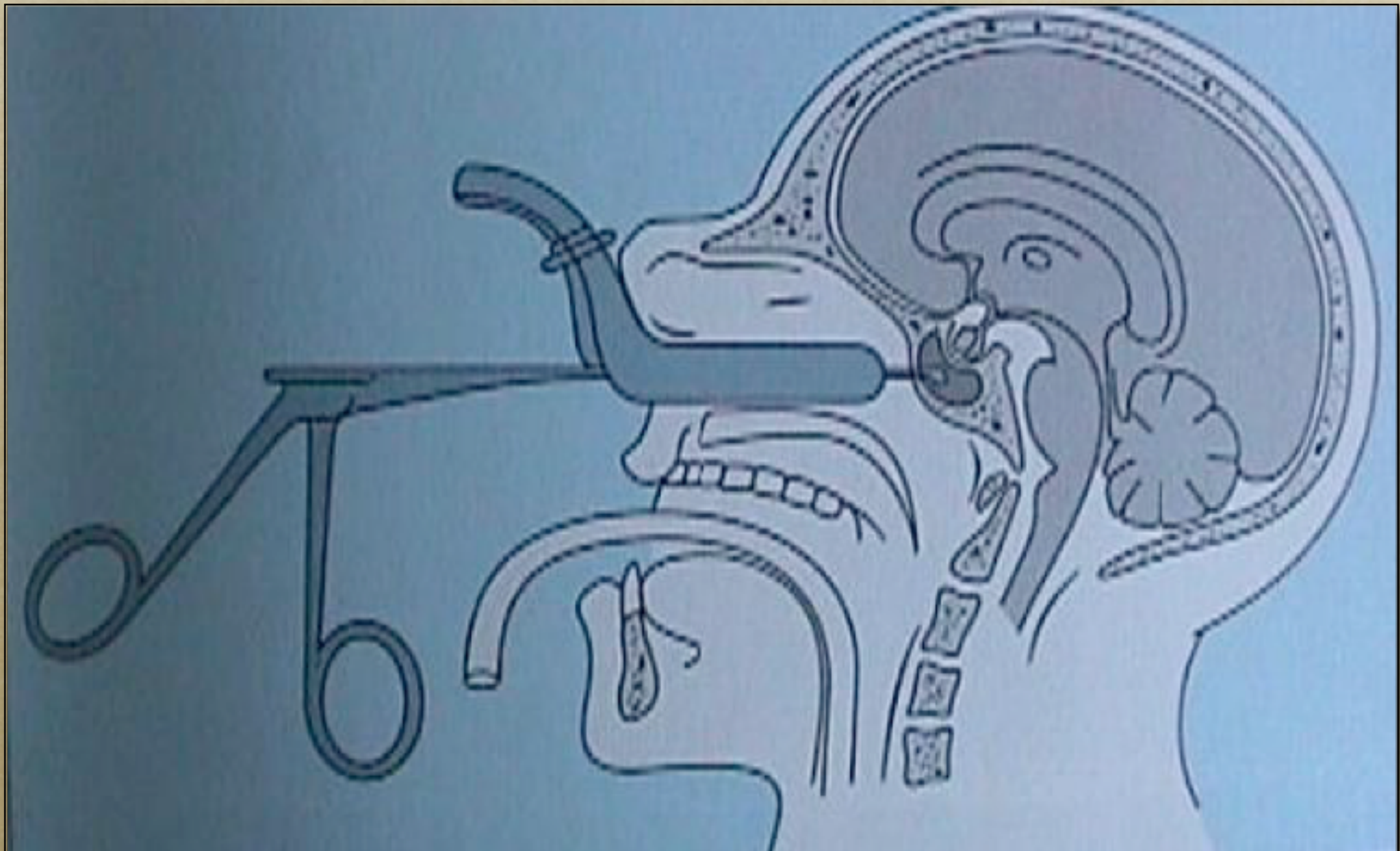
Endometrium



Conservative management

- Thyroxine replacement therapy, in case of hypothyroidism
- Drug discontinuation or dopamine agonist therapy, in case of drug-induced hyperprolactinemia
- Dopamine agonist therapy, in case of idiopathic hyperprolactinemia or prolactinoma

Surgical management



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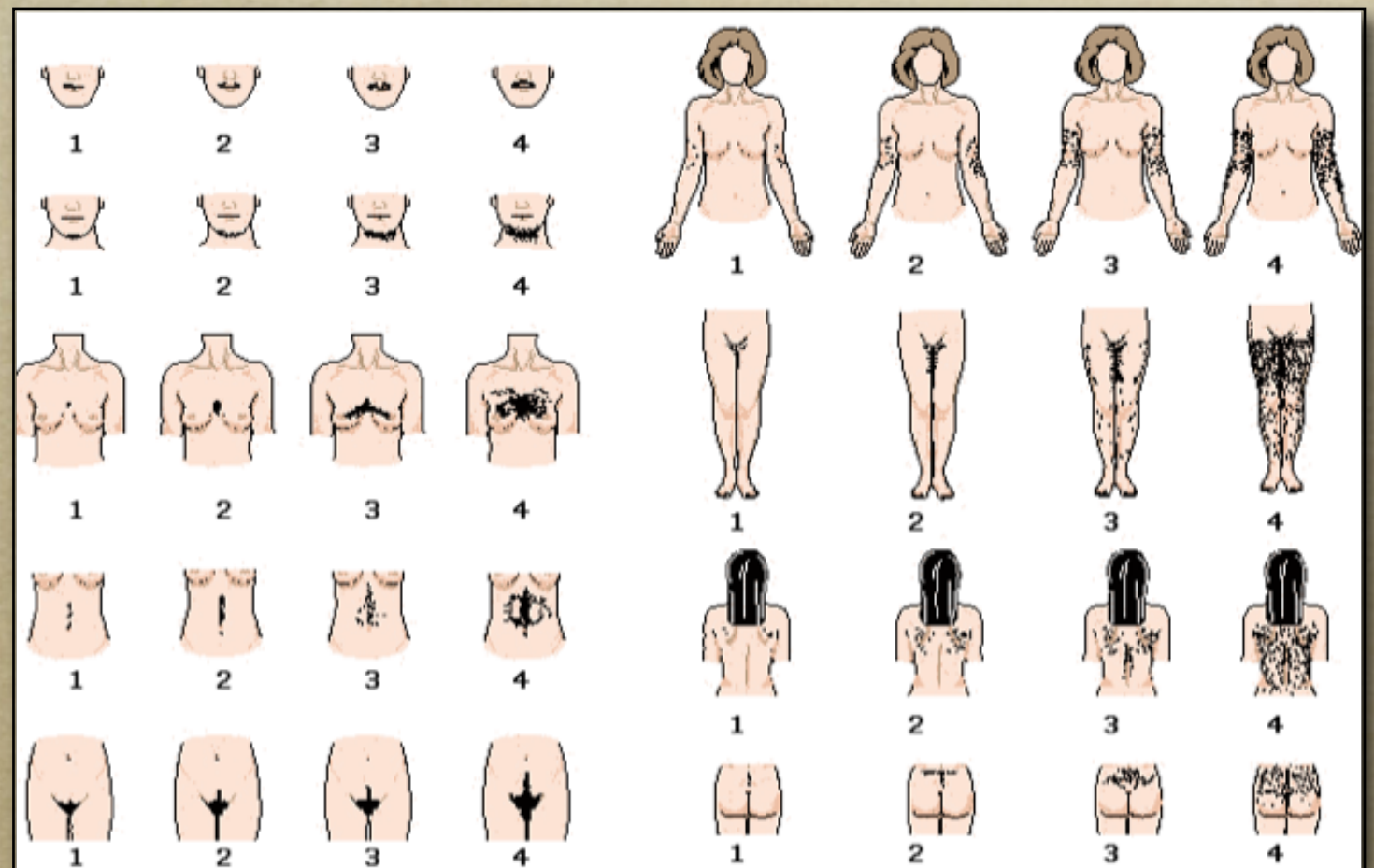
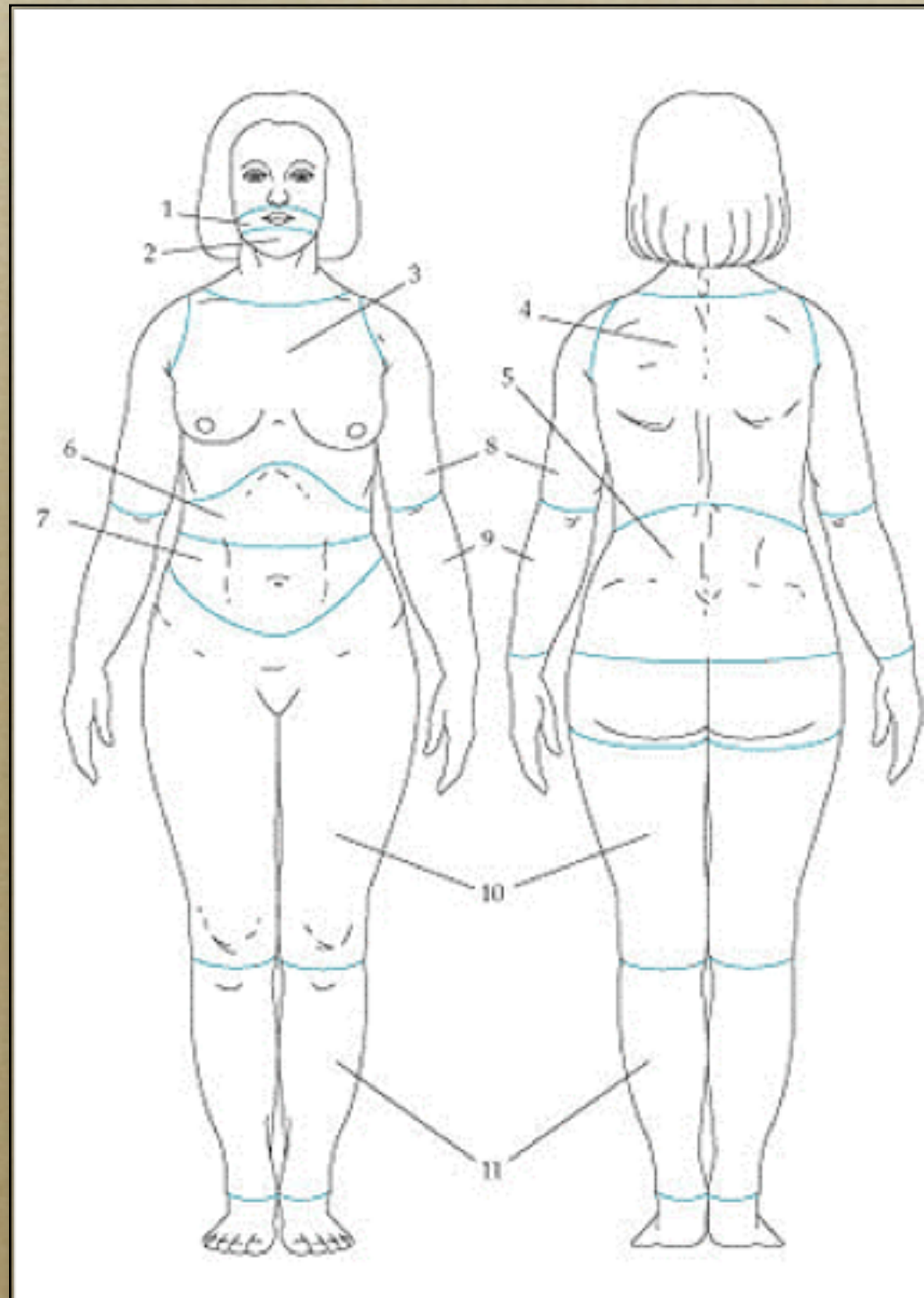
History

- Oligomenorrhea
 - 5 to 6 menstrual episodes per year
- Hirsutism, acne

Clinical picture

- Hirsutism
 - face, midline
- Obesity
 - height: 1,64 m
 - weight: 85 kg
 - body mass index: 31.6 kg/m²

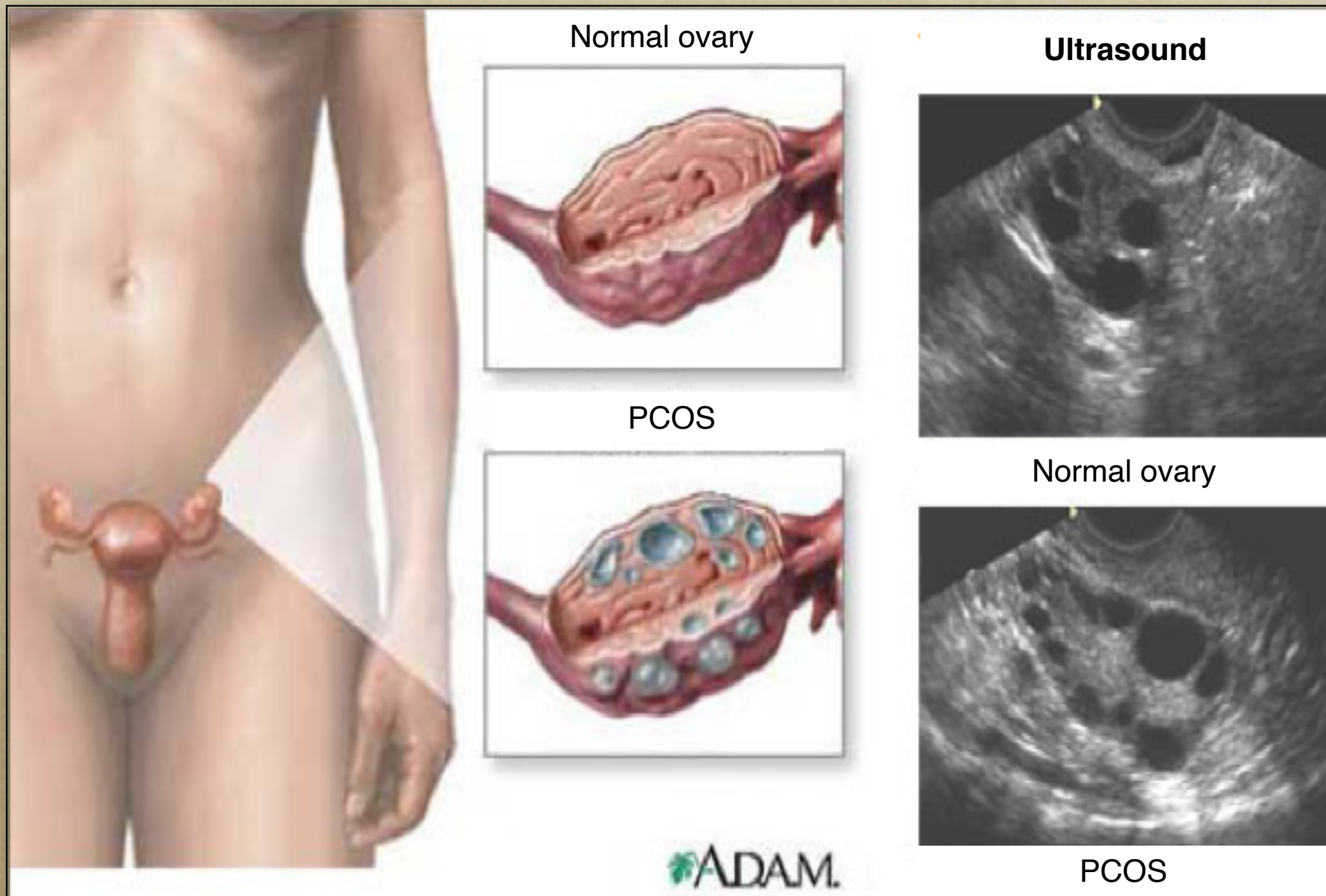
Ferriman – Gallwey index



Laboratory investigation

◦ FSH	3 IU/L
◦ LH	11 IU/L
◦ Estradiol	80 pg/mL
◦ Prolactin	25 ng/mL
◦ Testosterone	90 ng/dL

Laboratory investigation



Metabolic syndrome

- Diabetes mellitus
- Arterial hypertension
- Dyslipidemia
- Obesity, central type
- Cardiovascular disease

Management

- Lifestyle modifications
- Progesterone
- Metformin
- Oral contraceptives
- Anti-androgens

- Ovulation induction

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Messages



- Menstrual disturbances are clinical pictures and not diagnoses
- A definite diagnosis is always required
- The diagnostic approach must be focused but complete
- The therapeutic approach must be holistic

Α' Μαιευτική – Γυναικολογική Κλινική
Αριστετέλειο Πανεπιστήμιο Θεσσαλονίκης
Καθηγητής Γ.Φ. Γκριμπίζης



Μονάδα Ενδοκρινολογίας Αναπαραγωγής
Καθηγητής Δ.Γ. Γουλής
Ομότιμος καθηγητής Ι. Παπαδήμας

ΣΕΦΑΑ ΔΠΘ και ΑΠΘ
Καθηγητής Σ. Τοκμακίδης
Αναπληρώτρια καθηγήτρια Κ. Δίπλα
Καθηγητής Α. Ζαφειρίδης

Διδάκτορες και υποψήφιοι διδάκτορες

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Π. Πουλάκος (ενδοκρινολόγος)
Π. Ηλιάδου (ενδοκρινολόγος)
Χ. Δημοπούλου (ενδοκρινολόγος)
Ε. Κιντιράκη (ενδοκρινολόγος)
Ι. Λίτσας (ενδοκρινολόγος)
Γ. Κανάκης (ενδοκρινολόγος)
Α. Κουθούρης (ουρολόγος)
Β. Αδάμου (ουρολόγος)
Ι. Κουφογιάννης (ουρολόγος)
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Γ. Μηντζιώρη (ενδοκρινολόγος)
Π. Αναγνωστής (ενδοκρινολόγος)
Β. Χαριζοπούλου (μαία)
Ε. Τσίρου (ενδοκρινολόγος)
Ε. Ταουσάνη (μαία)
Δ. Σαββάκη (φυσική αγωγή)
Ι. Κόππη (ψυχολόγος)
Ν. Αθανασιάδη (διατροφολόγος)
Κ. Παπαδημητρίου (ενδοκρινολόγος)

