

IPOFISI – ADENOIPOFISI e PitNET

LEZIONE 3

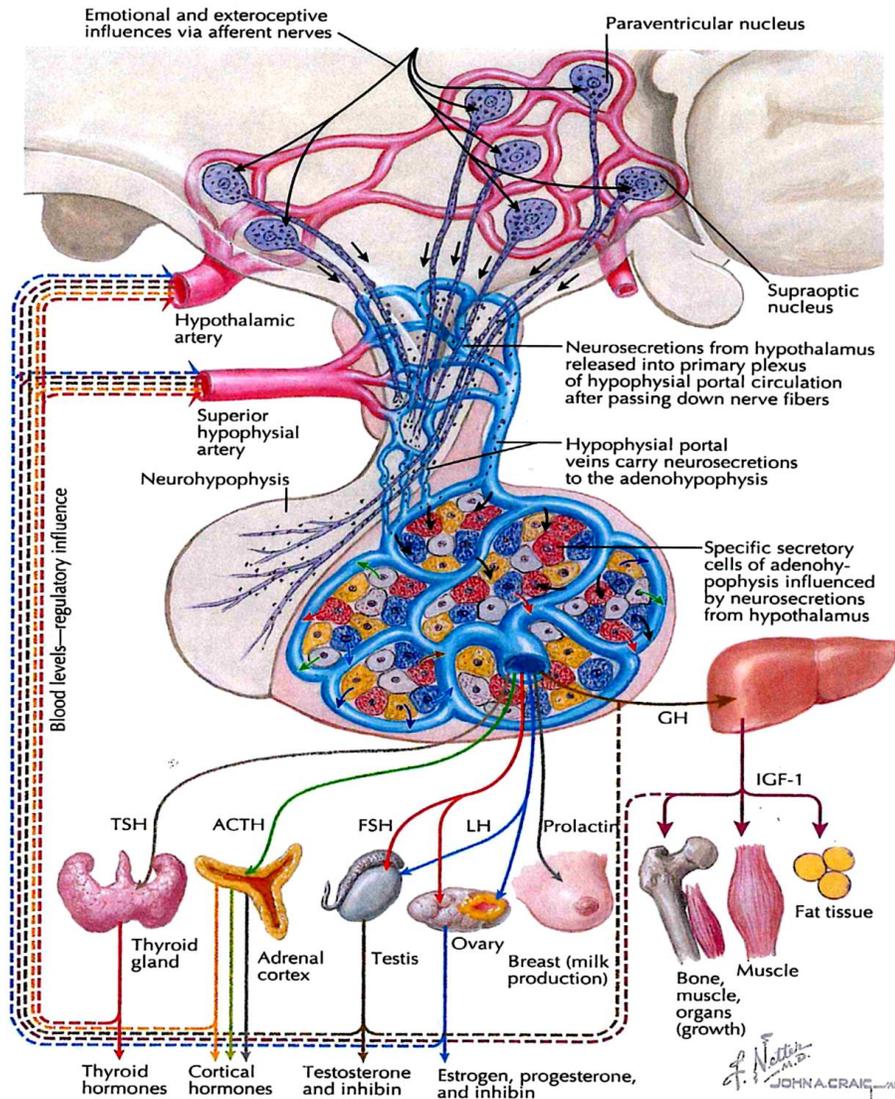
**GHIANDOLA a forma di fagiolo
di 12x10x9 mm del peso di 0.4-0.9 g
localizzata sotto il cervello in una nicchia della base cranica (sella turcica)
capace di regolare surrene tiroide testicolo ovaio crescita e allattamento bilancio idro-salino**

= master gland

IPOFISI – ADENOIPOFISI e MASSE

1. Adenoipofisi
2. Sistema portale ipotalamo-ipofisi
3. Incidentaloma ipofisario/ Adenomi e PitNET

Adenoipofisi – ipofisi anteriore (1)



Adenoipofisi (ipofisi anteriore) parte dell'ipofisi costituita da cellule di derivazione epiteliale ad attività secretoria - **cellule epiteliali neuroendocrine**. Questa parte trattiene con l'ipotalamo (che ne regola la funzione) rapporti anatomici solo vascolari

SOMATOTROPE 40% GH

191 AA

CORTICOTROPE 20% ACTH

39 AA

TIREOTROPE 10% TSH

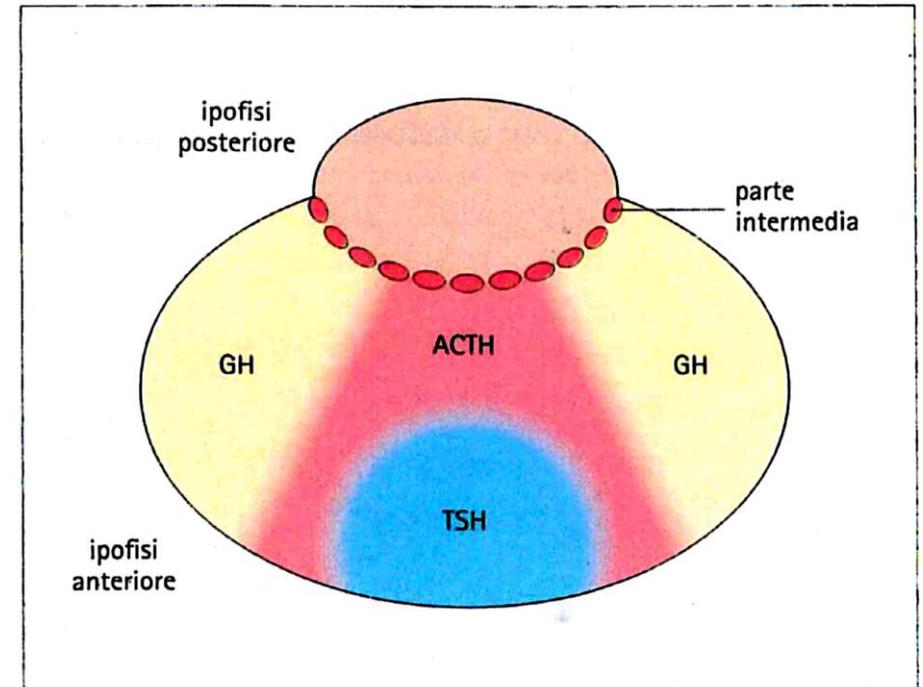
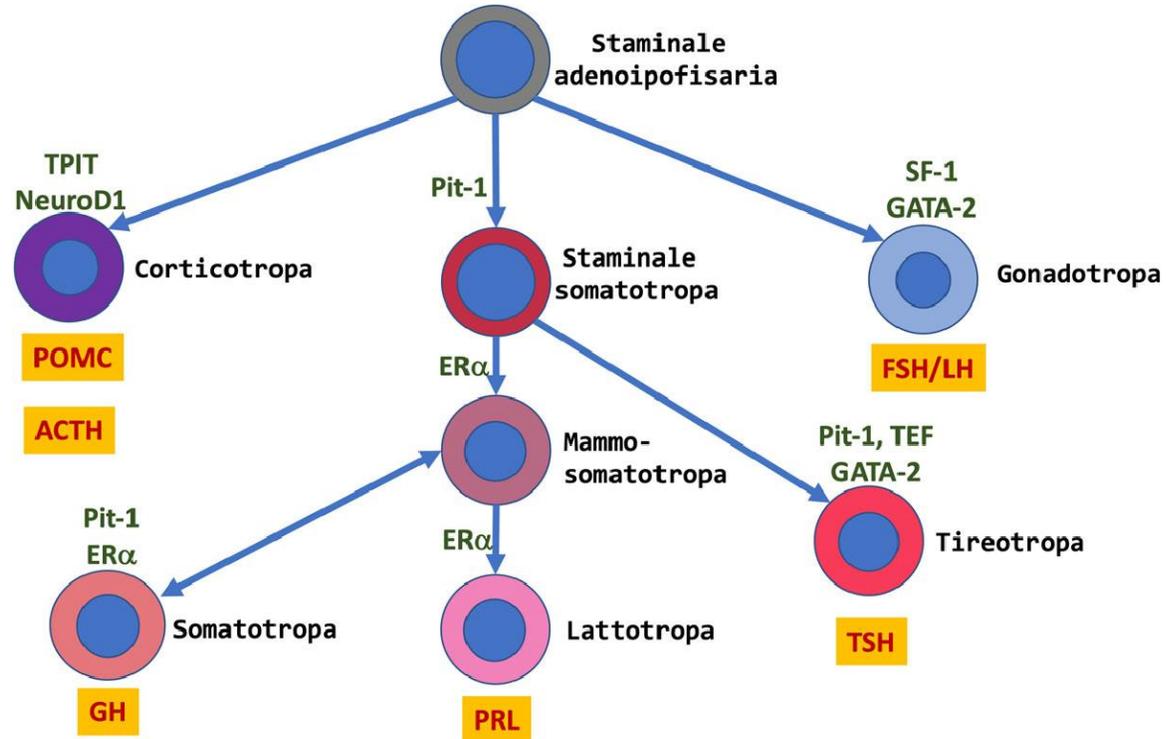
glicoproteina

GONADOTROPE 10% FSH e LH

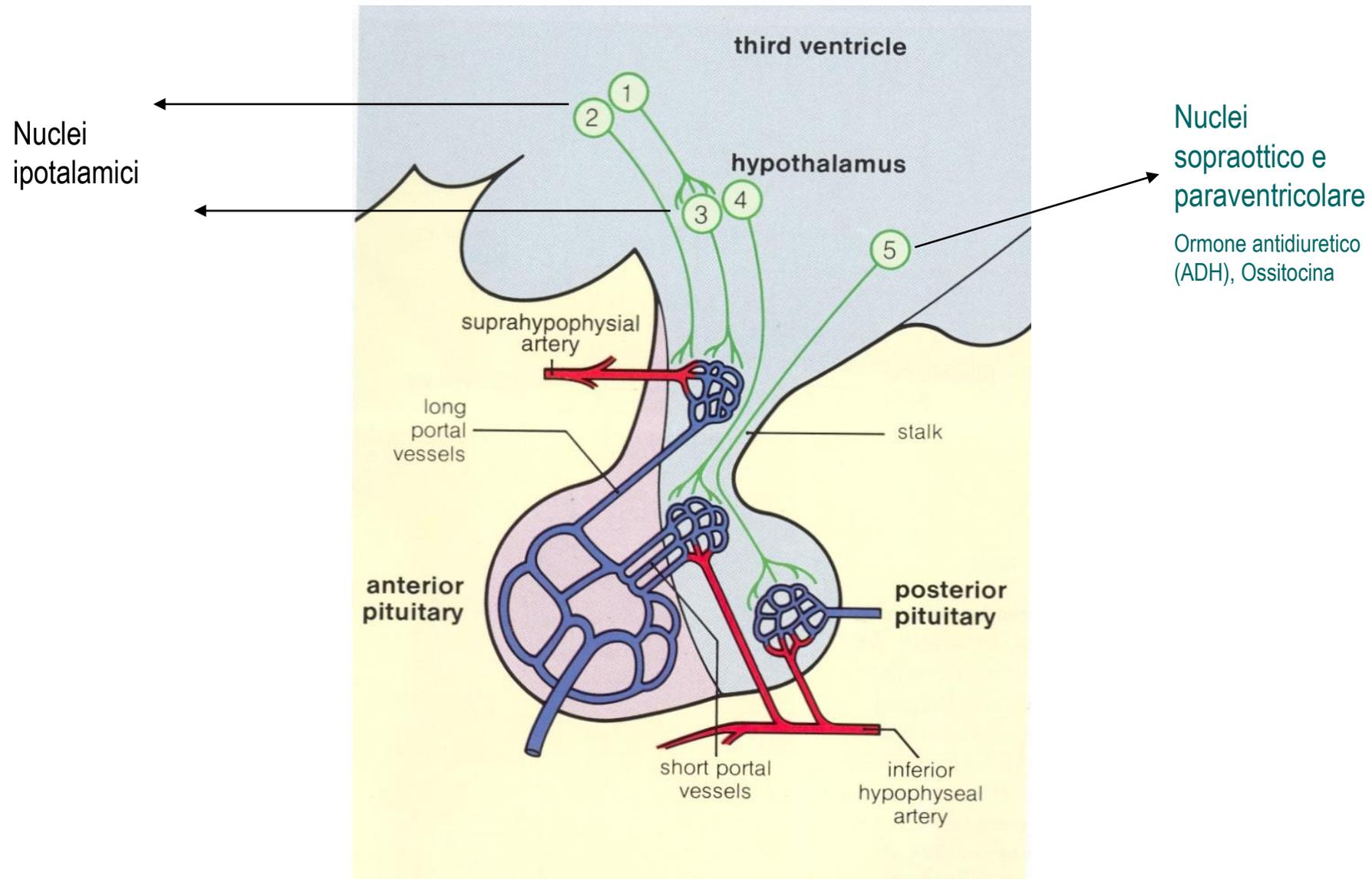
glicoproteina

MAMMO SOMATOTROPE 10-20% PRL 198 AA

Adenoipofisi – ipofisi anteriore (2)



Sistema portale ipotalamo-ipofisi (1)

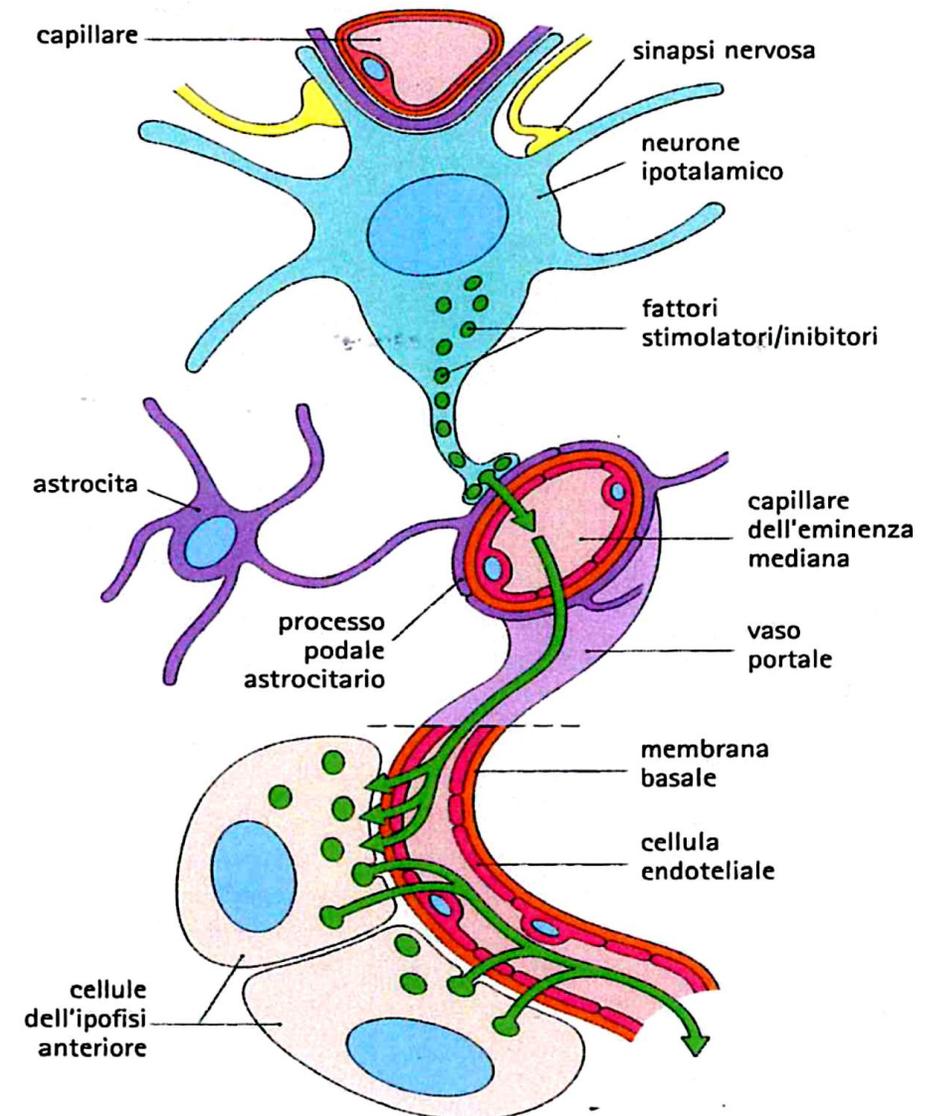


Sistema portale ipotalamo-ipofisi (2)

SISTEMA IPOTALAMO-IPOFISI

Quasi tutta l'attività secretoria ipofisaria è controllata dall'ipotalamo. Infatti, se asportassimo l'ipofisi dalla sua posizione, trapiantandola in altra zona, la sua attività secretoria diminuirebbe marcatamente (salvo PRL). In particolare questa regolazione avviene attraverso il rilascio dall'ipotalamo di **ormoni stimolatori** (releasing hormones) o **inibitori** (inhibitory hormones) nel **sistema portale ipotalamo-ipofisario** (descritto da Popa e Fielding).

Hormone	Structure	Primary Action on Anterior Pituitary
Thyrotropin-releasing hormone (TRH)	Peptide of 3 amino acids	Stimulates secretion of TSH by thyrotropes
Gonadotropin-releasing hormone (GnRH)	Single chain of 10 amino acids	Stimulates secretion of FSH and LH by gonadotropes
Corticotropin-releasing hormone (CRH)	Single chain of 41 amino acids	Stimulates secretion of ACTH by corticotropes
Growth hormone-releasing hormone (GHRH)	Single chain of 44 amino acids	Stimulates secretion of growth hormone by somatotropes
Growth hormone inhibitory hormone (somatostatin)	Single chain of 14 amino acids	Inhibits secretion of growth hormone by somatotropes
Prolactin-inhibiting hormone (PIH)	Dopamine (a catecholamine)	Inhibits synthesis and secretion of prolactin by lactotropes



Incidentaloma ipofisario (1)

- La prevalenza degli **incidentalomi ipofisari** è di circa il **10.7%** (1.5-31%)
- **Adenomi [PitNET]** rappresentano **>80% delle masse ipofisarie** (la restante parte è più frequentemente cisti della tasca di Rathke, craniofaringioma (tumore di origine parasellare), meningioma) e **15% delle neoplasie intracraniche**
- Microadenomi/Micro-PitNET **< 10 mm** presenti nel 10-38% delle RM; Macroadenomi/Macro-PitNET **> 10 mm** e adenomi/PitNET giganti **> 40 mm** presenti in <1% delle RM;
- Adenomi/PitNET PRL-secernenti (40-50%), non secernenti [*SPA o NFPA silent o non-functioning pituitary adenoma*] (25%), GH-secernenti (20%), ACTH-secernenti (8-10%), mentre TSH-secernenti sono rarissimi.

From pituitary adenoma to pituitary neuroendocrine tumor (PitNET): an International Pituitary Pathology Club proposal

Endocrine Pathology (2022) 33:6–26
<https://doi.org/10.1007/s12022-022-09703-7>

Overview of the 2022 WHO Classification of Pituitary Tumors

Sylvia L. Asa¹  · Ozgur Mete²  · Arie Perry³  · Robert Y. Osamura⁴ 

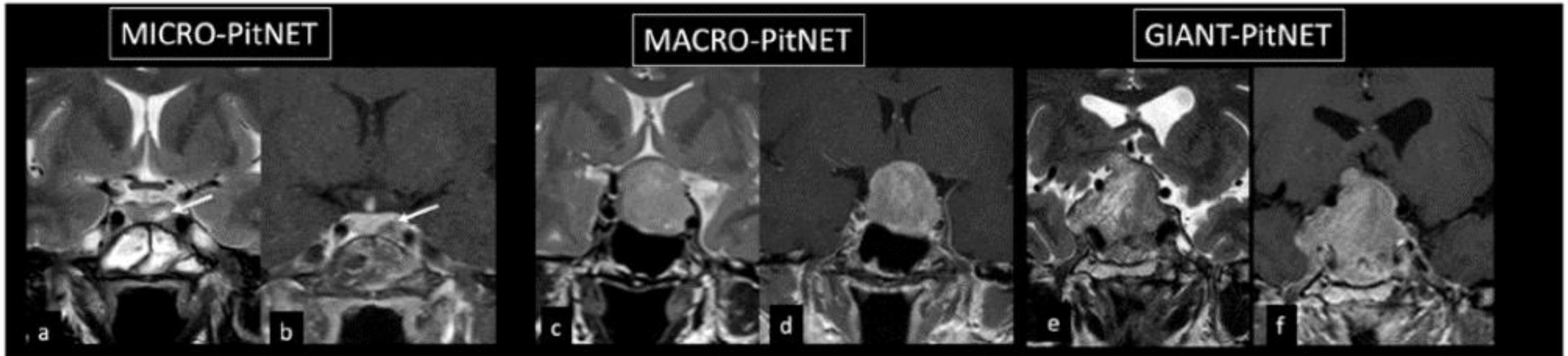
We now recognize that these neoplasms (pituitary adenomas) are complex and heterogeneous; they present multiple clinical manifestations, including a wide range of proliferative and invasive behaviors approximately 10% of these tumors .

The term ‘adenoma’, which defines a tumor as benign, does not seem appropriate to define aggressive and invasive pituitary tumors that cannot be resected and are refractory to therapy.

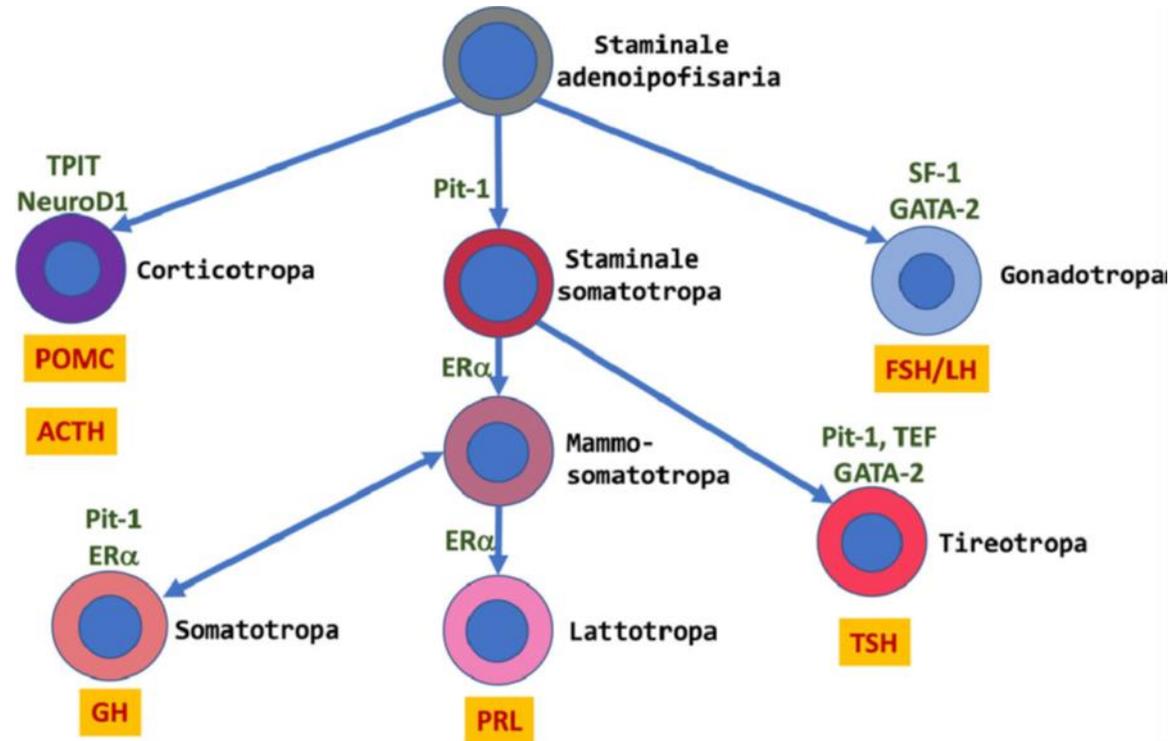
Patients and health care providers have long expressed frustration that these lesions are considered rare, benign and inconsequential. In most jurisdictions, they are not reported in cancer registries. Pituitary patients are often denied access to and/or health insurance coverage for therapies that would be provided for ‘cancers’.

Classificazione PitNET ipofisari (1)

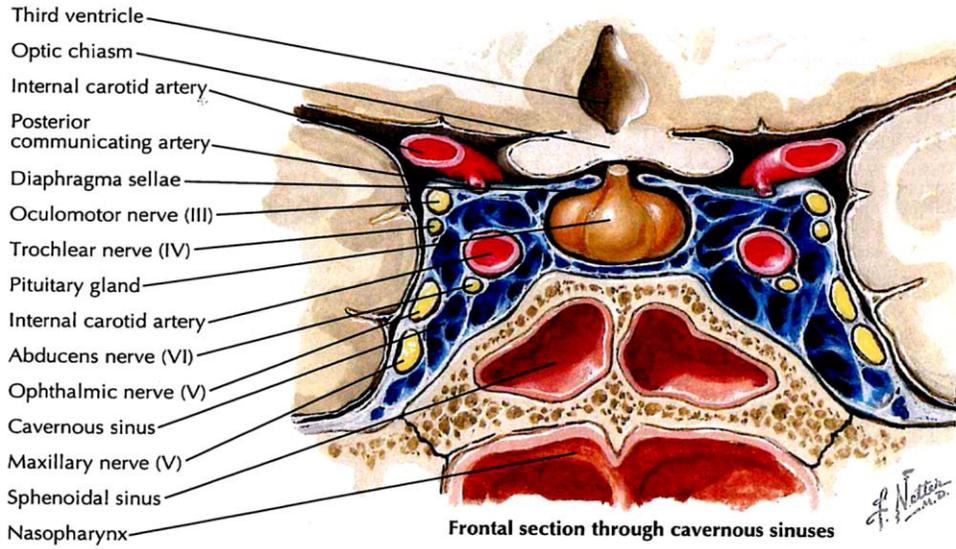
- **Dimensioni** < 10 mm micro; > 10 mm macro; > 40 mm gigante
- **Profilo secretorio** *biochimico* o *Immunofenotipico* (fattori di trascrizione Pit-1, TPIT, e SF1 + ormoni relativi alla linea individuata + citocheratine con cui si definisce se **densamente** o **sparsamente** granulato o **cellule Crooke**);
- **Invasione** *anatomo-patologica* del tessuto osseo, della mucosa respiratoria e della dura (se presenti nel campione o inviate separatamente dal chirurgo) o *radiologica* Knosp
- **Proliferazione** (Indice mitotico, indice proliferativo Ki67, p53)
- **Metastasi**



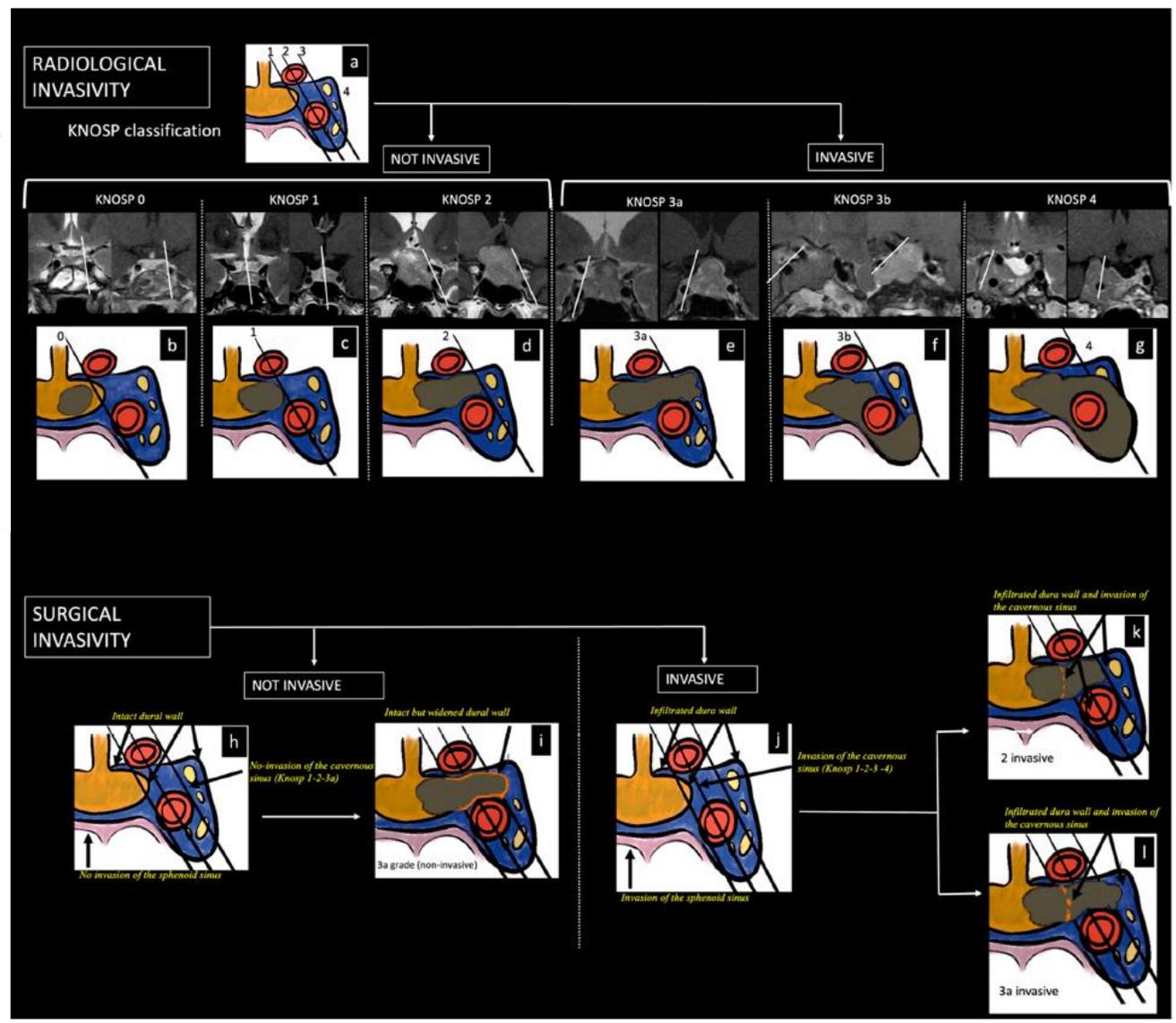
DIMENSIONI



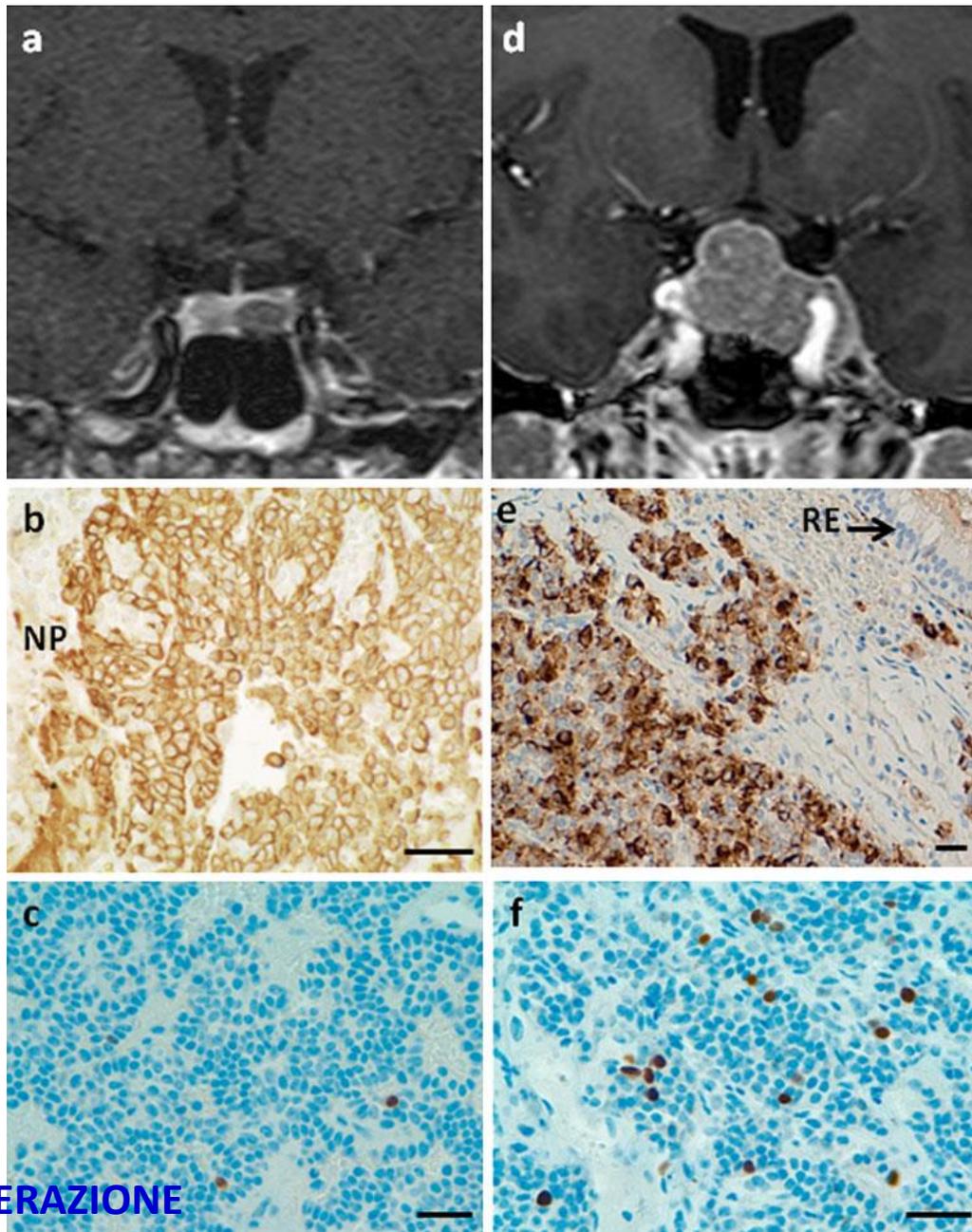
PROFILO SECRETORIO



Frontal section through cavernous sinuses



INVASIONE



PROLIFERAZIONE

Table 1 Clinicopathological classification of pituitary endocrine tumours

The classification is based on the three following characteristics:

1: tumour diameter into micro (<10 mm), macro (≥ 10 mm) and giant (>40 mm) by MRI

2: tumour type into GH, PRL, ACTH, FSH/LH and TSH by immunocytochemistry

3: tumour grade based on the following criteria:

Invasion defined as histological and/or radiological (MRI) signs of cavernous or sphenoid sinus invasion

Proliferation considered on the presence of at least two of the three criteria:

Ki-67: >1 % (Bouin-Hollande fixative) or ≥ 3 % (formalin fixative)

Mitoses: $n > 2/10$ HPF

P53: positive (>10 strongly positive nuclei/10 HPF)

The five grades are the following:

Grade 1a: non-invasive tumour

Grade 1b: non-invasive and proliferative tumour

Grade 2a: invasive tumour

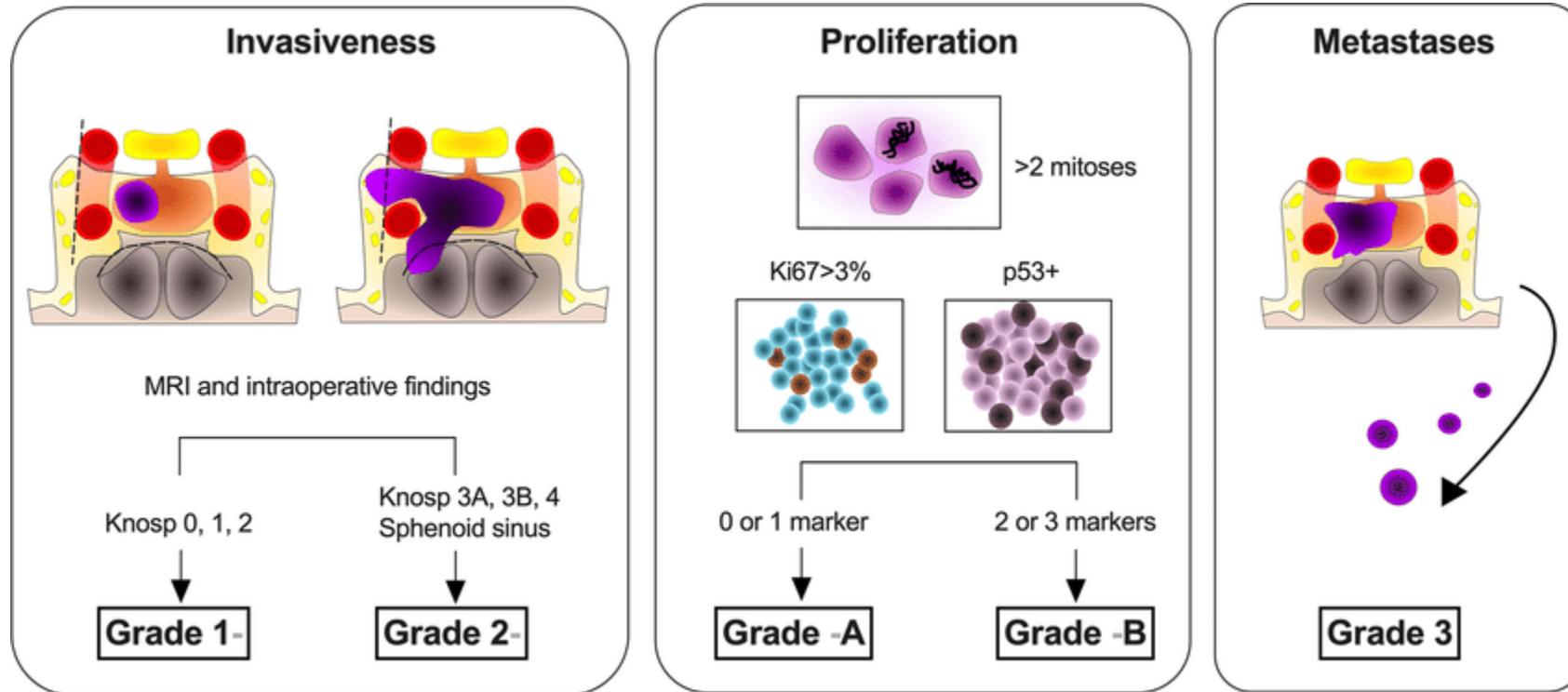
Grade 2b: invasive and proliferative tumour

Grade 3: metastatic tumour (cerebrospinal or systemic metastases)

HPF high power field (0.30 mm², 400 \times magnification), *MRI* magnetic resonance imaging

Classificazione PitNET ipofisari (2)

Size Secretion



Studio profilo secretorio PitNET

- PRL-secernente
 - GH-secernente (Acromegalia)
 - ACTH-secernente (Malattia di Cushing)
 - PitNET TSH-secernente
- PRL
 - IGF-1
 - 24h UFC / cortisolo post 1 mg DEX /cortisolo saliva notte
 - TSH fT4