

An anatomical illustration of a human female torso, showing internal organs and the endocrine system. The illustration is semi-transparent, revealing the brain, thyroid gland, pituitary gland, and other endocrine organs. The background is a gradient of light blue and purple.

INTERESTING CASE

Endocrinology

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A stethoscope is positioned over a large stack of medical files and folders. The stethoscope's chest piece is resting on the top of the stack, and its tubing loops over the files. The background is a light blue gradient.

Patient's Profile

- ผู้ป่วยชายไทย อายุ **33** ปี
- เชื้อชาติไทย สัญชาติไทย
- อาชีพ พ่อค้าขายส้มตำ
- ภูมิลำเนา อ.ขามทะเลสอ จ.นครราชสีมา

Chief Complaint



ตามัว

2 สัปดาห์

ก่อนมา รพ.



Present illness

- **3** สัปดาห์ก่อนมารพ. มีอาการปวดศีรษะด้านขวา บริเวณขมับ ปวดตื้อๆ เป็นๆหายๆ ไม่ร้าวไปไหน ไม่มีแขนขาอ่อนแรง ไม่มีคลื่นไส้ อาเจียน ไม่มีไข้ ไม่มีตาพร่ามัวหรือเห็นภาพซ้อน ไม่ชา การพูดและการกลืนเป็นปกติ ไป รพช. ได้ยาแก้ปวดมารับประทานอาการไม่ดีขึ้น
- **2** สัปดาห์ อาการปวดศีรษะแบบเดิมเป็นมากขึ้น นอนไม่ได้ รู้สึกตาค่อยๆมัวลงทั้งสองข้าง ไม่ปวดตา มองเห็นภาพซ้อนแนวราบเมื่อมองสองตา เห็นระยะใกล้ แย่กว่าระยะใกล้ มองไม่เห็นภาพด้านนอกของทั้งสองตา ไม่มีแขนขาอ่อนแรง ไม่ชา ไม่มีคลื่นไส้ อาเจียน ไม่มีไข้ ไม่เบื่ออาหาร ไม่มีน้ำหนักลด บัสสาวะอุจจาระเป็นปกติ



Present illness

- ปฏิเสธน้ำหนักตัวเพิ่ม ชี้อ่อนชี่หนาวผิดปกติ
- ปฏิเสธวิงเวียนศีรษะ คลื่นไส้ อาเจียน อ่อนเพลียไม่มีแรง มาก่อน
- ผู้ป่วยสังเกตเห็นว่าขนตามตัวน้อยกว่าปกติ (เป็นมานานแล้ว)
- ไม่มีอวัยวะเพศแข็งตัวตอนเข้ามา 5 ปี

- ปฏิเสธประวัติมือเท้า ใบหน้าใหญ่กว่าปกติ
- ปฏิเสธประวัตินอนกรนหรือหยุดหายใจตอนกลางคืน
- ปฏิเสธประวัติชา หรืออ่อนแรงมือทั้งสองข้าง
- ปฏิเสธเสียงแหบ

Past History

- ปฏิเสธประวัติโรคประจำตัว

Personal History

- ปฏิเสธยาอื่นๆที่ใช้ประจำ รวมถึงยาคุมกำเนิด
- ปฏิเสธการดื่มสุรา
- ปฏิเสธประวัติรับเลือด หรือใช้ยาเสพติดเข้าเส้น

Physical Examination

- **GA** : A thai man, can follow command
- **Wt** 98 kg **Ht** 165 kg **BMI** 36
- **Vital sign** : BP 111/69 mmHg , PR 87/min , BT 37 , RR 18 ,SaO2 100 RA
- **HENT** : no cutis verticis gyrata, no frontal blossing, no loss of lateral eyebrows, not pale conjunctivae, anicteric sclerae, no puffy eyelid, impalpable cervical lymph node or neck mass ,no thyroid gland/parotid gland enlargement , no prognathism, no macroglossia

Physical Examination

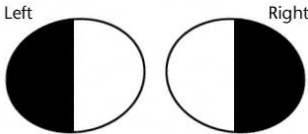
- **Eyes** : By Ophthalmologist

	Rt	Lt
VA	3/60	2/60
IOP	14	15
conjunctivae	normal	Normal
Cornea & lens	clear	clear
pupil	3	3
Fundus	Pale disc but no edema	

Physical Examination

- **Lung** : no chest deformity, no gynecomastia, no spider nevi, normal chest expansion, clear and equal breath sound
- **Heart** : full and regular pulse, apex at 5th ICS , impalpable apex , JVP not engorge, no heaving, no thrill, normal s1 s2, no murmur
- **Abdomen** : no distension, soft, normoactive bowel sound, not tender, no rebound tenderness, No shifting dullness , no fluid thrill

Physical Examination

- **Extremities** : normal size, no pitting edema , **loss of axillary hairs**
- **Neuro** :
 - Alert, no aphasia
 - Stiffneck negative
 - VF 
 - EOM : **limited right lateral rectus** , no facial palsy, tongue at midline, normal gag reflex
 - RAPD negative
 - Motor power grade 5 all , normal tone
 - Intact pinprick sensation of face and body
 - DTR 2+ all
 - No ataxia, FTN negative

Problem Lists

- 1
- 2
- 3



What do you do ?

1

2

3

4

5

6

7

8

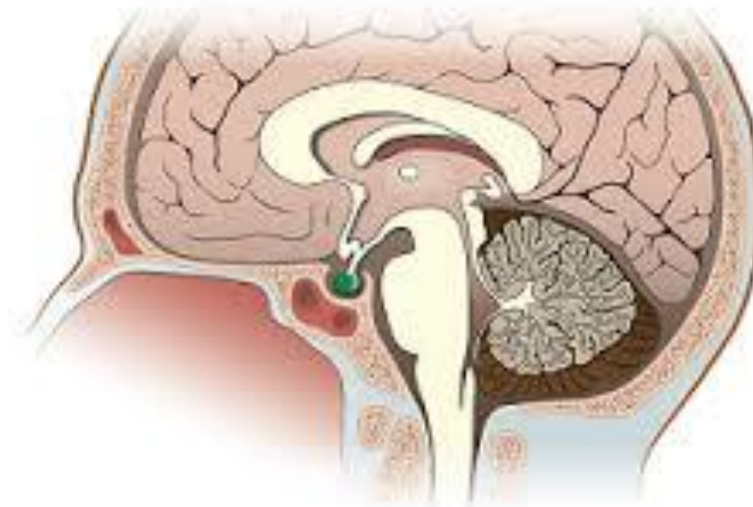


Diagnosis

Pituitary Macroadenoma



Prolactinoma



Progress Note

- **Eye** : Methyl Pred 250 mg IV q 6 hr (21-25/4/60) → Pred 4x3
- **Endo** : Eltroxin(50) 1x1 , bromocriptine 1x1 then titrate 2x1 → after Sx → Pred 1x1 , Eltroxin(50)1x1
- **Neuro Sx and ENT** : S/P transphenoidal tumor removal by endoscopic neurosurgery (3/5/60)

- Testosterone level <0.1 (7/6/60)
- fT4 0.5 fT3 2.93 (7/6/60)
- Prolactin level
 - 657 (4/5/60)
 - 311 (9/5/60)
 - 188 (7/6/60) → bromocriptine 2-0-0-2 , Pred 1x1 , Eltroxin(50)1x1 ৯-৯

Progress Note

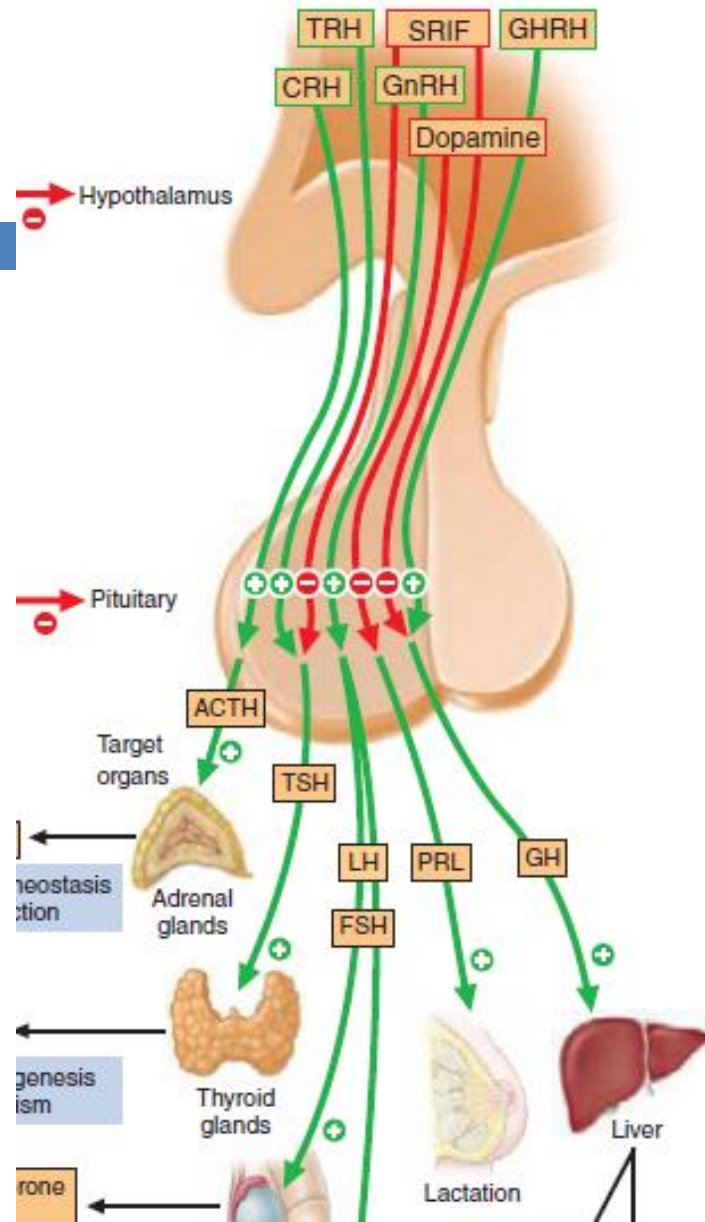
- **MRI pituitary (13/5/60)**
 - Abnormal signal intensity intrasellar lesion, about 2x2.2x2.4 cm. The lesion engilfs cavernous part of right ICA

PROLACTINOMA



Introduction

- PRL is synthesized in lactotropes from anterior pituitary.
- Normal adult serum PRL levels;
 - ▣ 10-25 ng/mL in women
 - ▣ 10–20 ng/mL in men
- Pituitary dopamine type 2 (D2) receptors mediate inhibition of PRL synthesis and secretion.



Action of prolactin

- Induce and maintain lactation
- Inhibits reproductive function
 - ▣ Suppressing GnRH and gonadotropin secretion
 - ▣ Impairing gonadal steroidogenesis
 - ▣ Blocks folliculogenesis
 - ▣ Inhibits granulosa cell aromatase activity
→ hypoestrogenism and anovulation
 - ▣ Luteolytic effect

Hyperprolactinemia

- Definition: PRL levels $>$ normal limit
- Cause of hyperprolactinemia
 - ▣ Physiological
 - ▣ Pharmacological
 - ▣ Pathological
 - ▣ Other condition

Physiological

- Pregnancy
- Lactation
- Nipple stimulation
- Intercourse
- Sleep
- Exercise
- Stress

Pharmacological

- Neuroleptics/antipsychotic
 - Phenothiazines
 - Haloperidol
 - Butyrophenones
- Antidepressants
 - TCA
 - MOAI
 - SSRI
- AntihistaminesH2
- Serotonin, norepinephrine
- Benzodiazepines
- Estrogens
 - oral contraceptives
- Antihypertensives
 - Verapamil
 - methyldopa
- Anesthetics
- Anticonvulsants
- Opiates
 - Cocaine
 - Morphine
 - Heroin
- Dopaminergic blockers
 - Metoclopramide
 - Sulpiride
 - Domperidone
 - Cisapride

Pathological

- Pituitary conditions
 - ▣ Prolactinoma
 - ▣ Acromegaly
 - ▣ Plurihormonal adenomas
 - ▣ Surgery
 - ▣ Radiotherapy
 - ▣ Trauma
 - ▣ Hypophysitis
- Hypothalamic conditions/pituitary stalk compression:
 - ▣ Tumors
 - ▣ Craniopharyngioma
 - ▣ Germinoma
 - ▣ Meningioma
 - ▣ Metastasis
 - ▣ Rathke cyst
 - ▣ Granuloma
 - ▣ Infiltrative diseases
 - ▣ Trauma with stalk section

Other condition

- Chronic renal failure and hepatic insufficiency
- Primary hypothyroidism
- Polycystic ovary syndrome
- Neurogenic: chest trauma, herpes zoster
- Idiopathic hyperprolactinemia

Hyperprolactinemia

- PRL level are ranging from 25-100 ng/mL in most of secondary cause.
- For hypothalamic damage or stalk effect cause, PRL level usually less than 100-150 ng/mL.
- PRL values higher than 250 ng/mL is suggested prolactinoma.

Hyperprolactinemia

- Metoclopramide, risperidone, phenothiazides may induce PRL levels higher than 200 ng/mL
- For drug-induced hyperprolactinemia, PRL level should perform after discontinue medication for 72 hours.
- Dopamine agonist for drug-induced hyperprolactinemia still controversial.

Clinical presentation

- Mass effect
 - ▣ Headache
 - ▣ Visual disturbance
 - ▣ Hypopituitarism
 - ▣ Pituitary apoplexy

Clinical presentation

□ Hormonal disturbance

■ Female :

- Galactorrhea
- Hypogonadism : Oligomenorrhea, Amenorrhea
- Osteoporosis (from hypogonadism)

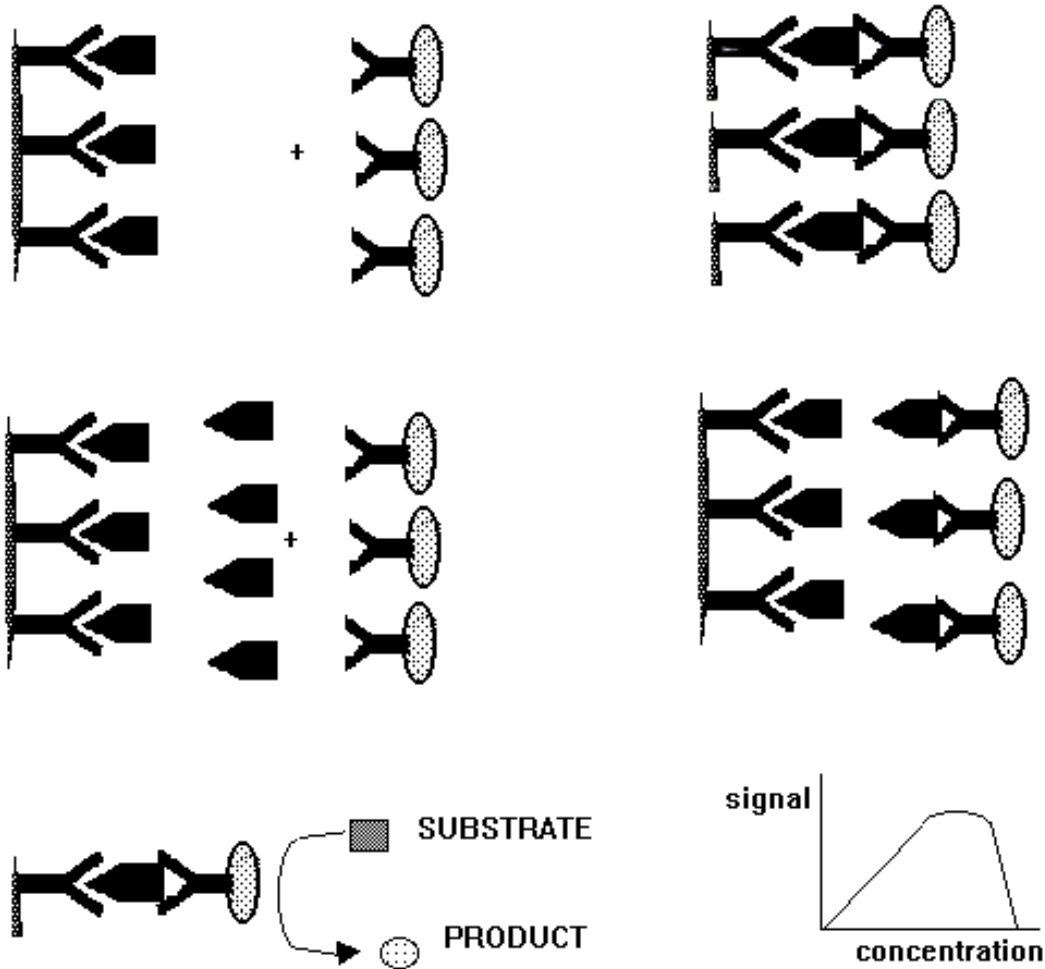
■ Male :

- Hypogonadism : Decreased libido, impotence
- Osteoporosis (from hypogonadism)
- Anemia (from testosterone deficiency)

Investigation

- Prolactin level
- Pregnancy should be rule out for women
- Renal and liver function
- Thyrotropin and FT4
- MRI pituitary
- FSH for amenorrheic women
- Serum testosterone

Hook effect



Management

- Patient with asymptomatic microprolactinoma do not required treatment.
- The objective for treatment
 - ▣ Decrease PRL levels and reverse clinical signs.
 - ▣ Decrease tumor size.
 - ▣ Restore gonadal function and other pituitary hormonedeficiencies.
 - ▣ Prevent tumor recurrence and progression.

Management

Table 1. Indications for Therapy in Patients with Prolactinomas.

Macroadenoma

Enlarging microadenoma

Infertility

Bothersome galactorrhea

Gynecomastia

Testosterone deficiency

Oligomenorrhea or amenorrhea

Acne and hirsutism

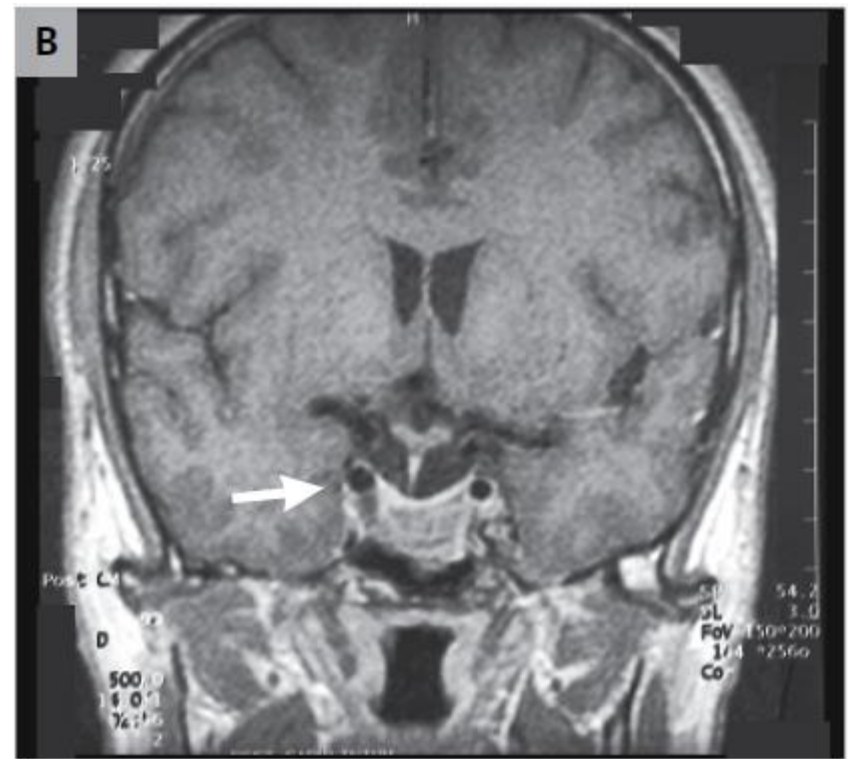
Medical treatment

- The first choice for prolactinoma is medical therapy
 - ▣ Dopamine agonist
 - Cabergoline
 - Bromocriptine
 - ▣ Oral contraceptive pills if only amonorrhea problem



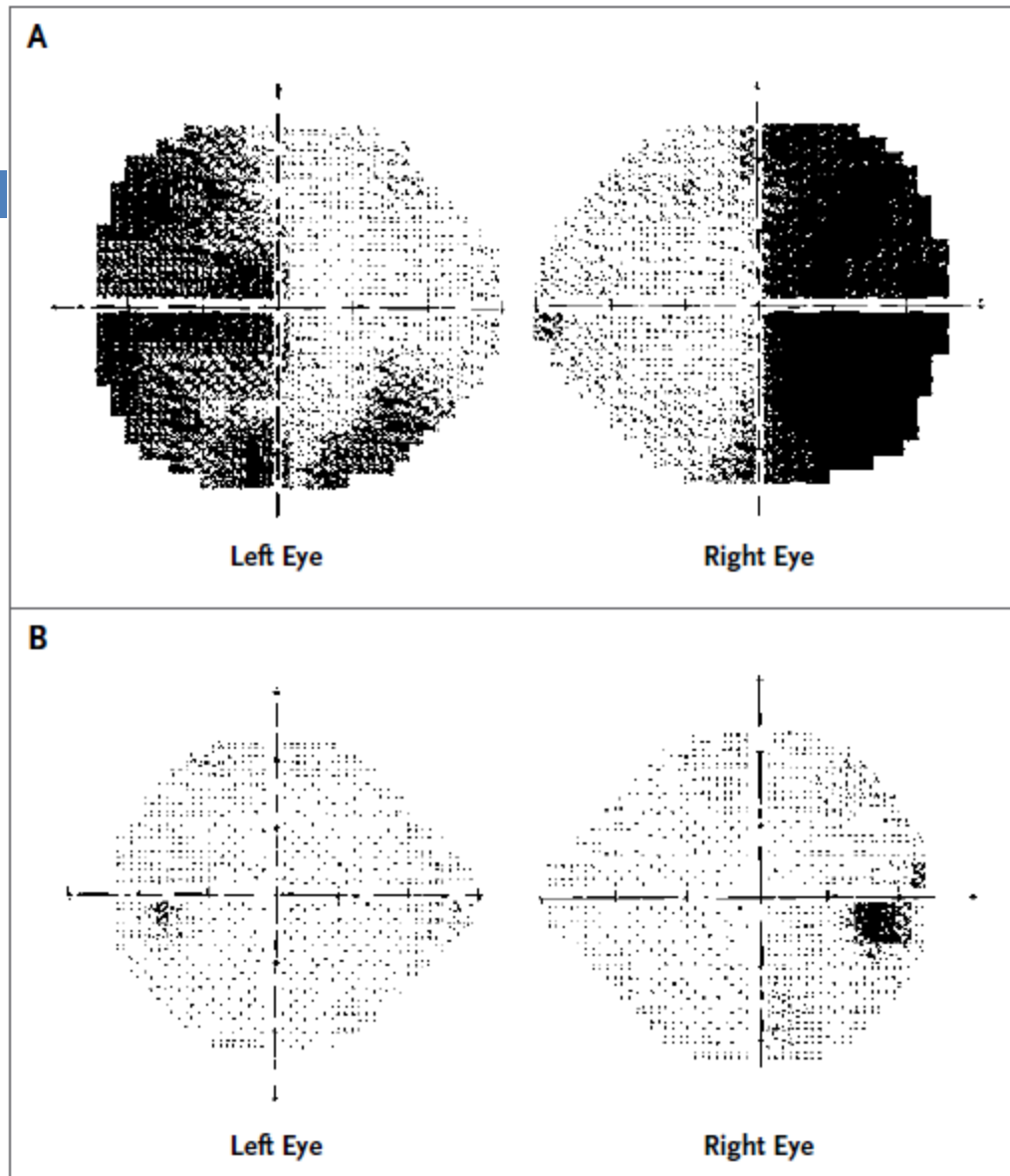
Table 2. Dose Recommendations and Side-Effect Profiles for Dopamine Agonists Approved for Use in the United States.

Medication	Dose*	Side Effects of Both Drugs†
Bromocriptine	Initial: 0.625 to 1.25 mg daily; usual range for maintenance dose: 2.5–10.0 mg daily	Common: nausea, headaches, dizziness (postural hypotension), nasal congestion, constipation Infrequent: fatigue, anxiety, depression, alcohol intolerance
Cabergoline	Initial: 0.25–0.5 mg weekly; usual range for maintenance dose: 0.25–3.0 mg weekly	Rare: cold-sensitive vasospasm, psychosis Possible: cardiac-valve abnormalities



Treatment monitoring

- Periodic prolactin measurement starting 1 month after treatment
- Repeat MRI in 1 year or within 3 months in patient with new symptoms or prolactin level rising or macroadenoma
- Campimetry(Visual field examination)
- Assessment of comorbidities eg. BMD, other pituitary hormones



Discontinuation of treatment with DAs

Table 4 Criteria for the discontinuation of treatment with dopamine agonists.

Favorable	Exclusive
<i>Treatment duration \geq 2 years</i>	Treatment duration <2 years
<i>Normal prolactin levels</i>	High prolactin levels
<i>No radiographic image of adenoma</i>	Tumor size increase
<i>Tumor size decrease:</i>	Persistent tumor size >10 mm
- >50% compared to baseline	Tumor margin very close to optic chiasm
- Macroadenoma size decreased to <10 mm	Cavernous sinus invasion
<i>Pregnancy</i>	
<i>Postmenopausal state</i>	Impossibility of adequate medical monitoring
<i>Possibility of adequate medical monitoring</i>	

Indication for surgery

- Tumor size increase
- Pituitary apoplexy
- Oral treatment intolerance
- Macroadenoma refractory to treatment with DAs
- Microadenoma refractory to treatment with DAs a woman who wants to conceive
- Chiasm compression persisting
- Cystic prolactinoma
- Cerebrospinal fluid fistula after the administration of DA
- Macroadenoma in psychiatric patients in whom DA are contraindicated

Pregnancy & Prolactinoma

- Microprolactinoma can be seen in normal pregnancy
 - ▣ Observe mass effect and visual field
 - ▣ If suspected tumor enlargement : MRI
- If pregnancy occurred while on therapy
 - ▣ Bromocriptine should be stopped except in patients with invasive tumor or optic pathway compromised
 - ▣ Follow up mass effect and visual field
 - ▣ If suspected tumor enlargement : MRI and Re-introduced bromocriptine and continue during the entire pregnancy

THANK YOU FOR YOUR
ATTENTION



THANK YOU