

Internal medicine department of V.N.Karazin University

# **STH -SECRETING PITUITARY ADENOMA. ACROMEGALY CASE WITHOUT SUCCESSFUL RESULT**

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**ACROMEGALY** is a disorder characterized by growth hormone (somatotropin) hypersecretion, usually caused in more than 98% of cases by a pituitary adenoma.

CLASSIFICATION ACROMEGALY (STAGING):

- Pre-acromegaly
  - ▶ Hypertrophic (hyperplasia of tissues)
  - ▶ Tumor (increase of intracranial pressure, blindness)
  - ▶ Cachectic

There is an approximate 2-fold excess mortality in acromegaly due to the presence of diabetes, hypertension, and cardiovascular, cerebrovascular, respiratory, and some malignancy-related conditions

Sughrue ME et al. Excess mortality for patients with residual disease following resection of pituitary adenomas *Pituitary*. 2011;14:276–383

GH hypersecretion increases insulin resistance, producing impaired glucose tolerance and diabetes mellitus in 15–38% of patients

Fieffe S, Morange I, Petrossians P, et al. Diabetes in acromegaly, prevalence, risk factors, and evolution: data from the French Acromegaly Registry. *Eur J Endocrinol* . 2011;164:877–884.



# OUR PATIENT

- Patient P.O.N., woman
- 60 y. old
- unemployed
- city resident



# COMPLAINS

- constant headache,
- weakness,
- sweating,
- increased appetites,
- discomfort in the neck area,
- somnolence,
- increasing of BP till 180/110 mm Hg
- partial loss of vision
- squeezing pain in the heart area after some physical load

# ANAMNESIS MORBI

- 1999 – first time diagnosed adenoma of pituitary gland, patient refused surgical treatment
- 2006 – polynodular goiter of thyroid, patient refused surgical treatment
- 2008 – diabetes mellitus II type, oral treatment taken constantly (“Oltar” (glimeperid) 3 mg/day in combination with “Diaformin” (metformin) 850mg 2 tabl/ 2 times a day
- Brother of the patient has thyroid pathology
- 2 delivery, 3 pregnancy
- Menopause from 45 y.old

# OBJECTIVE EXAMINATION

- Conciseness - clear, state – severe, height -156cm, weight – 85kg, BMI – 34,5 kg/m<sup>2</sup>
- Patient can orientate himself in place, time, his personality
- Normostenic, with hypertrophied soft tissues of the facial skull with pronouncedinion and frontal eminence
- Pale skin and mucosae, clean. Diastema of theeth.
- Thyroid: diffuse size increasing, small nodule in 3 cm diameter from the right side
- Musculoskeletal system - no pathological changes
- Chest shape: deformed, cylindrical, thickened ribs. Hypertrophic osteoarthropathy.
- Lung percussion: no clinically significant changes. BR – 16 in min
- Lung auscultation: vesicular breathing
- Borders of the heart: left border – outside of midclavicular left line on 3 cm
- Heart auscultation: rhythmic, heart tones – muffled
- Pulse – rhythmic, 80 bts/min
- BP 150 / 90 mm Hg
- Abdomen: normal size, symmetric, unpainful
- Liver: soft, no pain during palpation in right hypochondrium
- Spleen: normal. Pasternatsky symptom – negative from both sides
- Secondary sex signs – no abnormalities.
- Edemas: pitting of low extremities,
- Pulsation of peripheral vessels is decreased.

# BLOOD COUNT

	27/08/16	Normal Range
Hemoglobin, g/l	136	130 – 160
Red blood cells, 10 <sup>12</sup>	4.4	4.0 – 5.0
Color index of blood	0.9	0.85 – 1.15
White blood cells, 10 <sup>9</sup>	4,0	4 - 9
ESR, mm/h	<b>22</b>	1 -10
Bands	6%	1.06 – 6%
Segments	<b>40%</b>	47 – 72%
Eosinophils	2%	0.5 – 5%
Monocytes	<b>5%</b>	0.1 – 3%
Lymphocytes	<b>47%</b>	19 – 37 %

**Conclusion:** lymphocytosis with increased ESR

# BIOCHEMISTRY TEST DATA

	Patient's ranges,	N
Cardiolipin antigen plasmatest	negat	negat
STH, ng/ml	10,4	0 - 4
Prothrombin index	100%	90 - 105%
Fibrin	15 mg	9 - 18
Fibrinogen	3,3 g/l	2 - 4
Fibrinolytic activity	210 min	180 - 300
Serum Ca, mmol/l	2,3	2,0 - 2,6
Fasting Glucose, mmol/l	12,5 - 9.6	4.22 - 5.5
HbA1C, %	9	< 5,6%
General bilirubin	11 mcmoll/l	8,5 - 20,5
AST, U/l	44	10 - 45
ALT, U/l	27	10 - 68
Creatinine, mcmol/h/ml	0,27	0,1 - 0,68
Uric acid, mcmol/l	332	150- 350

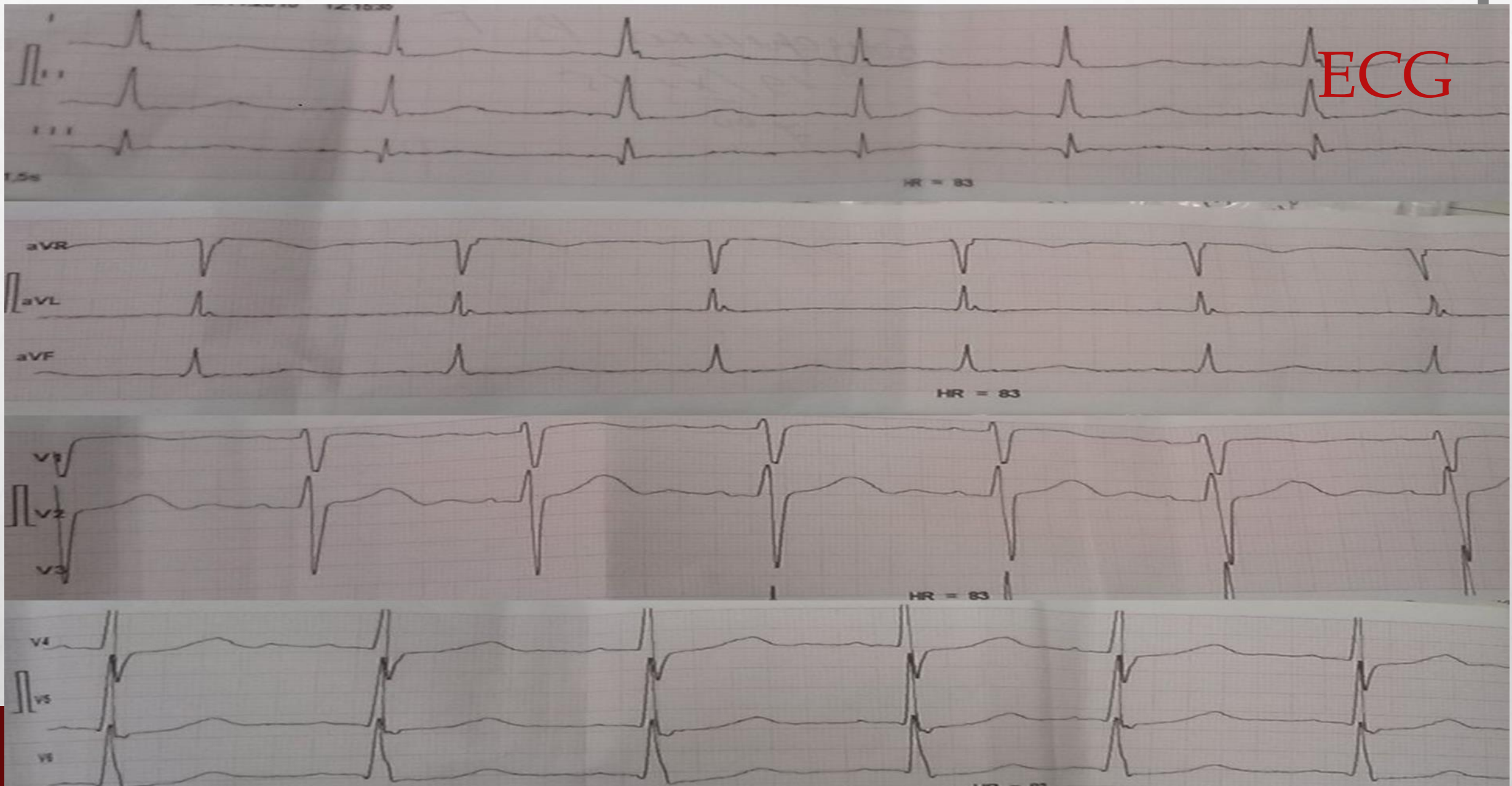
**Conclusion:** STH - secreting tumor, hyperglycemia, non-adequate DM treatment



# LIPID PROFILE

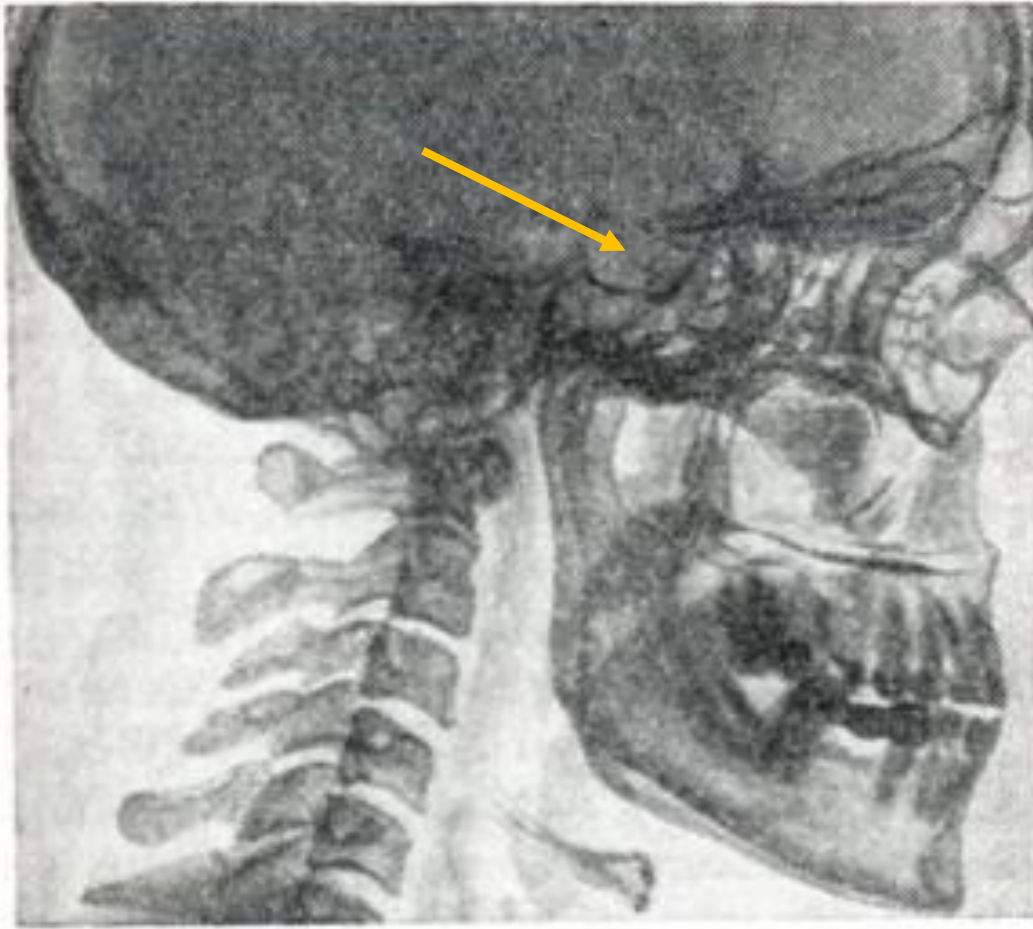
	Patient's ranges,	N
Cholesterol, mmol/l	5,3	$\leq 5.2$
LDH - cholesterol, mmol/l	2,82	$< 3.5$
HDH - cholesterol, mmol/l	1,2	$\geq 0.9$
VLDH - cholesterol, mmol/l	0,71	$\leq 1.0$
TAG, mmol/l	5,12	$< 2.3$
Atherogenic coefficient	2,66	till 3.00

**Conclusion:** dyslipidemia



Conclusion: Sinus rhythm, left heart axis deviation, hypertrophy of LV

# SCULL X-RAY



Structural separation of joints and compaction the sella turcica, the posterior wall is not differentiated, bottom expanded

Conclusion: signs of increased intracranial pressure, **pituitary adenoma in sella turcica**



# THYROID ULTRASOUND

Right lobe -  $V = 35 \text{ cm}^3$ , left lobe -  $V = 33,26 \text{ cm}^3$ . Isthmus - 1,5 cm.

Hypoechogenic nodule in the right lobe - 47\*35 mm, 3 hypoechogenic nodules in the left lobe - 33\*22 mm, 27\*32mm, 35\*22mm and hyperechogenic nodule - 15 mm in diameter

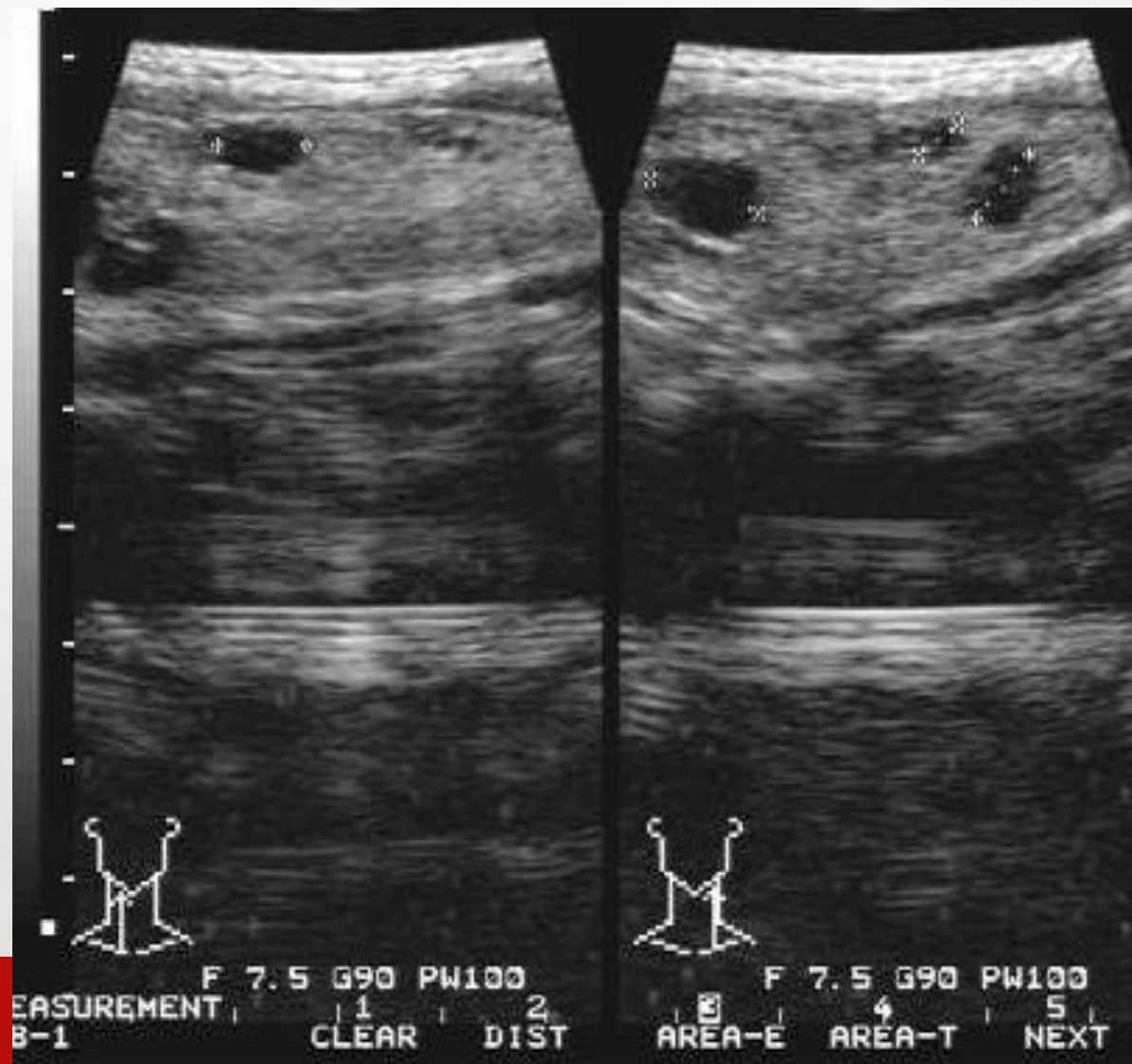
Conclusion: Polynodular goiter

TSH - 2,0 mME/1 (N - 0.3 -4.0)

T3 free - 22,0 nmol/1 (N - 10-25)

T4 general - 1,3 nmol/1 (N - 1.2-2.0)

Conclusion: Euthyroid state



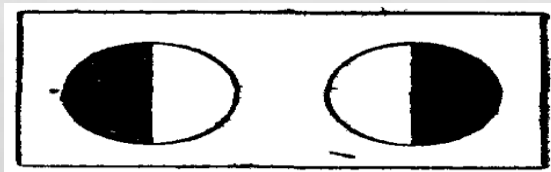


# SPECIALISTS CONSULTATIONS:

Cardiologist: Arterial hypertension II grade, acromegalic cardiomyopathy. CHF II A, II func.class by NYHA

Neuropathologist: Pituitary adenoma. Encephalopathy I stage with vestibular disorders. Chiasmal syndrome. Acromegaly.

Oculist: partial atrophy of ocular nerves of both eyes. Bitemporal hemianopsy.



# FINAL DIAGNOSIS

## *Main:*

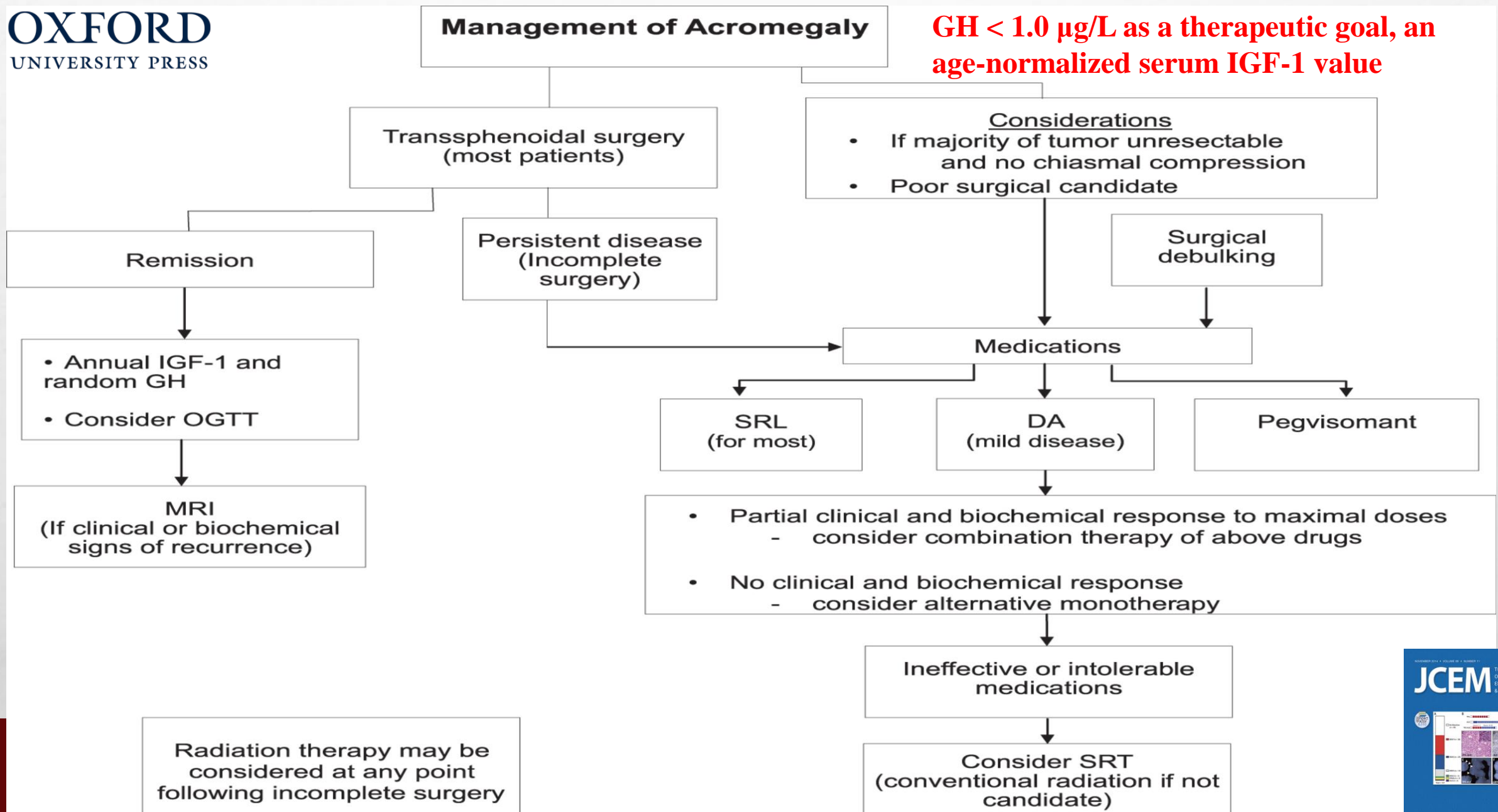
STH -secreting pituitary adenoma. Acromegaly, tumor stage, chiasmal syndrome, benign clinical course. Polynodular thyroid goiter, euthyroid state. Diabetes mellitus II type, decompensated (HbA1C – 9%).

*Complications:* Acromegalic cardiomyopathy. Diabetic low extremities polyneuropathy. Chiasmal syndrome, partial bilateral ocular nerves atrophy, bitemporal hemianopsy. Encephalopathy I stage with vestibular disorders.

*Concomitant disease:* Arterial hypertension II grade. Chronic heart failure IIA stage, II-nd functional class by NYHA

## Management of Acromegaly

**GH < 1.0 µg/L as a therapeutic goal, an age-normalized serum IGF-1 value**



# TREATMENT

- **Somatuline (lantreotid)** 0,04g intramuscular 1 time in 14 days
- **Diabeton – MR (gliclazid)** 500mg 2tabl 2 times a day
- **Glucophage (metformin)** 1000mg 1 tabl 2 times a day
- **Berlipril (enalapril)** 5 mg 2 times daily
- **Aspecard (acetylsalicylic acid)** 75 mg 1 time daily
- **Atorvastatin** 10mg 1 tabl daily
- Surgical treatment of pituitary adenoma and polynodular goiter



# NEW OPPORTUNITIES IN TREATMENT

The objective of treatment in acromegaly is not primarily the normalization of GH, but rather to normalize life expectancy and quality of life.

Notable interdependences between the acromegaly, the glucose metabolism of predisposed patients and their treatment with pegvisomant were observed. Pegvisomant, GHRA has positive influence on the quality of diabetic metabolic status and it is only significant for patients under monotherapy. Support recent findings suggest that intra-portal insulin levels determine the GH receptor expression in the liver underlined by the fact that patients with concomitant diabetes mellitus, in particular those receiving insulin therapy, require higher pegvisomant doses to normalise IGF1.

SUCCESSFUL TREATMENT = REDUCED IGF1 = GOOD PROGNOSIS

**THANKS FOR YOUR ATTENTION**

