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CLINICAL VIGNETTE

Acromegaly in pregnancy — one step away from neurosurgical procedure

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Acromegaly is an endocrine disease caused by the secretion of growth hormone in excess, most often diagnosed in 3rd–4th decade of life [1]. When it comes to pregnancy, it is a very rare phenomenon - the literature describes less than 200 such cases [2]. Whereas acromegaly diagnosed for the first-time during pregnancy seems to be an exceptional case [3].

A 34-year-old woman in the 31st week of pregnancy (gravida 4, para 3) arrived at the Hospital Emergency Department because of severe headache with double sided, temporal visual field loss. Head magnetic resonance imaging revealed a well-separated, partly cystic tumor measuring 23 × 22 × 29 mm, localized in the sellar and suprasellar region. The tumor was most likely pituitary macroadenoma, with signs of past bleeding (Fig. 1A). In the 32nd week of pregnancy, the patient was referred for further treatment to multi-specialist University Clinical Hospital in Katowice, where neurosurgical, ophthalmological and endocrinological consultations were conducted. During a thorough medical interview, the patient mentioned several symptoms that seemed unrelated: enlargement of hands and feet, enlargement of nose and jaw, change in voice timbre, increased perspiration, cardiac

arrhythmia, shortness of breath episodes, obstructive sleep apnea and fibromas on the neck (Fig 1B). Hormonal tests showed increased concentrations of prolactin and insulin growth factor 1 (IGF-1) and decreased concentration of cortisol. Levels of adrenocorticoid hormone (ACTH) , thyreotropic stimulatinghormone (TSH**)** and fT4 were in the reference range (Fig 1C). Finally, she was diagnosed with pituitary adenoma — probably a somatotropin tumor causing acromegaly. Because of tumor compression symptoms and suspicion of hemorrhage to the tumor she was qualified for preterm delivery by cesarean section in the 34 Hbd. Afterwards, she was urgently referred to Neurosurgery Center experienced in selective transsphenoidal adenomectomy. However, the procedure did not occur due to the announcement of the SARS-CoV-2 pandemic.

In the following months, the level of IGF-1 initially increased, but then decreased after another 3 months. The dimensions of the tumor decreased to 5 × 4 × 5 mm and symptoms of mass effect disappeared (Fig 1D). Since then, she has been treated conservatively in the Outpatient Endocrinology Clinic.

This spontaneous reduction of tumor mass can be explained by the occurrence of hemorrhage in the pituitary gland. Pituitary apoplexy is a condition caused by sudden ischemic infarction or hemorrhage from a pituitary tumor. Pregnancy is one of the factors causing apoplexy. During pregnancy, pituitary gland undergoes major changes, mainly due to an increased estrogens level. Estrogens have been shown to cause hemodynamic changes, leading to an imbalance in pituitary stimulation and a surge in blood flow, thereby enhancing the risk of apoplexy [4]. Patients with pituitary apoplexy may have spontaneous remission of hormone hypersecretion [5]. Thanks to this, the patient managed to avoid neurosurgical surgery.

If acromegaly is suspected during pregnancy, a definitive diagnosis is difficult, and treatment may be postponed to the postpartum period [3]. At the same time, the type of treatment undertaken in case of pregnant women who suffer from acromegaly must strike a balance between the health of the mother and the well-being of the fetus.

Article information and declarations

Ethics statement

Written informed consent for publication was obtained from the patient.

Author contributions

Karolina Pędrys — 20% study conception and design.

Marcin Setlak — 20% neurosurgical consultation.

Zuzanna Pawlus — 20% data collection.

Mateusz Jagielski — 20% data collection.

Karolina Kowalczyk — 20% manuscript preparation.

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None.

Conflict of interest

Authors declare no conflict of interest.

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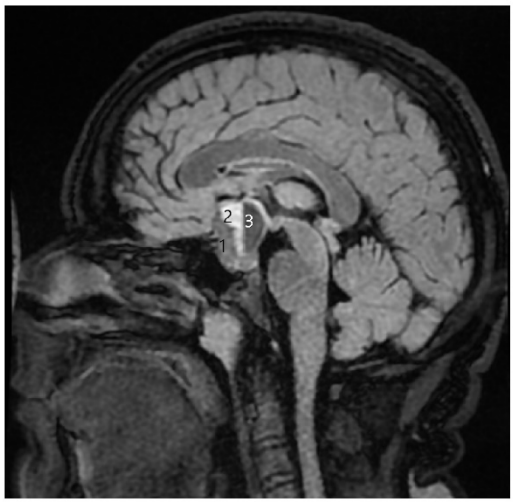
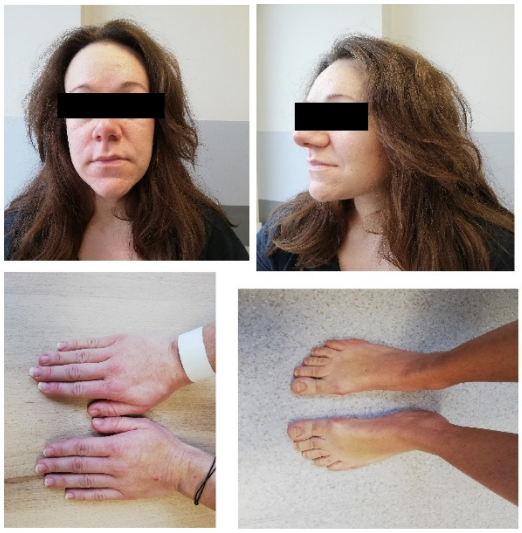
A



B



C

Laboratory test results	Level	Reference range
ACTH	12.90 pg/ml	0-46 pg/ml
Cortisol ⇩	4.71 µg/dl	4.82-19.5 µg/dl
TSH	0.408 µIU/ml	0.27-4.2 µIU/ml
fT4	0.7 ng/dl	0.7-1.2 ng/dl
Prolactine ⇧	69.91 ng/ml	5.18-26.53 ng/ml
IGF-1 ⇧	390.0 ng/ml	41.0-246.0 ng/ml

D

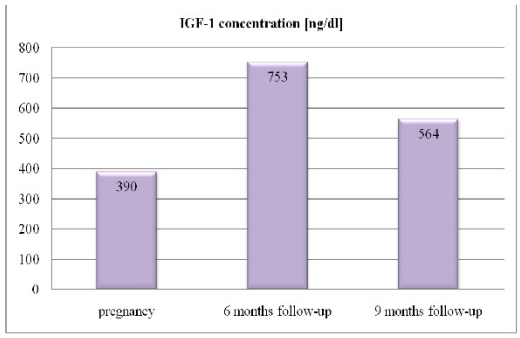


Figure 1. A. Head magnetic resonance imagining (MRI) — macroadenoma: 1 — solid part of the tumor, 2 — the area of bleeding to the tumor, 3 — cystoid part of the tumor; **B.** Pictures of the patient; **C.** Laboratory test results; **D.** Insulin growth factor 1 (IGF-1) concentration