



Graves' disease and exophthalmos — a mask for meningioma

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Graves' orbitopathy can rarely be a mask of other conditions. In the described case, visual disturbances turned out to be related not to the underlying disease, but to the neurological one — meningioma.

A 45-year-old patient with a long story of nodular goitre was admitted to the department due to thyrotoxicosis in the course of Graves-Basedow disease. She reported nervousness, emotional lability, muscle weakness, breathlessness, palpitations, insomnia, irregular bowel movements with a tendency for loose stools, hypertension (max. 190/120 mm Hg), and muscle and stomach pain. Additionally, deterioration in visual acuity and double vision with extreme right, left, and upward gaze were presented. Symptoms appeared 2 weeks after the removal of the uterus due to fibroids (about 3 months before hospitalisation) and gradually increased. On admission, biochemical symptoms of thyrotoxicosis were observed (Tab. 1). The neck ultrasound showed the thyroid gland with a volume of approx. 50 mL, with hypervascularity and heterogeneous hypoechogenicity, with no obvious focal changes. Intravenous and then an oral thyreostatic, beta-blocker, and steroid were included in the treatment causing an improvement of the clinical condition and a decrease in the level of thyroid hormones.

The patient was hospitalised again due to recurrence of hyperthyroidism. Severe symptoms of thyrotoxicosis and persistent visual acuity disturbances in the left eye, double vision with extreme right, left, and upward gaze developed. In the treatment of thyrotoxicosis, initially

intravenous then orally, thyreostatics were used, with positive effect. Due to large fluctuations in the value of thyroid hormones, L-thyroxine and thyreostatics were included in the treatment. Additionally, due to the persistent asymmetric exophthalmos and the unstable course of treatment, diagnostics was extended to imaging tests. CT examination (Fig. 1) of the orbits was performed: in the left orbit, adjacent to the left optic nerve near the optic nerve canal, a soft tissue lesion of 18 × 7 × 9 mm was found, which modelled the course of the optic nerve and was located in its direct contact. The uneven outline of the orbital walls was also visible at this location. Diagnostics was extended to head and orbital MRI (Fig. 2, 3). A pathological mass was confirmed at the apex of the left eye socket, showing a connection with the intracranial infiltrate, with a thickening of the adjacent bone structures. The morphology of the signal of infiltrative changes, along with sclerotisation of bone structures and calcifications in the intracranial infiltration, suggested a lesion of the meningioma overgrowing the bone. Left frontal craniotomy and resection of the left optic nerve tumour were performed after a neurosurgical consultation and the stabilisation of the general condition and normalisation of thyroid hormones. Histopathological examination revealed small peripheral nerve trunks and micro-foci of meningioma infiltration among small hyphae of adipose tissue. After the meningioma removal, the patient was qualified for radical Graves' disease treatment with the use of radioactive iodine in an elective mode, with positive effect.

Table 1. Hormonal assessment

Hormone (range)	16 VI 2017	21 VII 2017	07 VIII 2017	24 VIII 2017	28 IX 2017
TSH [0.270–4.200 uIU/mL]	< 0.005	< 0.005	0.137	< 0.005	0.066
FT3 [3.1–6.8 pmol/L]	17.47	22.85	3.55	13.43	7.62
FT4 [12.0–22.0 pmol/L]	39.04	35.77	3.6	21.25	17.43

TSH — thyroid-stimulating hormone; FT3 — free triiodothyronine; FT4 — free thyroxine


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Figure 1. Computer tomography imaging of the orbit — first obtained imaging result of meningioma (located on the left orbit). Courtesy of Department of Diagnostic Imaging, University Hospital in Krakow

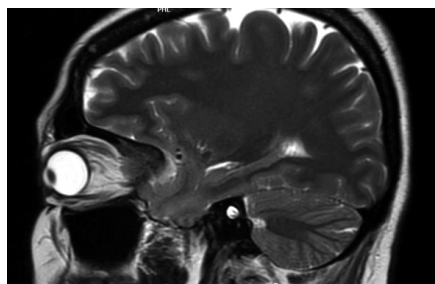


Figure 2. Magnetic resonance imaging of head (sagittal T2-weighted FRFSE sequence) showing meningioma extending to the orbit. Courtesy of the Department of Diagnostic Imaging, University Hospital in Krakow

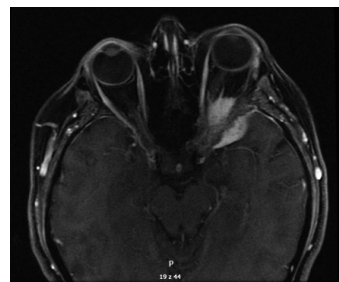


Figure 3. Magnetic resonance imaging of orbit (axial Lava Flex sequence) showing meningioma extending to the orbit and intracranial infiltrate with a thickening of the adjacent bone structure. Courtesy of the Department of Diagnostic Imaging, University Hospital in Krakow

cause of the symptoms to be shown — meningioma. The implemented procedure made it possible to control the ailments quickly and prevent exacerbation. The applied radioiodine treatment also allowed the underlying disease to be controlled and the level of hormones to be stabilised. No other complications related to thyroid disease were observed.

This case illustrates the importance of careful attention of treatment and monitoring, despite the most typical course of disease, and if necessary to accelerate and extend the treatment with additional tests.

Author's statement

K.M. is the first author.

Conflict of interest

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Meningiomas are benign slow-growing tumours that arise from arachnoid cap cells. They are the second most common brain tumour in the adult population. The female–male ratio is 1.8:1, and the usual age at occurrence is between 30 and 50 years [1]. The symptoms and clinical signs of meningiomas depend on the location of the tumour. Early diagnosis is important because total removal of the tumour may be feasible and the vision of the patient can be preserved [2].

Graves' orbitopathy is the main extrathyroidal manifestation of Graves' disease. It is most often the result of autoimmune reactions with tissue components in the orbit [3–5].

In the literature, cases describing the coincidence of both diseases are extremely rare. In the described case there was suspicion that visual disturbances and left eye exophthalmos were associated with a complication of the underlying disease — orbitopathy. Due to the asymmetry of exophthalmos and the unstable course of treatment, it was decided to extend the diagnostics to imaging tests (they are often deferred in the management in patients with a combination of typical symptoms: thyroid gland dysfunction, eyelid retraction, symmetric proptosis, and restrictive strabismus [6]). The accelerated diagnosis allowed the presence of another