

Regression of meningiomas after discontinuation of cyproterone acetate in a transsexual patient

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Dear editor,

The relationship between sex hormones and meningiomas is well known but the effect of exogenous hormones on meningiomas remains controversial. We are presenting an unusual case of tumor regression after cyproterone acetate discontinuation.

A 48-year-old male to female transsexual patient presented with headaches for 2 years. A CT and magnetic resonance imaging (MRI) scan revealed a small (4.2 cm³) left temporal convexity meningioma (Fig. 1a). The patient had been taking a feminizing endocrine regimen of estradiol and cyproterone acetate (100 mg/day), a strong progestative agent with antiandrogenic activity, for 10 years. Because of the nonspecific nature of his headaches and the small size of the lesion, a conservative treatment was decided. The patient was then lost for the follow-up. The patient presented 39 months later with a worsening of his headaches and a significant enlargement of his lesion (25.7 cm³; Fig. 1b) and a new small left temporal polar meningioma. He refused surgical treatment. Because of the common knowledge that progestative treatment may play a role in meningioma growth, cyproterone acetate was discontinued and replaced with flutamide, a nonsteroidal antiandrogen drug, 500 mg daily. Estradiol treatment was continued. After 10 month, the MRI scan revealed a significant decrease in size of the left temporal convexity meningioma (15.8 cm³; Fig. 1c) and the left temporal polar meningioma could not be identified anymore. The subsequent

MRI scans showed a relative stability of the meningioma (Fig. 1d).

The relationship between meningiomas and sex hormones has been well established and is supported by the higher incidence of meningiomas among women, reports of tumor growth during pregnancy and the higher expression of sex hormones receptors in meningiomas compared to normal meningeal tissue [1, 2]. However, the role of sex hormones in meningiomas is largely unknown and the effect of sex hormones antagonist and agonist has been disappointing. Because of its potential therapeutic implications, considerable attention has been given to the progesterone and estrogen receptor status. The results have been conflicting with no real value other than prognostic [2].

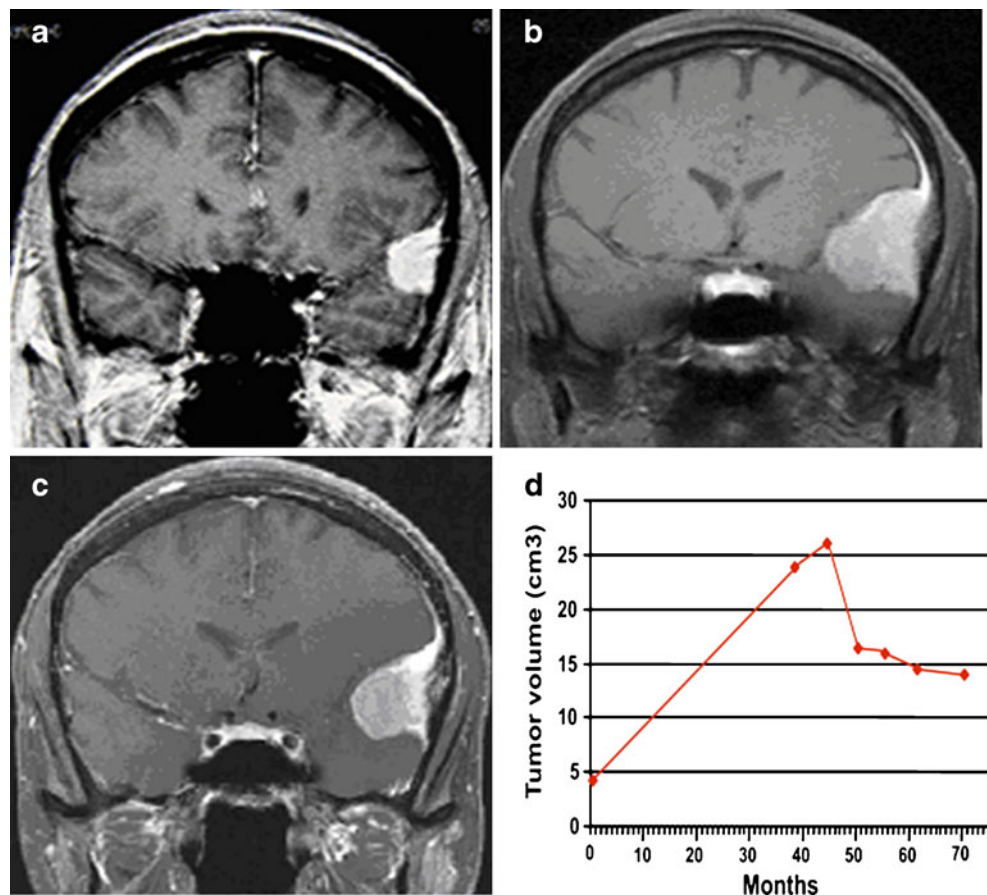
Nevertheless, the relationship between sex hormones and meningiomas raise the crucial question of whether women known to harbor a meningioma should continue using exogenous hormones. Epidemiologic studies have shown either an absence or a weak relationship between meningiomas and hormone replacement therapy or oral contraception [3]. However, hormonal treatments for other indications have not been included in those studies.

A recently published report described a 28-year-old transsexual patient treated with ethinyl estradiol (100 µg/day orally) and cyproterone acetate (100 mg/day orally) who developed a gigantic olfactory groove meningioma within 3 years [4]. In 2010, a regression of a meningioma was reported in a 46-year-old woman after discontinuation of cyproterone acetate that had been taken for 10 years. However, the patient was only followed for 6 months [5].

In our patient, the meningioma progressed in size (six times) within 4 years; meanwhile, he developed a new small lesion. After cyproterone acetate discontinuation, the larger lesion rapidly decreased for the first 6 months. Then, the size of the tumor remained relatively stable. One could

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Fig. 1 **a** Coronal T1-weighted MR image at the time of diagnosis showing a left temporal convexity meningioma (4.2 cm³). **b** Enlargement of the lesion 4 years later (25.7 cm³). **c** Decrease in size of the lesion after 6 months (15.8 cm³). **d** Graphic showing the rapid progression of the meningioma, the rapid decrease in size after cyproterone acetate discontinuation followed by a relative stability



expect that with a longer follow-up, the tumor would regain a classic slow growth rate.

The important regression in our case confirms a strong influence of cyproterone acetate on meningiomas growth. In case of meningioma in a patient treated with cyproterone acetate and without significant symptoms, a conservative strategy, including discontinuation of cyproterone acetate, should be considered. Furthermore, because higher dose of cyproterone acetate are commonly used for the male-to-female transsexual patient, clinician caring for those patient should be aware of such event that could be more frequent in the transsexual population.

Conflict of interest None

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