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(CASE REPORT)

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Spontaneous reduction in macroprolactinoma volume during pregnancy and after birth: A case report

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Abstract

Prolactinoma, the most common secretory pituitary tumor, is found in 100 patients per million. It is responsible for impaired reproductive function in both sexes. Its treatment in the context of fertility restoration gives very satisfactory results. The natural history of these tumors in the gestational period is variable depending on their size with a clinically significative risk ranging from 5 to 30%. Their management is complex, requiring evaluation of the effects of pregnancy on tumor growth and the effects of therapy on embryonic and fetal development. We report the case of 23years patient with a macroprolactinoma and the successful outcome of this tumor during the pregnancy.

Keywords: Macroprolactinoma; Pregnancy; Dopamine agonists; Magnetic resonance imaging; GOLDMANN visual field

1. Introduction

Prolactin adenomas cause persistent hyperprolactinemia in women which is responsible for infertility. It is the most frequent secretory pituitary tumor with an incidence of five per 10,000 and an estimated prevalence of 100 per million [1]. Forty percent of pituitary adenomas are prolactin adenomas with a male to female ratio of one in four. with the evolution of treatments for hyperprolactinemia, more number of women are presenting with macroprolactinoma in pregnancy. When women with prolactinomas get pregnant, two important issues arise: the effects of the dopamine agonist on early fetal development and the effect of pregnancy on prolactinoma size[2]. The management of these tumors in the gestational period is complex and requires collaboration between endocrinologists, radiologists, neurosurgeons and gynecologists.

2. Case report

A 23 years old woman consulted her for infertility. The examination has noted a provoked galactorrhea justifying the realization the dosage of prolactin which came back high (> 470 ng/ml) with a normal TSH level (0,82mui/l). The pituitary magnetic resonance imaging (MRI) revealed(Figure 1 and 2) :A pituitary adenoma formation measuring 15.3* 13.5mm, rounded in shape and seat of cystic areas that fills the opto-chiasmatic cistern and responsible for a bulging of the sellar diaphragm, reflects the optic chiasma upwards which is of normal signal, in contact with the internal carotid arteries which are respected, responsible for a collapse of the sellar floor in the sphenoidal sinus and pituitary stem pushed forward and to the left which is thin without nodular lesion within it. The GOLDMANN visual field was altered in both eyes: bitemporal hemianopia with predominantly left-sided damage (aspect of an advanced opto-chiasmatic syndrome).

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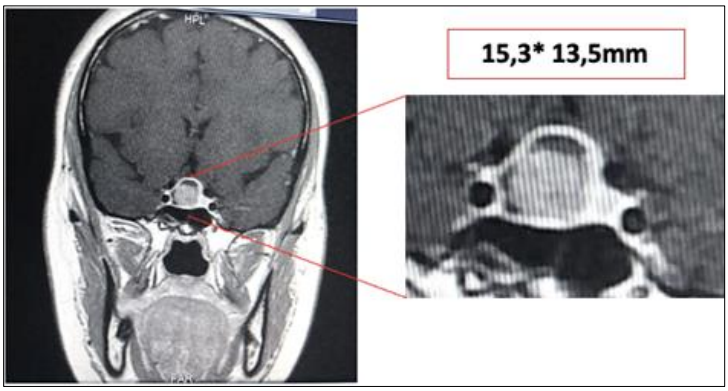

Figure 1 MRI coronal plan before pregnancy

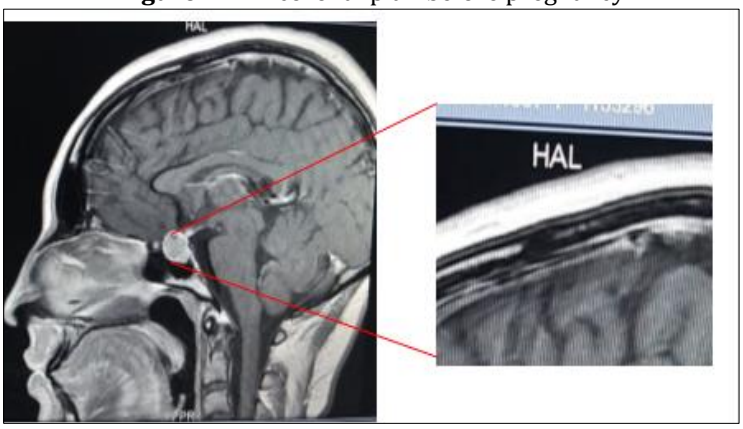

Figure 2 MRI sagittal plan before pregnancy

The patient was referred to our department with a prolactin level control of 509ng/ml. The therapeutic decision was to put the patient on cabergoline at a dose of 1mg per week with increase to a dose of 3mg per week, associated with an estroprogestative contraception. She was advised to avoid pregnancy till her prolactin become normal and an MRI showed reduction in size of the macroadenoma. However, she came 10 months later with 8 weeks amenorrhea and a positive pregnancy test.

MRI control (Figure 3) without gadolinium injection at the end of her pregnancy first trimester showed a decrease in the volume of the Antero pituitary nodular formation lateralized to the right, measuring 9.5*6.6mm versus 15.3*13.5mm; it is responsible for a discrete bulge of the sellar diaphragm, pushes back the pituitary stalk to the left, comes into contact with the right intracavernous carotid artery which appears to be respected. At the bottom: discrete collapse of the floor of the sphenoidal sinus. The GOLDMAN visual field has not changed.

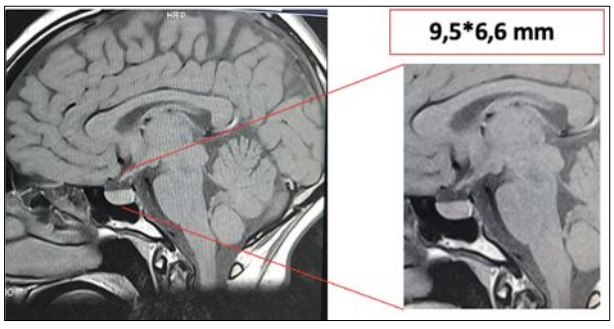

Figure 3 First trimester pregnancy MRI sagittal plan

Our therapeutic decision was to stop cabergoline, monitor the patient clinically every month and educate her about the signs of intracranial hypertension. The pregnancy went well without incidents on the gynecological and puituitary levels. Our patient gave birth to a healthy male infant and the postpartum period was uneventful.

At this stage, a control of the pituitary MRI (Figure 4) showed persistence of a nodular anteropituitary formation lateralized on the right measuring currently 5,5*4,6mmsiege of microcystic zones; it is responsible for a discrete bulging of the sellar diaphragm, pushes back the pituitary stem on the left and remains in distance of the optic chiasma; laterally arrives in contact with the right intracavernous carotid which appears respected, below: discrete collapse of the floor of the sphenoidal sinus.The GOLDMANN visual field has improved : right eye: discrete nasal notch / left eye: discrete nasal notch with a narrowing of the upper visual field.Breastfeeding has been allowed and maintained until now.

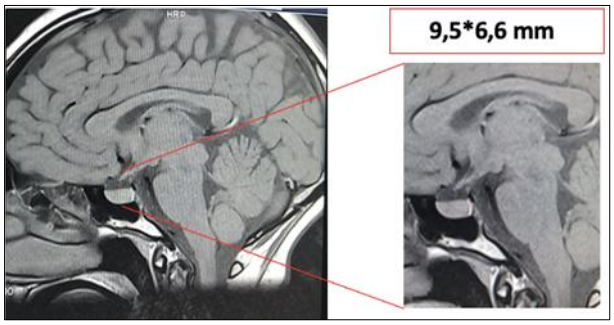

Figure 4 After birth MRI sagittal plan

3. Discussion

During pregnancy, the management of prolactinoma varies according to its tumoral volume.

For Macroadenoma not threatening the optic pathways, treatment with dopaminergic agonist will be interrupted as soon as pregnancy is diagnosed. The clinical follow-up will be stricter with a systematic visual field every two to three months, an MRI without injection after the first trimester of gestation. These examinations may be performed earlier if there are clinical warning signs [3,4]. Medical treatment may be reinstated at any time in case of threatening tumor evolution [5]. Regarding prolactin level, monitoring may be useful in this case because there is less confusion with the evolution of the physiological concentration [6].

If the macroprolactinoma is threatening to the optic pathways, tumor reduction surgery may be proposed, which will be complemented by the initiation of a dopaminergic agonist [5].

The evolutionary risk seems to justifier the continuation of drug treatment throughout pregnancy with bromocriptine [4].

If the treatment does not prove to be sufficiently efficacious, it is legitimate to change the molecule, to switch to cabergoline or quinagolide rather than risk foetal loss or premature delivery if decompressive surgery is used [7].

The patient should be informed of the evolutionary risks as well as the clinical signs that should lead to an emergency consultation. Thus, headaches or visual disorders will lead to an urgent visual field and MRI without gadolinium injection.

A confirmed volumetric evolution and functional consequences will lead to the introduction of a dopaminergic agonist during pregnancy. Bromocriptine should be introduced as first-line therapy; the choice of other molecules is only justified in case of documented resistance or intolerance to it [8].

Molitch proposes quarterly clinical follow-up, the introduction of bromocriptine in the event of tumor progression and, if resistant, induction of delivery if the term allows. As a last resort, he proposes transsphenoidal surgery in case of inefficiency of medical treatment [9].

for the post-partum period, there is less data in the literature. However, if the macroprolactinoma has not caused any complications during the pregnancy, the question of breastfeeding may be raised on a case-by-case basis. On the contrary, in the case of a threatening macroprolactinoma, breastfeeding should be formally contraindicated [10].

Ahmed et al. observed that two or three successive pregnancies obtained after bromocriptine in three patients with a prolactin macroadenoma resulted in a significative reduction in prolactin level and tumor volume [11].

The case of our patient showed a very significant tumor reduction during pregnancy and after birth. Note that this "curative" effect of pregnancy on prolactin adenomas has no clear explanation. It could be related to vascular modifications due to transient hyperestrogenism leading to necrosis or adenomatous microinfarcts [12]. we did not find in literature any observation with spontaneous tumor reduction during pregnancy without clinical complications e, hence the rarity of our observation.

4. Conclusion

The treatment of macroprolactinoma presents a great challenge for the practitioner. Its management is discussed a case-by-case. It goes from simple surveillance to dopaminergic agonists and ending in the ultimate cases with surgery. the usual evolution of macroprolactinoma during pregnancy is an increase in volume and in the best of cases stabilization of the tumor volume. spontaneous tumor reduction during pregnancy without clinical complications has not been described in the literature, hence the rarity of our observation.

Compliance with ethical standards

Acknowledgments

I thank all the authors of this article.

Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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