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Case Report **Endocrinology**

Apoplexy of Microprolactinoma after Cabergoline Therapy: Rare Situation but Big Emergency

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Abstract

Pituitary apoplexy (PA) is a rare clinical situation caused by pituitary infarction with or without haemorrhage. Although it is usually spontaneous, dopaminergic agonists (DA) are known to be predisposing factors, particularly Bromocriptine, more rarely Cabergoline. We report the case of a 31-years-old patient with a microprolactinoma who developed acute visual acuity loss due to pituitary apoplexy 5 months after taking Cabergoline. The evolution was marked by a considerable improvement of the visual state. Pituitary apoplexy is a rare situation. Often reported with Bromocriptine, PA can also occur with Cabergoline. Due to the high mortality and morbidity of apoplexy, it should be borne in mind that close monitoring is necessary when treatment with DA is prescribed and the patient should be informed of this risk. Although DA precipitate risk, treatment can be continued for hormonal and anti-tumour remission.

Keywords: Pituitary apoplexy, prolactinoma, Cabergoline.

INTRODUCTION

PA is a rare neuroendocrinological emergency that occurs following acute pituitary haemorrhage or infarction. It occurs in 2-12% of patients with pituitary adenomas, most commonly in non-functioning adenomas. Treatment with DA is known to be one of the precipitating factors, classically Bromocriptine, more rarely Cabergoline. The clinical picture is characterised by the sudden onset of severe headache, which may be associated with visual disturbances, with or without deterioration of consciousness. Endocrine deficits are not constant. Magnetic resonance imaging (MRI) is the most performer examination for detecting haemorrhage. Current studies highlight the value of conservative treatment instead of neurosurgical intervention, which was once considered urgent [1-3].

OBSERVATION

A 31 years old female patient, with no notable pathological history, consulted for headaches and menstrual irregularities. Pituitary hormone levels were normal except for hyperprolactinemia at 110 ng/ml (<25). MRI showed a pituitary microadenoma of 7x3 mm (Figure 1). Cabergoline was started at a dose of 0.5 mg per week, which brought the prolactin level down to the normal range (21 ng/ml). Five months later, the patient presented to the emergency room with a sudden headache and decreased visual acuity. The physical examination revealed a patient in good general conditions without shock, the ophthalmological examination showed bilateral papilloedema and preserved visual acuity. The visual field showed bilateral scotomas and the brain MRI revealed a necrotic-hemorrhagic transformation of the adenoma with an empty sella turcica (Figure 2). The endocrine work-up did not reveal any hormonal dysfunction. The patient was put on high doses of corticosteroids. The evolution is marked by a clear improvement of the visual field and papillary oedema.

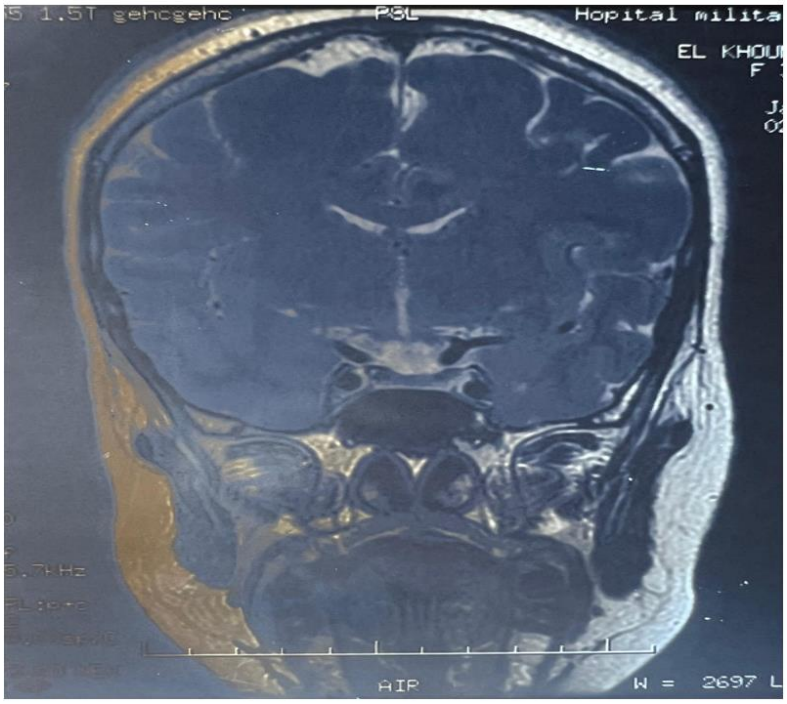

Figure 1: Right lateralized pituitary adenoma measuring 7x3 mm

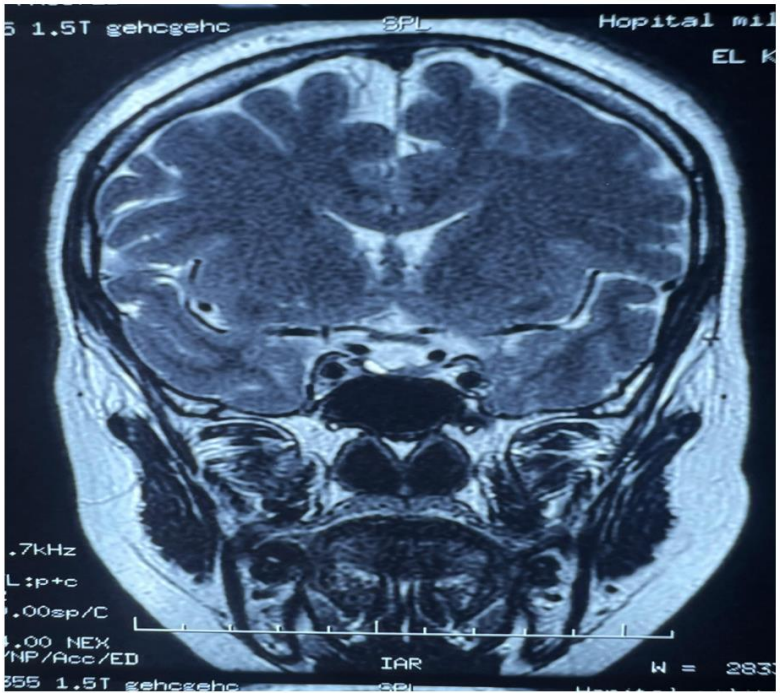

Figure 2: Necrotic transformation of right pituitary microadenoma with partially empty sella turcica

DISCUSSION

Pituitary infarction is the result of an imbalance between blood requirements and decreased intrinsic perfusion. In pituitary adenomas, the combination of increased intratumoral pressure, limited angiogenesis and reduced perfusion increases pituitary vulnerability to ischaemia and infarction [4].

PA is usually spontaneous, however several situations are attributed to its occurrence: large adenoma size, invasion of the cavernous sinus, hypertension, trauma, increased intracranial pressure, coughing, sneezing [5], endocrine stimulation tests [6], pregnancy, exogenous estrogen therapy [7], cardiac surgery [8] and thrombocytopenia [9].

DA administration is one of the known risk factors for PA, and this association has been widely described for Bromocriptine [1]. Although the mechanism is not elucidated, several studies have concluded that in some patients the reduction in tumour

size is secondary to necrosis and fibrosis of adenomatous cells [10]. These degenerative necrotic cells are likely to increase the risk of intratumoral haemorrhage and thus the risk of PA [11, 12]. Cabergoline acts in the same way as Bromocriptine. There is no study between the dose of Cabergoline and the risk of stroke, in most published cases the dose of Cabergoline varies between 0.5 and 3 mg/week [11]. PA occurred in our patient at a dose of 0.5 mg/week.

The clinical picture is dominated by headache/nausea/vomiting (61%), followed by visual disturbances (31%), cranial nerve palsies (23%), consciousness disturbances (15%) and lethargy (15%) [13]. Subclinical apoplexy may occur in 25% of cases; characterised by the discovery of intratumoral haemorrhage and necrosis on MRI without symptoms [2].

The management of apoplexy is multidisciplinary, with hospitalisation in a neurosurgical or endocrinological setting in close proximity to a neurosurgical centre recommended. Glucocorticoid treatment should be started immediately in case of (near constant) corticotropic insufficiency, haemodynamic instability and altered consciousness [14].

Decompression surgery is indicated in cases of impaired consciousness, recent or worsening severe visual impairment. Isolated oculomotor damage may be an indication for surgery for some teams but not for others [14, 3].

Conservative treatment is considered under the cover of corticosteroid therapy and clinical and ophthalmological monitoring. It is indicated in cases of contraindication to surgery (when the benefit/risk balance is against surgery), stable or long-standing moderate visual disorders or isolated oculomotor paralysis [14, 3, 15].

CONCLUSION

Pituitary apoplexy is a rare situation. Often reported with Bromocriptine, PA can also occur with Cabergoline. Due to the high mortality and morbidity of apoplexy, it should be borne in mind that close monitoring is necessary when treatment with DA is prescribed and the patient should be informed of this risk. Although DA precipitate risk, treatment can be continued for hormonal and anti-tumour remission.

REFERENCES

1. Chng, E., & Dalan, R. (2013). Pituitary apoplexy associated with cabergoline therapy. *Journal of Clinical Neuroscience*, *20*(12), 1637-1643. doi: 10.1016/j.jocn.2013.02.027.
2. Singh, P., Singh, M., Cugati, G., & Singh, A. (2011). Bromocriptine or cabergoline induced pituitary apoplexy: Rare but life-threatening catastrophe. *Journal of Human Reproductive Sciences*, *4*(1), 59. DOI:10.4103/0974-1208.82367
3. Sousa, D., Marques, O., & Almeida, R. (2014). Pituitary apoplexy: surgical or conservative management. doi: 10.1556/650.2021.32209.
4. Jahangiri, A., Clark, A. J., Han, S. J., Kunwar, S., Blevins, L. S., & Aghi, M. K. (2013). Socioeconomic factors associated with pituitary apoplexy. *Journal of neurosurgery*, *119*(6), 1432-1436. DOI: 10.3171/2013.6.JNS122323.
5. Bi, W. L., Dunn, I. F., & Laws, E. R. (2014). *Pituitary apoplexy. Endocrine*, *48*(1), 69 75. doi:10.1007/s12020-014-0359-y .
6. Chapman, A. J., Williams, G., Hockley, A. D., & London, D. R. (1985). Pituitary apoplexy after combined test of anterior pituitary function. *British Medical Journal (Clinical research ed.)*, *291*(6487), 26. DOI: 10.1136/BMJ.291.6487.26.
7. Cardoso, E. R., & Peterson, E. W. (1984). Pituitary apoplexy: a review. *Neurosurgery*, *14*(3), 363-373.
8. Peck, V., Lieberman, A., Pinto, R., & Culliford, A. (1980). Pituitary apoplexy following open-heart surgery. *New York state journal of medicine*, *80*(4), 641-643. DOI:10.1227/00006123-198403000-00021.
9. Semple, P. L., Jane Jr, J. A., & Laws Jr, E. R. (2007). Clinical relevance of precipitating factors in pituitary apoplexy. *Neurosurgery*, *61*(5), 956-962. DOI: 10.1227/01.neu.0000303191.57178.2a
10. Gen, M., Uozumi, T., Ohta, M., Ito, A., Kajiwara, H., & Mori, S. (1984). Necrotic changes in prolactinomas after long term administration of bromocriptine. *The Journal of Clinical Endocrinology & Metabolism*, *59*(3), 463-470. DOI:10.1210/JCEM-59-3-463.
11. Aydin, B. Ü. N. Y. A. M. İ. N., Aksu, O., Asci, H., Kayan, M., & Korkmaz, H. (2018). A rare cause of pituitary apoplexy: cabergoline therapy. *Acta Endocrinologica (Bucharest)*, *14*(1), 113-116. doi: 10.4183/aeb.2018.113.
12. Balarini Lima, G. A., Machado, E. D. O., dos Santos Silva, C. M., Filho, P. N., & Gadelha, M. R. (2008). Pituitary apoplexy during treatment of cystic macroprolactinomas with cabergoline. *Pituitary*, *11*(3), 287-292. DOI: 10.1007/S11102-007-0046-6.
13. Rolih, C. A., & Ober, K. P. (1993). Pituitary apoplexy. *Endocrinology and metabolism clinics of North America*, *22*(2), 291-302. DOI: 10.1590/2359-3997000000047.
14. Chanson, P., Raverot, G., & Castinetti, F. Prise en charge des adénomes hypophysaires cliniquement non fonctionnels synthèse et Recommandations.
15. Muthukumar, N. (2020). Pituitary apoplexy: a comprehensive review. *Neurology India*, *68*(7), 72-78. doi: 10.4103/0028-3886.287669.