
Complete restoration of visual field defects following surgical treatment of pituitary adenoma

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ABSTRACT

Pituitary adenomas cause visual manifestations, due to compression of the optic chiasm. These manifestations include vision loss and Visual Field defects, most commonly bi-temporal hemianopsia and mixed defects. Interesting fact is that the defects may recover almost after decompression of the optic chiasm. Our aim is to present a case of rapid post-operative recovery, after surgical adenomectomy.

Key words: pituitary adenoma, optic chiasm, bi-temporal hemianopsia, visual fields.

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Introduction

Pituitary adenomas are tumors of the pituitary gland, usually benign, with a mild tendency for malignancy in some cases. Apart from the various hormonal disorders they provoke, they also cause visual manifestations, due to compression of the optic chiasm. These manifestations include vision loss and visual field defects, most commonly bi-temporal hemianopsia and mixed defects, diplopia and pallor of the optic nerves.¹ In many cases, vision loss is the first symptom patients identify, before any perimetric, or even before other symptoms occur, such as headaches, suggesting an early stage of the condition. The preferred surgical procedure for most adenomas is a trans-sphenoidal adenomectomy. Interesting fact is that the perimetric defects may recover after decompression of the optic chiasm in the majority of patients.² Time plays a determinant role, since early decompression is linked to better visual outcome.³

Our aim is to present a case of rapid postoperative recovery, after surgical adenomectomy.

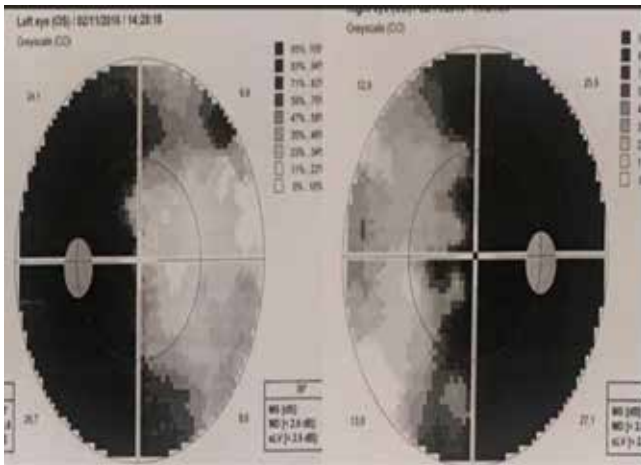


Figure 1: Visual Field testing preoperatively illustrating bi-temporal hemianopsia

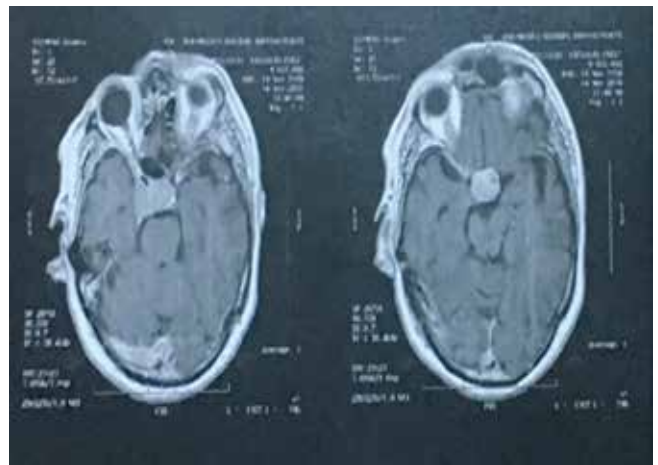


Figure 2: MRI Scan- Findings consistent with pituitary macroadenoma, size: 28x25x32mm

Methods

A 66 year old male presented in our outpatient department complaining of vision loss for the past few months. During examination, patient was found to have a best corrected visual acuity of 0.4, slit-lamp examination showed no significant findings, and fundoscopy revealed pallor of the optic nerves, with a normal cup/disc ratio. Perimetry was carried out, which illustrated a bi-temporal hemianopsia. (Figure 1) Finally, the investigation was completed with an MRI scan, which confirmed the diagnosis of the pituitary adenoma. (Figure 2)

Results

Patient was submitted to a trans-sphenoidal adenectomy, and then performed a new Perimetry two weeks later. The examination revealed complete restoration of the predominant defects in both temporal quadrants. (Figure 3) Visual acuity also improved to 0.6.

Discussion

Anatomical damages to the optic path are accurately portrayed in the visual field examination. Chiasmatal compression classically leads to visual field defects that are more prevalent in the temporal quadrants.¹⁻³ Studies have shown that early decompression is crucial for competent recovery, since morphological recovery of the optic chiasm is intimately linked with all visual field sectors and visual outcome.¹ The

loss of ganglion cell axons and optic atrophy are omens of a sparing improvement postoperatively, that suggest a recovery of visual acuity that will never reach the optimum.² Nevertheless, the vast majority of patients with pituitary adenoma, report immediate improvement of their vision upon awakening after surgery, and also show sufficient visual field defect restoration, soon after.³ In a clinical study carried out in Sweden, 11 patients with pituitary adenoma were examined with perimetry preoperatively and 2 days after trans-sphenoidal adenectomy. Results showed evident improvement both in visual acuity and visual field defects in 20% of patients even on the 2nd postoperative day indicating that recovery of the optic chiasm is intimately linked with all visual field sectors and visual outcome.² Interestingly, visual acuity did not improve any further thereafter. Visual field

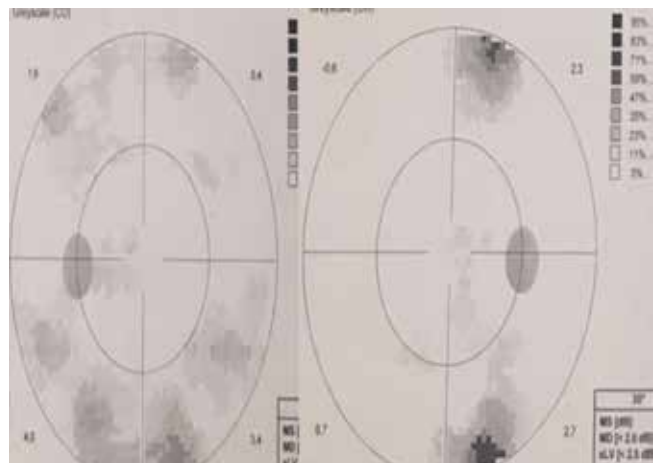


Figure 3: Complete restoration of visual field defects, after adenectomy

defects on the other hand, continued to improve two weeks later, which indicates that other factors that are considered to be responsible for axonal damage in compressive disorders, such as demyelination and ischemia, probably require more time to resolve.¹⁻³

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