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Case Report

Optical Coherence Tomography Abnormalities as the Presenting Sign of an Involuted Sellar/Suprasellar Mass

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Abstract
Introduction: Pituitary adenomas are benign tumours that can lead to visual loss through compression of the optic chiasm. Patients with pituitary adenomas often present with visual field defects (commonly bitemporal hemianopia), but some may be asymptomatic. In such cases, abnormalities may only be detected through visual field testing or optical coherence tomography (OCT) of the ganglion cell-inner plexiform layer (GCIPL), which may provide a more sensitive method for detecting such abnormalities. ***Case Presentation:*** A 72-year-old man was incidentally found to have binasal OCT-GCIPL thinning during a routine eye examination. Visual acuity was 20/20 in both eyes. Pupils were equal and reactive without a relative afferent pupillary defect. His Humphrey 24-2 SITA-Fast visual field test results were normal. A magnetic resonance imaging (MRI) revealed a nonenhancing (cystic) sellar/suprasellar mass measuring 1.7 cm craniocaudal by 2.1 cm anteroposteriorly, without associated optic chiasm compression. The lesion was suspected to be either a cystic pituitary adenoma or a Rathke's cleft cyst. Follow-up examination 1 year later showed all findings remained stable, including an unchanged visual acuity, visual fields, OCT-GCIPL, and MRI. ***Conclusion:*** The binasal thinning observed on OCT-GCIPL in this case, despite the absence of chiasmal compression on MRI, is suggestive of previous compression of the optic chiasm. This case highlights the potential for spontaneous regression of pituitary adenomas and underscores the importance of OCT-GCIPL as a vital tool for detecting optic chiasmal damage.

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Introduction

Pituitary adenomas are a benign type of tumour that often present with vision loss due to their proximity to the optic chiasm. Growth of pituitary adenomas can exert pressure on the optic chiasm, leading to visual disturbances, particularly peripheral vision loss in the form of a bitemporal hemianopia.

Sometimes, patients may present with normal visual fields, and involvement of the visual pathways is confirmed through optical coherence tomography (OCT) ganglion cell-inner plexiform layer (GCIPL) [1]. OCT analysis is more sensitive than visual field analysis and can detect changes in the GCIPL, which indicates optic nerve compression [1].

We present a case in which the patient's visual field was normal; however, they presented with OCT GCIPL abnormalities on a routine eye exam. The magnetic resonance imaging (MRI) sella with contrast showed no contact between the tumour and optic chiasm, indicating previous compression of the optic chiasm that was only captured by OCT analysis.

Case Report

A 72-year-old man presented to his optometrist for a regular eye assessment. He had no visual complaints. His past medical history was significant for gastroesophageal reflux disease, and his only medication was rabeprazole. He had no prior ocular history. His optometrist performed an OCT and noticed abnormalities, and he was therefore referred to ophthalmology. The eye examination showed a visual acuity of 20/20 OD and 20/20 OS. Pupils were equal and reactive; there was no relative afferent pupillary defect. Intraocular pressure was 16 OD and 14 OS, and his colour vision was 14/15 Ishihara colour plates in each eye. Dilated fundus examination showed trace pallor of the temporal parts of both optic nerves. OCT of the retinal nerve fibre layer showed temporal thinning of both optic nerves, and OCT of the GCIPL showed binasal thinning of both maculae (Fig. 1). Humphrey 24-2 SITA-Fast visual field testing was normal (Fig. 2). Due to the binasal OCT GCIPL thinning, compression of the optic chiasm was suspected and the patient underwent MRI of the sella with contrast. This showed a T1 hypointense and T2 hyperintense non-enhancing (cystic) sellar/suprasellar mass which measured 1.7 cm craniocaudal by 2.1 cm anteroposteriorly by 2.9 cm (Fig. 3). There is suprasellar extension but no compression of the optic chiasm. There was thinning of the optic chiasm but no associated signal change. The lesion was felt to be most likely a cystic pituitary adenoma or a Rathke's cleft cyst. Due to the absence of compression of the optic chiasm and his normal visual function, the patient was observed. The eye exam including visual acuity, Humphrey 24-2 SITA-Fast visual fields, and colour vision all remained normal after 1 year. The MRI scan was also unchanged at that time.

Discussion

We present a unique case of a sellar/suprasellar mass that we believe previously compressed the optic chiasm but presumably spontaneously involuted. This was able to be captured by OCT RNFL and GCIPL that showed a pattern that confirms previous optic chiasm compression, mainly binasal macular atrophy of the GCIPL and temporal thinning of the optic nerves. The MRI also showed atrophic optic nerves, which also confirms previous compression. There was no radiological contact between the sellar/suprasellar mass and the optic chiasm, indicating there was no ongoing compression.

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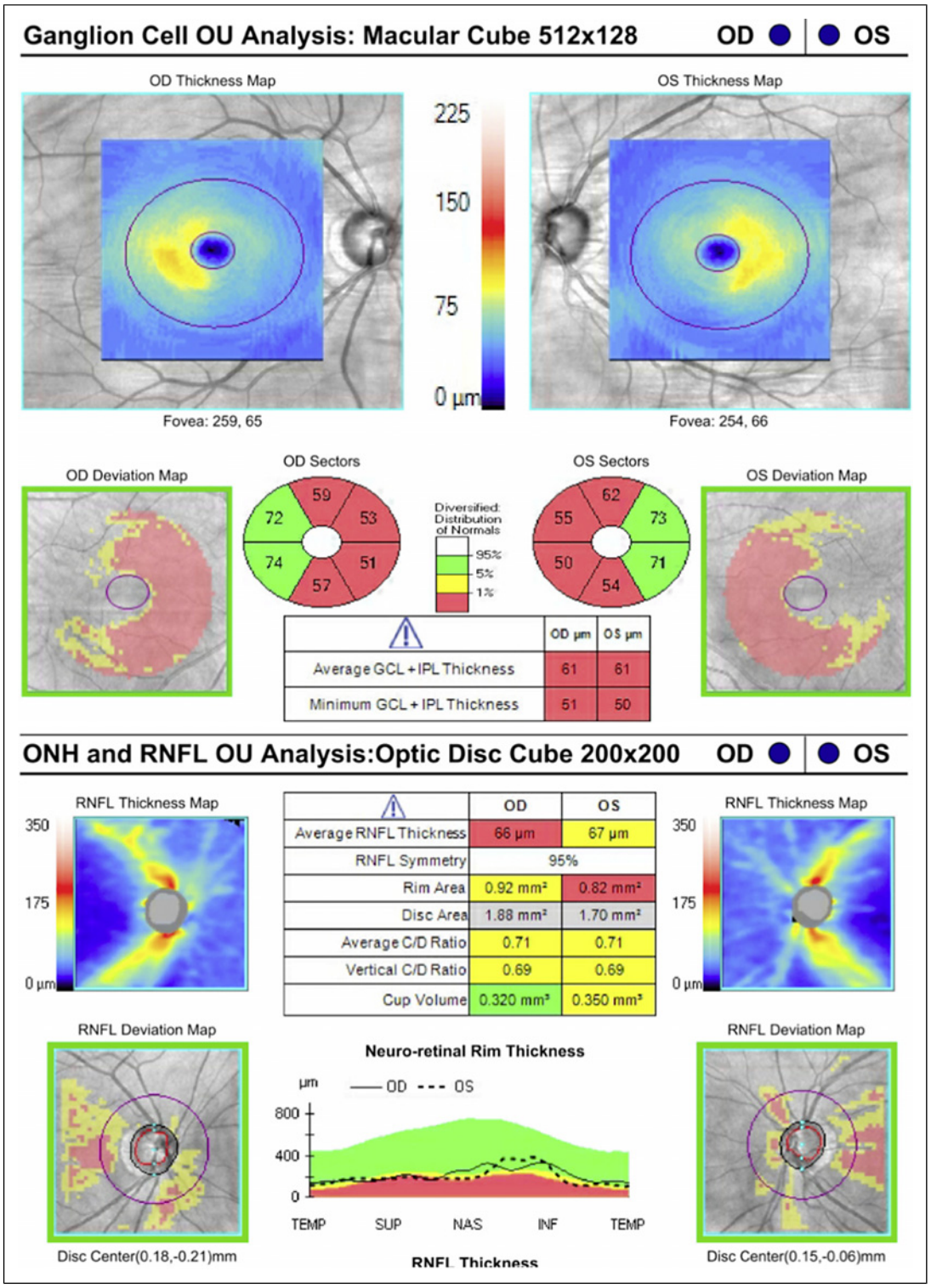

Fig. 1. OCT of the GCIPL (top) and retinal nerve fibre layer at presentation.

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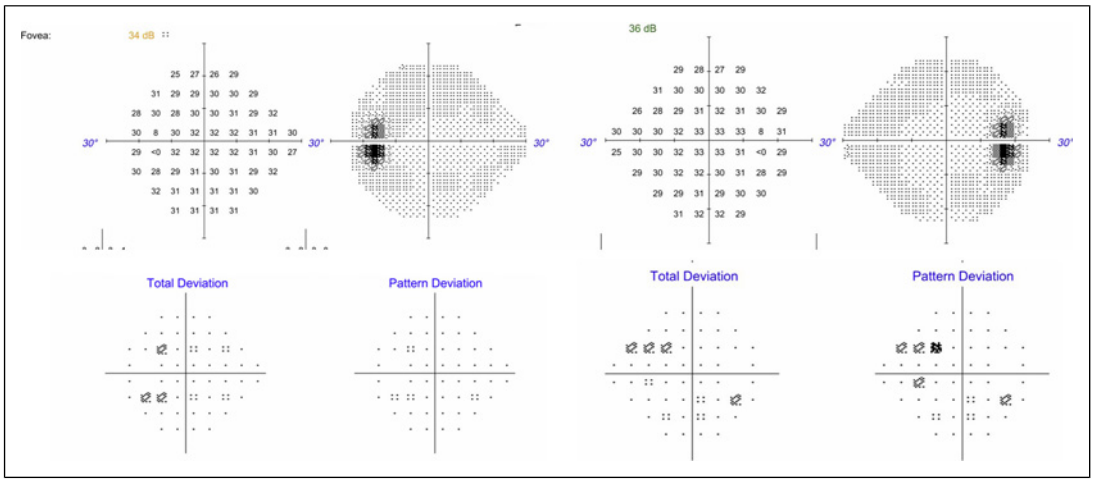

Fig. 2. Humphrey 24-2 SITA-Fast visual fields.

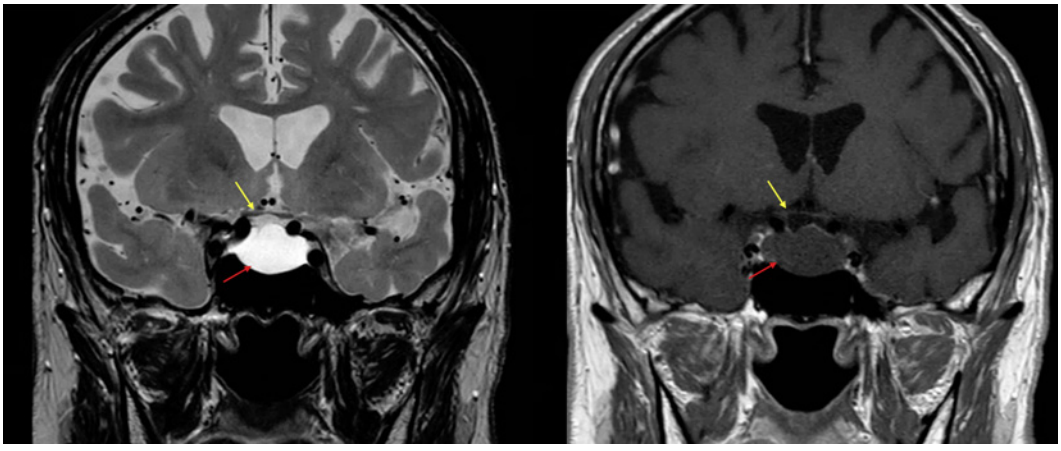

Fig. 3. MRI of the sella (T2 top and T1 post-contrast bottom) indicating atrophy of the optic chiasm (yellow arrow) and a T1 hypointense and T2 hyperintense nonenhancing (cystic) sellar/suprasellar mass (red arrow).

Spontaneous involution of sella masses is rare, happening in about 9% of pituitary adenomas and 16% of Rathke's cleft cysts [2]. Spontaneous involution of lesions occurs due to many reasons including pituitary apoplexy, tumour ischaemia, necrosis, and lymphocytic hypophysitis. In some other cases, the patient's vision improves; however, the size of the lesion stays the same [3]. There are cases of pituitary adenomas with visual field defects due to compression of the optic chiasm that improve after involution. In one such case, the patient's visual acuity improved within a month of tumour involution [4].

Despite the patient's normal visual field, the OCT findings suggested the presence of a mass that was exerting pressure on the optic chiasm. However, there was no compression of the optic chiasm in the follow-up MRI, indicating that the sella mass was smaller than before. This offers greater comfort to the patient in signifying an improvement in their condition and provides reassurance that there is no need for immediate intervention. Ongoing monitoring with MRI and visual assessments is still recommended. The CARE

Checklist has been completed by the authors for this case report, attached as online supplementary material (for all online suppl. material, see https://doi.org/10.1159/000541680).

Statement of Ethics

Ethical approval is not required for this study in accordance with local or national guidelines. Written informed consent was obtained from the patient for publication of the details of their medical case and any accompanying images.

Conflict of Interest Statement

The authors do not have any conflicts of interest to disclose.

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Author Contributions

J.A.M. contributed to the planning, data collection, data analysis, editing, and reviewing of the manuscript. A.V. contributed to literature review, writing, and reviewing. All authors approved the final manuscript for publication.

Data Availability Statement

All data generated or analysed during this study are included in this article and its online supplementary material. Further enquiries can be directed to the corresponding author.

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