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BACKGROUND

Pituitary adenomas (PA) are the most common tumor of the Sella turcica brain region, accounting for 12–15% of symptomatic intracranial brain tumors. Usually occurs in adults with no gender predilections. Using Cranial Tomography (CT) and Magnetic Resonance Imaging (MRI) (Fig.1) is possible to classify it as a macroadenoma when size is ≥ 10 mm. The tumor compression on the optic nerve or chiasm leads to axonal damage that causes visual field (VF) defects, thinning of the retinal nerve fiber layer (RNFL), and a reduction in the macular ganglion cell complex (GCC) thickness measured by Optical coherence tomography (OCT). We present two clinical cases with different management approaches based on a previous structure-function evaluation.

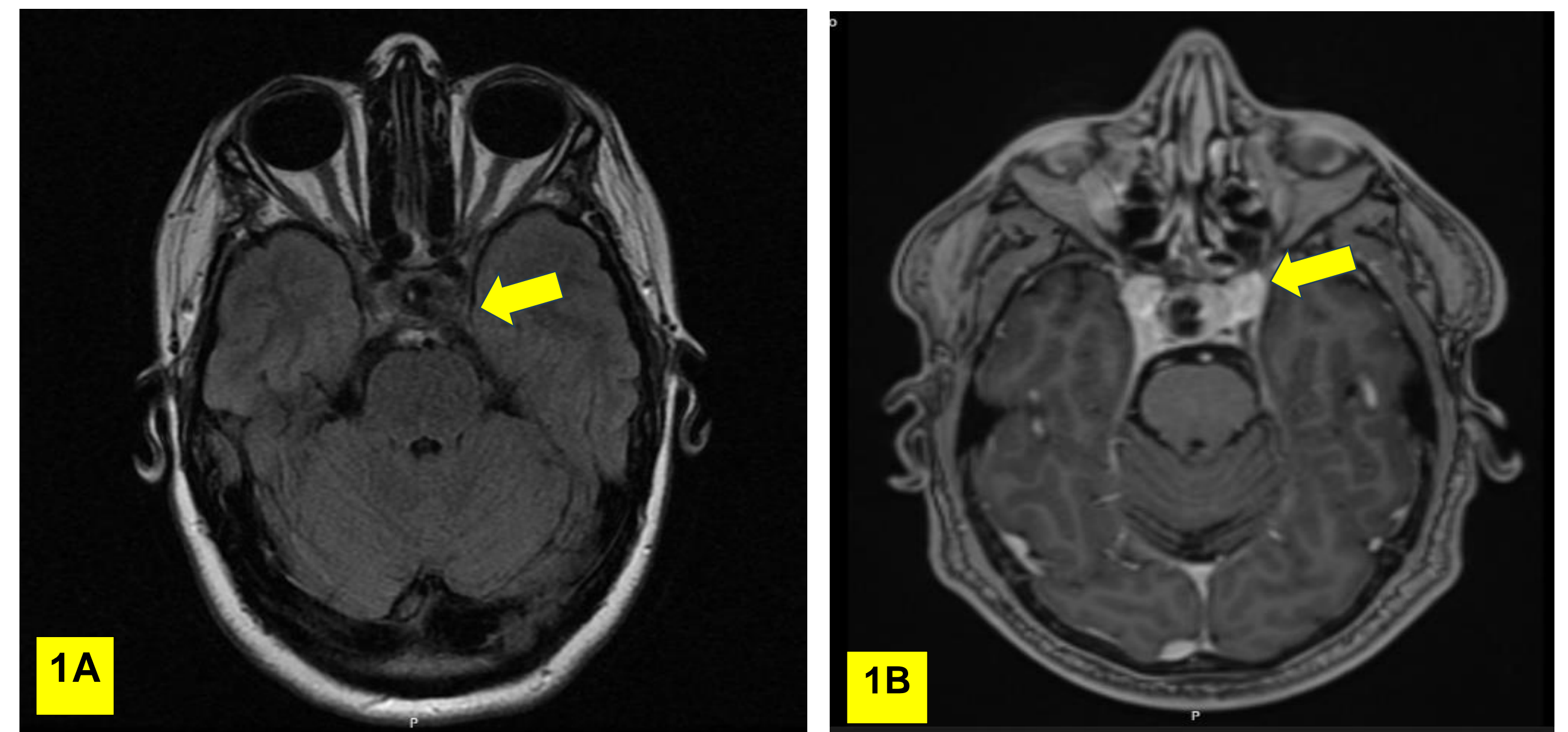


Figure 1: In Case 1 (1A), the cranial brain MRI with axial plane demonstrated the location of the lesion (yellow arrow). In case 2 (1B) the CT showed a residual lesion after two surgeries observed (yellow arrow).

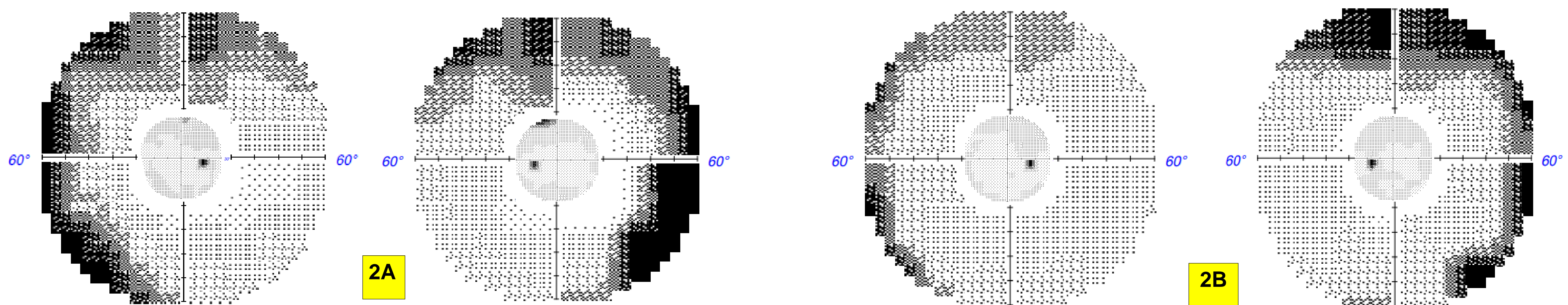
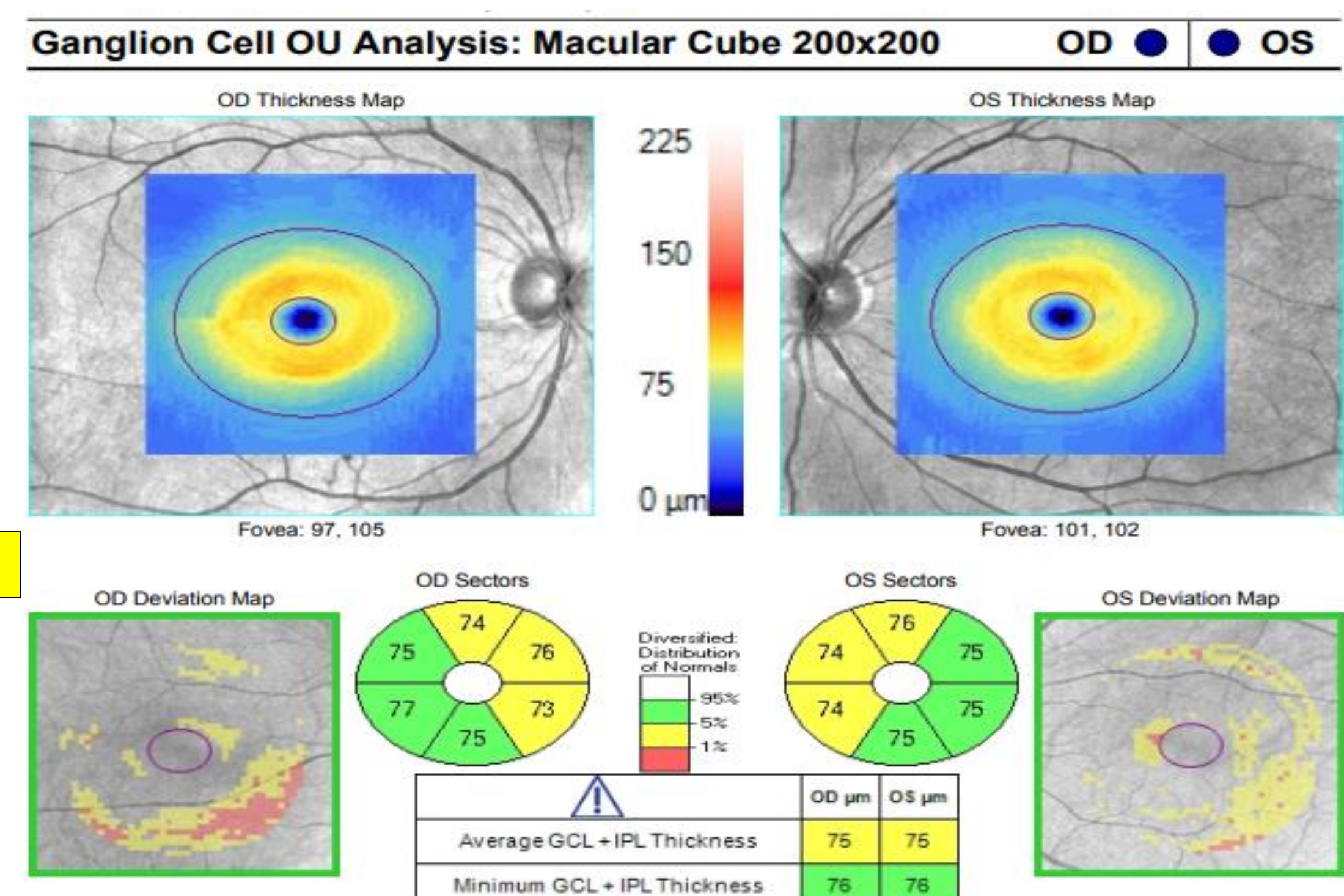


Figure 2: Humphrey Field Analysis (Carl Zeiss®) static perimetry using the program 30-2 (internal image zone) and 60-4 (external image zone) with a standard strategy. In Case 1 (2A), nasal and superior defects are observed in both eyes. In Case 2 (2B), a nasal visual field defect is observed in both eyes with the superior defect having greater depth in the LE.

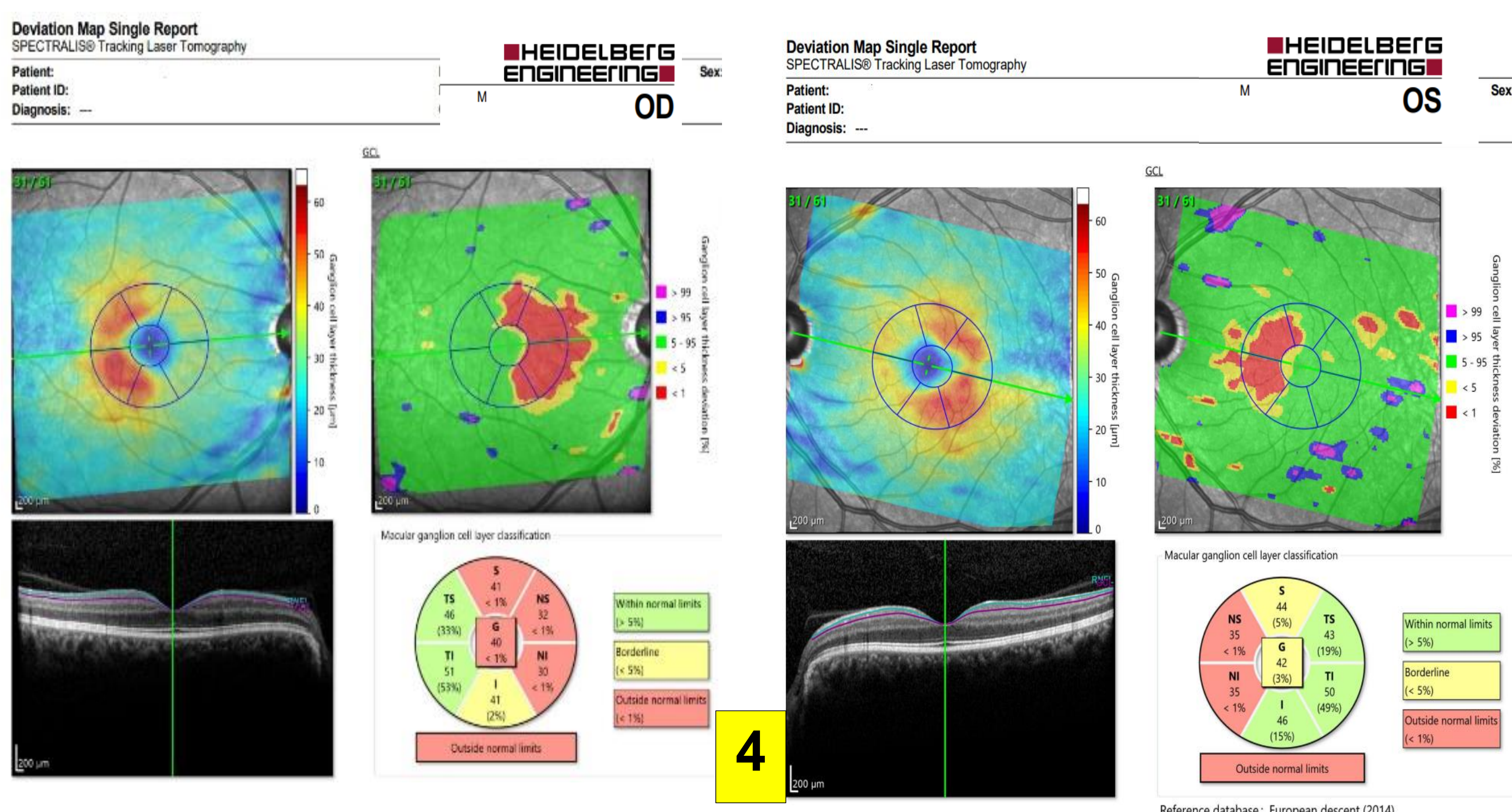
Case 1

- ✓ Female, 32 y. | No surgery indication in January 2020
- ✓ IOP (applanation): 14mmHg (RE and LE)
- ✓ BCVA (ETDRS scale): 1.0 (RE and LE)
- ✓ Fundoscopy: Cup to disc ratio RE 0.4 / LE 0.5; optic disc of the left eye pale on nasal margin; no macular changes

3 CIRRUS HD-OCT 5000 (Carl Zeiss®) analysis of GCC-IPL thickness demonstrating borderline values in nasal-inferior sectors of both eyes.



Case 2



- ✓ Male, 48 y. | craniotomy in 2018 and transphenoidal surgery in 2019
 - ✓ Diagnosis of glaucomatous optic neuropathy in 2020
 - ✓ IOP (applanation): RE=24mmHg and LE=20mmHg
 - ✓ BCVA (ETDRS scale): 1.0 (RE and LE)
 - ✓ Fundoscopy: Cup to disc ratio RE 0.6 / LE 0.5; papillary pallor in LE; no macular changes.
- 4** Analysis of the GCC-IPL thickness by Heidelberg Engineering® demonstrating pathological values in both nasal sectors of both eyes. In RE, the superior sector is pathological, and the LE has borderline value.

Take-home messages

The VF has been considered a gold standard choice in the assessment of lesions affecting visual pathways, with bitemporal hemianopia as the commonest VF defect in PA. OCT has emerged as a tool to analyze RNFL and GCL-IPL in PA, contributing to an early diagnosis, post-operative prognosis, and follow-up of patients with anterior visual pathway lesions. Macular OCT segmentations have allowed acute measurements of GCL-IPL thickness, to complement VF defects in patients with chiasmal compression. This could be considered in the routine assessment of PA patients.