

## A Case of Shape Shifting Scotoma

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### Abstract

An interesting case of a 58 yr old male presented with defective right sided field of vision. 2 years back, he contracted acute weight gain, muscular weakness, fatigue, episodic flushing and visual loss in both eyes on temporal field of view indicating a Bitemporal hemianopia. He was diagnosed to have Cushing disease due to pituitary macro-adenoma and underwent trans-sphenoidal craniotomy for tumour removal, was asymptomatic for 3 months and experienced improvement in field defect, not resolving fully. After 3 months, he developed defective vision in right field of vision in both eyes. MRI revealed metastasis to Left parietal lobe, subsequently treated with External Beam Radio-Therapy. Current visual acuity is 6/6p in both the eyes. Both the eyes showed disc pallor. HFA 30-2 showed Right sided homonymous hemianopia with Left Eye showing involvement of temporal field also.

**Keywords:** Craniotomy; Visual Acuity

### Introduction

Visual fields have always been a boon for all us ophthalmologists, aiding in early diagnosis of neurological disorders, monitoring their progression and recurrences. Whenever there is a deviation from the pre-existing field defect, it makes the case worth everybody's attention.

Bitemporal hemianopia is known to occur most commonly whenever a lesion affects the optic chiasm. Most common causes include - Pituitary Adenomas, Craniopharyngioma, Meningioma, Vascular Aneurysm, Fibrous dysplasia, Demyelination, Trauma. Isolated Bitemporal hemianopias without associated neurological deficits have also been reported as a result of head trauma [1].

Homonymous hemianopias are caused on the contralateral sides of a lesion affecting the visual pathways from optic tract to the visual area in the occipital lobe. Most common causes include- Vascular occlusions, primary and secondary tumours, Trauma [2].

### Case Report

A 58 year old male reported to us with complaints of defective right sided field of vision for past 2 years. He was a known diabetic and hypertensive on treatment. General examination was normal. Best corrected visual acuity in both eyes was 6/6. Anterior segment examination was normal. Posterior segment showed bilateral primary optic atrophy (Figure 1). Initially, he started experiencing symptoms of acute weight gain, progressive muscular weakness, chronic fatigue, episodic flushing.



**Figure 1:** Bilateral primary optic atrophy.

Patient experienced symptoms of sudden progressive visual loss in both eyes. The vision loss was noted predominantly on temporal field of vision. After consultation with a local ophthalmologist, a diagnosis of Bitemporal hemianopias was made and confirmed on Visual field analysis by Humphrey visual field analyser (Figure 2). An Endocrinologist’s opinion was taken and patient underwent necessary blood investigations and neuroimaging. A diagnosis of Cushing syndrome due to Pituitary adenoma was made (Figure 3). Patient underwent trans-sphenoidal Craniotomy for excision of pituitary adenoma. Following the surgery, patient’s clinical symptoms improved. On repeat ophthalmic examination, visual fields showed incomplete Bitemporal hemianopias, which according to the patient had improved partially.

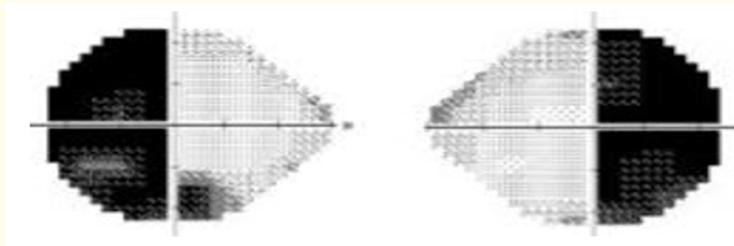


Figure 2: Initial Bitemporal hemianopia.

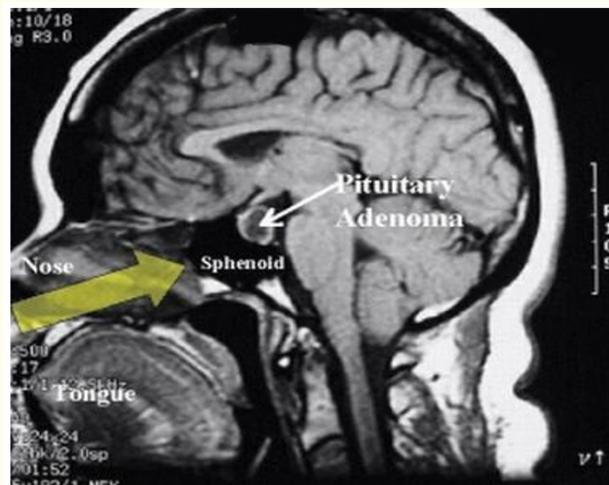
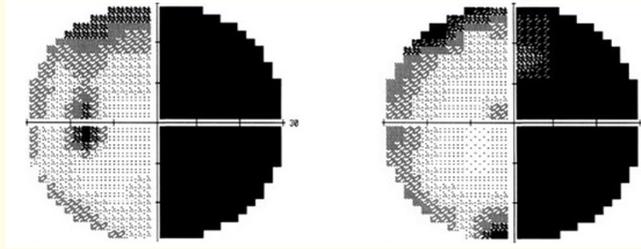


Figure 3: Primary pituitary adenoma.

3 months after the craniotomy, patient started developing defective vision in his right hemifield, which was progressive in nature. Visual Field evaluation revealed right sided homonymous hemianopia (Figure 4). A repeat MRI, at the behest of a neurosurgeon, revealed metastasis of the tumor to the left parietal lobe, which prompted treatment with External Beam Radiation Therapy (EBRT). The subsequent treatments resulted in complete resolution of the tumour.



**Figure 4:** Resultant Right sided homonymous hemianopia.

Patient has since then maintained best corrected visual acuity of 6/6 in both the eyes till the last follow up visit 1 year back. Although his visual fields have stabilized at right sided homonymous hemianopia and partial affliction of left sided field and have showed no further improvement.

### Discussion

Bitemporal hemianopias are well documented complications of pituitary tumours, being the most common visual finding [3].

Likewise unilateral homonymous hemianopia can be associated with lesions similar to parietal lobe tumours. We are yet to identify any other such case in the existing literature which mimics our case in terms of changes in the shape of scotomas resulting from neurological disorders [4].

This case highlights the importance of close follow up and serial visual field monitoring in our day to day practice, especially neurophthalmology. It underlines the importance of visual complaints and visual field defects which aid in early diagnosis of Space occupying lesions and serial follow up.

### Conclusion

Bitemporal hemianopias have not been shown to metamorphose into homonymous hemianopias in existing literature. Hence, Serial monitoring of visual fields in intracranial causes of visual acuity and visual field loss should be mandatory in daily practice.

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