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Silent Stroke Presenting as Left Homonymous Hemianopia in a 42-Year-Old Male with Type 2 Diabetes Mellitus

Running Title: Silent Stroke with Hemianopia

Dr. Summaiya Irshad

(MBBS, MS FIOL), Senior Resident, ASCOMS
Email: *summaiya93.si[at]gmail.com*

Abstract: ***Background: Silent cerebral infarctions are increasingly recognized as underdiagnosed contributors to cognitive and visual disability. Ophthalmologists often play a pivotal role in identifying subtle neurological deficits such as homonymous hemianopia. Case presentation: We report a 42-year-old male, chronic smoker and alcoholic with poorly controlled type 2 diabetes mellitus, who presented with complaints of difficulty in vision and mild eyeache on the left side. Ocular examination revealed best-corrected visual acuity of 5/60 in the right eye and 6/18 in the left eye. Fundoscopy demonstrated scattered dot-blot hemorrhages. Perimetry showed left homonymous hemianopia. MRI brain revealed right parieto-occipital gliosis consistent with an old ischemic insult, establishing the diagnosis of a silent stroke. Management and outcome: The patient was referred to neurology, started on dual antiplatelet therapy, strict glycemic control, and advised lifestyle modification. On follow-up, hemorrhages had resolved and visual field defects showed partial improvement, though left hemianopia persisted. Conclusion: This case highlights the importance of ophthalmological evaluation in detecting silent cerebral infarctions. Homonymous hemianopia in relatively young patients with systemic risk factors such as diabetes, smoking, and alcohol use warrants prompt neuroimaging and interdisciplinary management.***

Keywords: Homonymous Hemianopia; Silent Stroke; Parieto-Occipital Gliosis; Diabetes Mellitus, Type 2; Visual Fields; Neuro-ophthalmology

1. Introduction

Silent strokes, also known as covert cerebral infarctions, are ischemic brain lesions that occur without overt neurological symptoms and are often discovered incidentally on neuroimaging. Despite being clinically "silent," they carry significant prognostic importance, predisposing patients to cognitive impairment, dementia, and recurrent strokes [1, 2].

Ophthalmologists may be the first physicians to suspect a silent stroke when patients present with visual complaints. Retrochiasmal lesions typically cause homonymous hemianopia, a field defect affecting the contralateral visual hemifield in both eyes [3].

We present a case of a 42-year-old male with poorly controlled type 2 diabetes mellitus, chronic smoking, and alcohol intake, who developed left homonymous hemianopia secondary to right parieto-occipital gliosis. This case underscores the need for awareness of neuro-ophthalmic presentations of silent strokes, particularly in young patients with vascular risk factors.

2. Case Report

A 42-year-old male presented to our outpatient department with complaints of blurred vision and difficulty noticing objects on his left side for the past three weeks. He reported missing the beginning of lines while reading and frequently bumping into objects placed on his left.

Past Medical History

- Type 2 diabetes mellitus for 5 years, irregular treatment compliance
- Chronic smoker (~20 pack-years)
- Regular alcohol consumption (~90 g ethanol/week)
- No prior history of stroke, transient ischemic attacks, or head trauma

Ocular Examination

- Best corrected visual acuity: 5/60 in the right eye, 6/18 in the left eye
- Anterior segment: unremarkable in both eyes
- Pupils: Relative afferent Pupillary defect
- Fundus: Multiple scattered dot-blot hemorrhages in all quadrants, consistent with non-proliferative diabetic retinopathy

Perimetry

Automated Humphrey visual field testing 24-2) revealed a dense left homonymous hemianopia respecting the vertical midline.

Neurological assessment

Given the visual field defect, the patient was referred to neurology. Detailed neurological examination revealed no motor or sensory deficits. Cognitive assessment was within normal limits.

MRI brain demonstrated right parieto-occipital gliosis with areas of encephalomalacia, consistent with a prior ischemic insult. No acute infarct was seen. The findings confirmed a silent stroke as the etiology of the hemianopia.

Management

The patient was started on dual antiplatelet therapy (aspirin 75 mg + clopidogrel 75 mg daily), advised strict blood sugar control, and counseled for smoking and alcohol cessation. He was also referred to a diabetes clinic for optimization of glycemic management. Oral antioxidants and topical NSAIDs was prescribed

Outcome and follow-up

At 3-month follow-up, fundus examination showed resolution of hemorrhages, while visual acuity improved to 6/18 in the right eye and 6/12 in the left. Visual field testing demonstrated significant recovery from visual field defect. The patient was enrolled in visual rehabilitation therapy.

3. Discussion

Silent cerebral infarctions are up to 5–10 times more common than symptomatic strokes and may occur in 10–20% of middle-aged adults with diabetes [4]. They are frequently underrecognized, as patients do not experience acute neurological deficits.

This case illustrates several important learning points:

1) Risk factors: The patient had multiple vascular risk factors: uncontrolled diabetes, smoking, and alcohol consumption. These are well-established contributors to cerebral small vessel disease [5].
2) Neuro-ophthalmic presentation: Homonymous hemianopia results from retrochiasmal lesions. In this case, the right parieto-occipital gliotic changes disrupted the visual cortex responsible for processing the left visual hemifield [6].
3) Ophthalmologist's role: Patients often present to eye clinics first, complaining of vision difficulties without recognizing field loss. Careful perimetry is essential for diagnosis and timely referral to neurology [7].
4) Management: Silent strokes require the same secondary prevention strategies as symptomatic strokes. Dual antiplatelet therapy, strict glycemic control, and risk factor modification significantly reduce recurrence risk [8].
5) Prognosis: Visual field recovery depends on lesion extent and neuroplasticity. While partial improvement may occur, many patients require long-term visual rehabilitation strategies such as scanning training or prism glasses [9].

4. Conclusion

Silent strokes may manifest solely as visual field defects, especially in patients with vascular risk factors. Ophthalmologists play a crucial role in early detection by recognizing patterns such as homonymous hemianopia. Prompt neuroimaging and multidisciplinary management are essential to prevent recurrent strokes and long-term morbidity.

References

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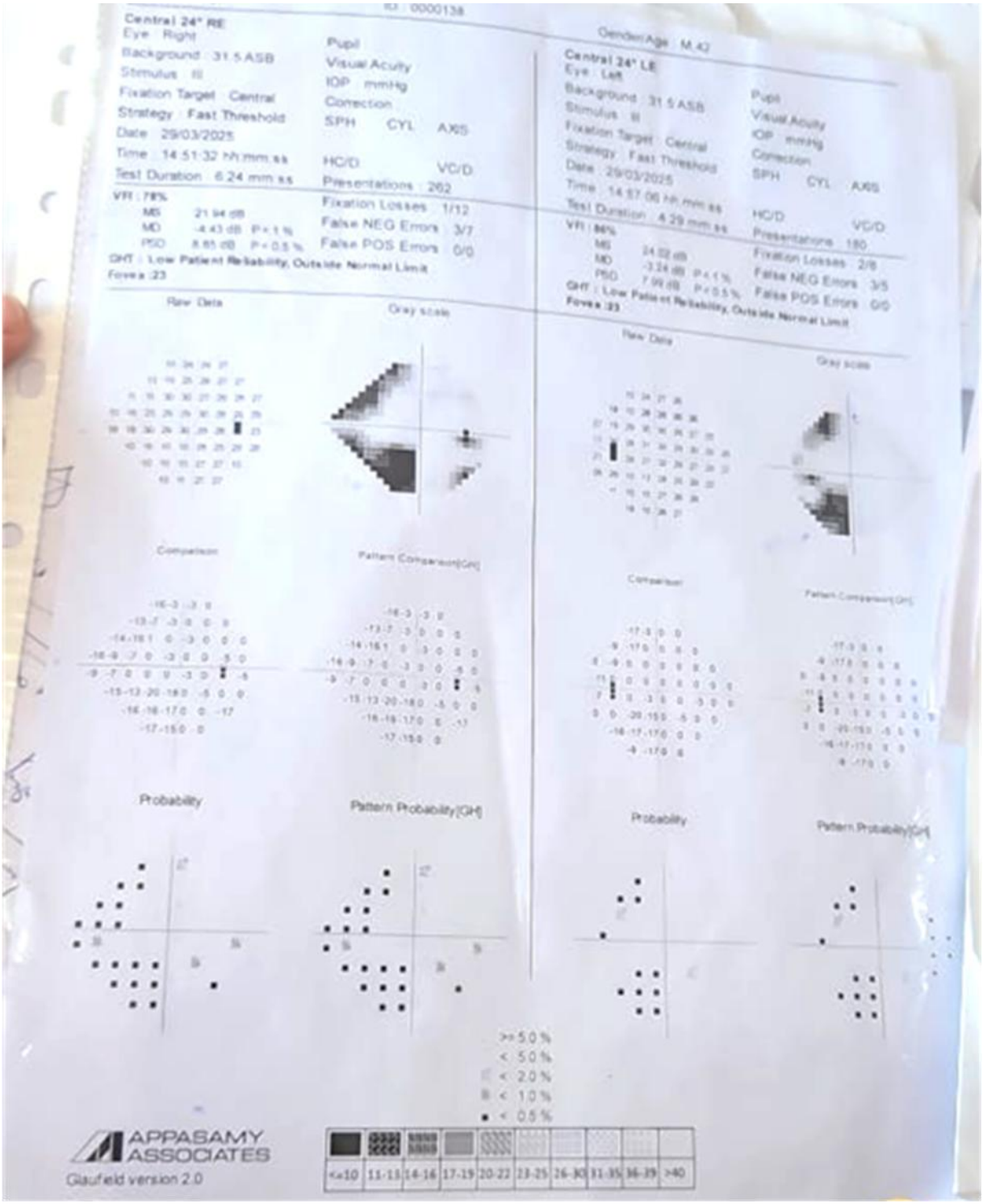
Central 24° RE
Eye : Right
Background : 31.5 ASB
Stimulus : III
Fixation Target : Central
Strategy : Fast Threshold
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Time : 14:51:32 hh:mm:ss
Test Duration : 6.24 mm:ss
VFI : 78%
MS 21.94 dB
MD -4.43 dB P < 1 %
PSD 8.85 dB P < 0.5 %
GHT : Low Patient Reliability, Outside Normal Limit
Fovea :23
Pupil
Visual Acuity
IOP mmHg
Correction
SPH CYL AXIS
HC/D VC/D
Presentations : 262
Fixation Losses 1/12
False NEG Errors 3/7
False POS Errors 0/0
Gender/Age : M,42
Central 24° LE
Eye : Left
Background : 31.5 ASB
Stimulus : III
Fixation Target : Central
Strategy : Fast Threshold
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Time : 14:57:06 hh:mm:ss
Test Duration : 4.29 mm:ss
VFI : 86%
MS 24.02 dB
MD -3.24 dB P < 1 %
PSD 7.99 dB P < 0.5 %
GHT : Low Patient Reliability, Outside Normal Limit
Fovea :23
Pupil
Visual Acuity
IOP mmHg
Correction
SPH CYL AXIS
HC/D VC/D
Presentations : 180
Fixation Losses 2/8
False NEG Errors 3/5
False POS Errors 0/0
Raw Data
Gray scale
Comparison
Pattern Comparison[GH]
Probability
Pattern Probability[GH]
>= 5.0 %
< 5.0 %
< 2.0 %
< 1.0 %
< 0.5 %
<=10 11-13 14-16 17-19 20-22 23-25 26-30 31-35 36-39 >40
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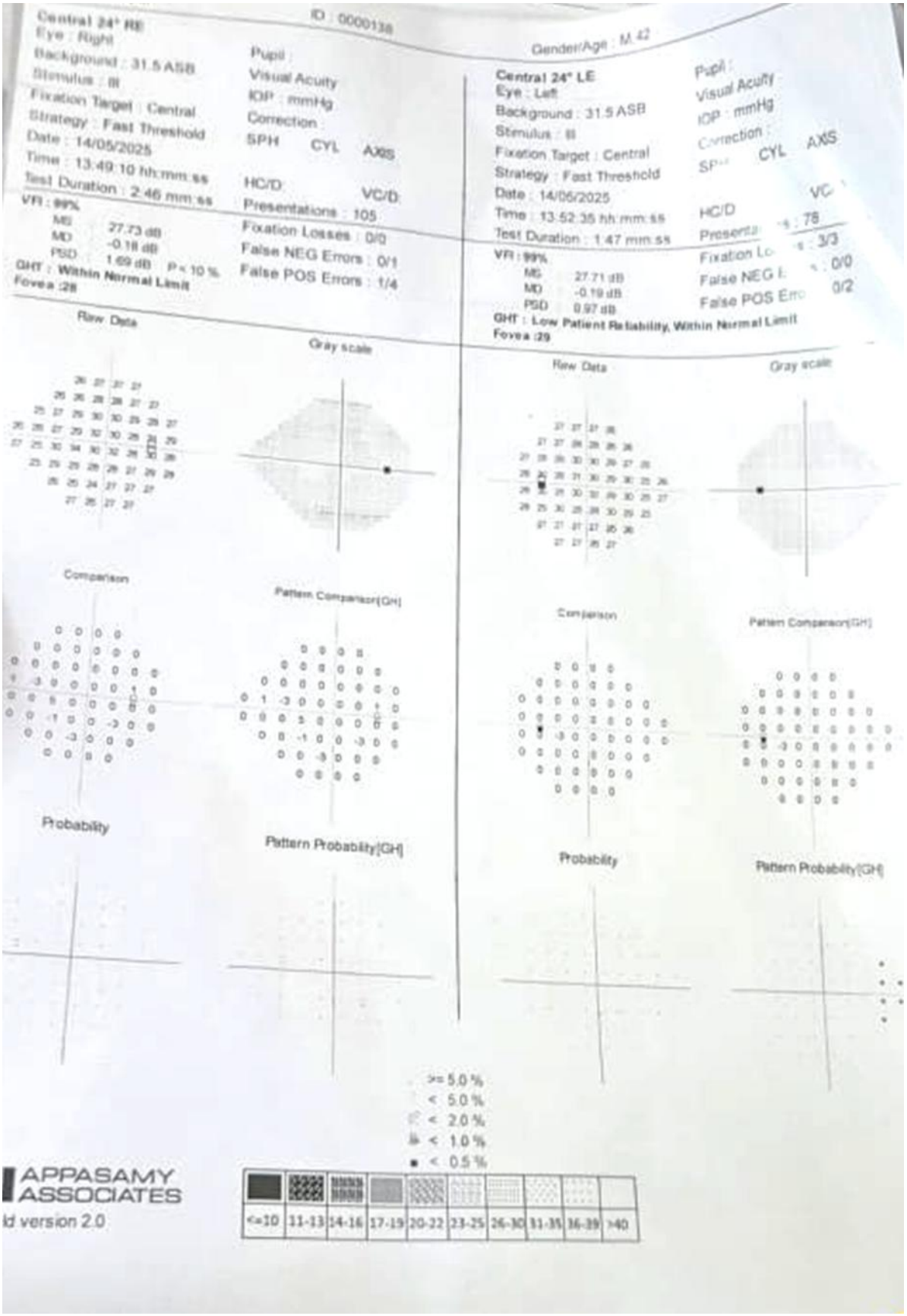
Central 24° RE
Eye : Right
Background : 31.5 ASB
Stimulus : III
Fixation Target : Central
Strategy : Fast Threshold
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Test Duration : 2:46 mm:ss
VFI : 99%
MS 27.73 dB
MD -0.18 dB
PSD 1.69 dB P < 10 %
GHT : Within Normal Limit
Fovea :28
ID : 0000138
Gender/Age : M 42
Pupil :
Visual Acuity
IOP : mmHg
Correction :
SPH CYL AXIS
HC/D VC/D
Presentations : 105
Fixation Losses : 0/0
False NEG Errors : 0/1
False POS Errors : 1/4
Central 24° LE
Eye : Left
Background : 31.5 ASB
Stimulus : III
Fixation Target : Central
Strategy : Fast Threshold
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Time : 13:52:35 hh:mm:ss
Test Duration : 1:47 mm:ss
VFI : 99%
MS 27.71 dB
MD -0.19 dB
PSD 0.97 dB
GHT : Low Patient Reliability, Within Normal Limit
Fovea :29
Raw Data
Gray scale
Comparison
Pattern Comparison(GH)
Probability
Pattern Probability(GH)
>= 5.0 %
< 5.0 %
< 2.0 %
< 1.0 %
< 0.5 %
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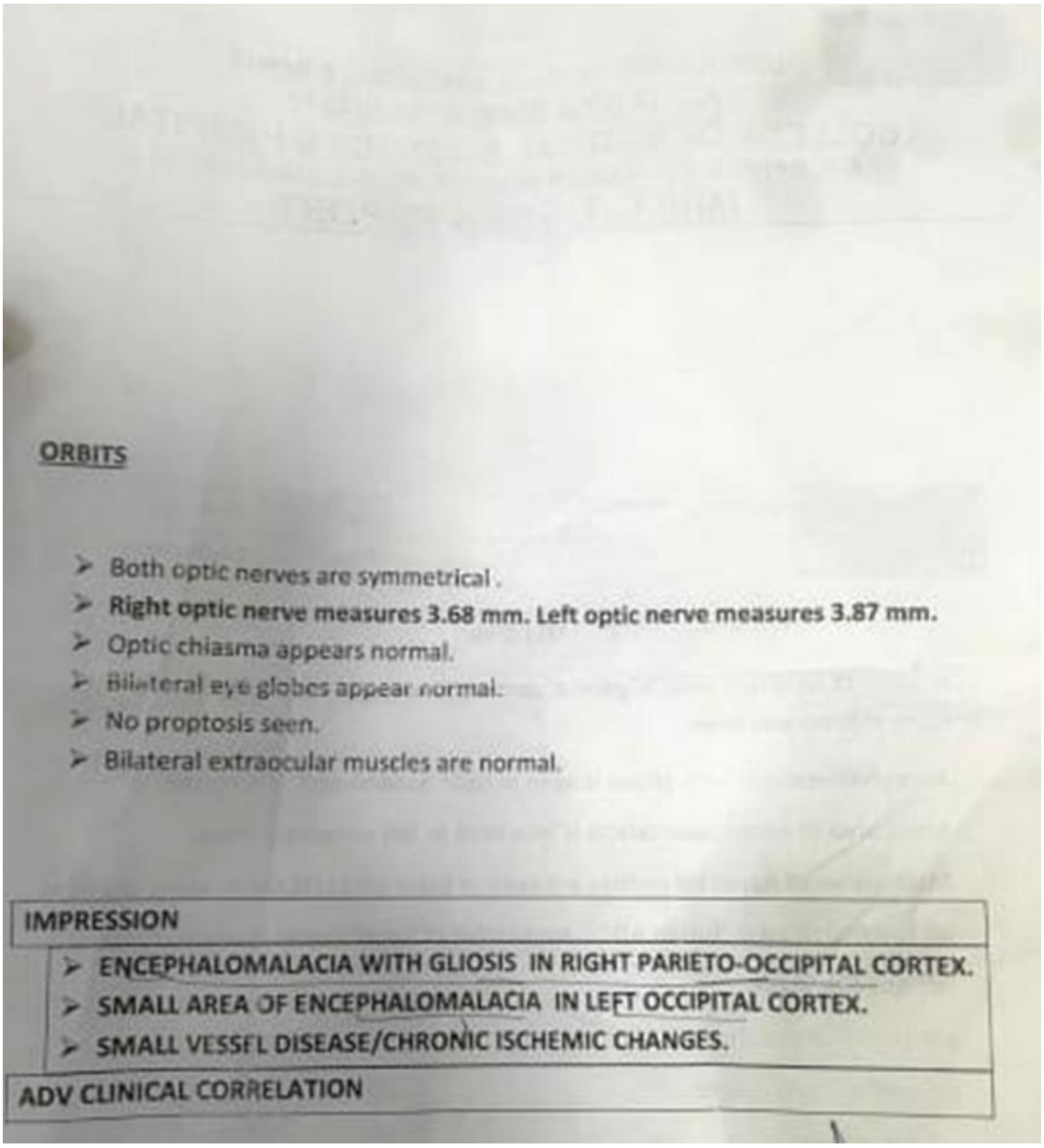
Id version 2.0
<=10 11-13 14-16 17-19 20-22 23-25 26-30 31-35 36-39 >40



ORBITS

- Both optic nerves are symmetrical.
- Right optic nerve measures 3.68 mm. Left optic nerve measures 3.87 mm.
- Optic chiasma appears normal.
- Bilateral eye globes appear normal.
- No proptosis seen.
- Bilateral extraocular muscles are normal.

IMPRESSION

- ENCEPHALOMALACIA WITH GLIOSIS IN RIGHT PARIETO-OCCIPITAL CORTEX.
- SMALL AREA OF ENCEPHALOMALACIA IN LEFT OCCIPITAL CORTEX.
- SMALL VESSEL DISEASE/CHRONIC ISCHEMIC CHANGES.

ADV CLINICAL CORRELATION