

Diabetic Retinopathy Masking NAION in a Patient on Semaglutide: A Case of Diagnostic Challenge



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Background

- Non-arteritic anterior ischaemic optic neuropathy (NAION)** is characterised by acute painless visual loss, relative afferent pupillary defect, impaired colour vision, ischaemic sectoral optic disc oedema and visual field defects.
- It is thought to be a result of acute ischaemia of the optic nerve head, though the exact pathogenesis remains unclear. Reports suggest an **association between NAION and glucagon-like peptide-1 receptor agonists (GLP-1 RAs)**.
- Here we present a case of **NAION in a diabetic patient on semaglutide** that was **initially misdiagnosed as non-ischaemic central retinal vein occlusion (CRVO)**, and we discuss the overlapping and distinctive features of these diseases.

References

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Case Details

A 50-year-old male patient of Bangladeshi heritage presented to our eye casualty with acute onset of reduced central vision in his left eye. Upon waking, the patient experienced visual discomfort but reported no associated pain or redness.

Clinical Feature	Right Eye (Control)	Left Eye (Affected)
Visual Acuity	3/6	3/60 (Acute Drop)
Colour Vision (Ishihara)	14/14	3/14 (Dyschromatopsia)
IOP	22mmHg	22mmHg
Pupils	No RAPD	Positive RAPD
Fundoscopy	Mild NPDR	Sectoral Disc Oedema, Haemorrhages, Macular Oedema

PMH: Asthma, HTN, **T2DM**. Labs: Routine bloods unremarkable



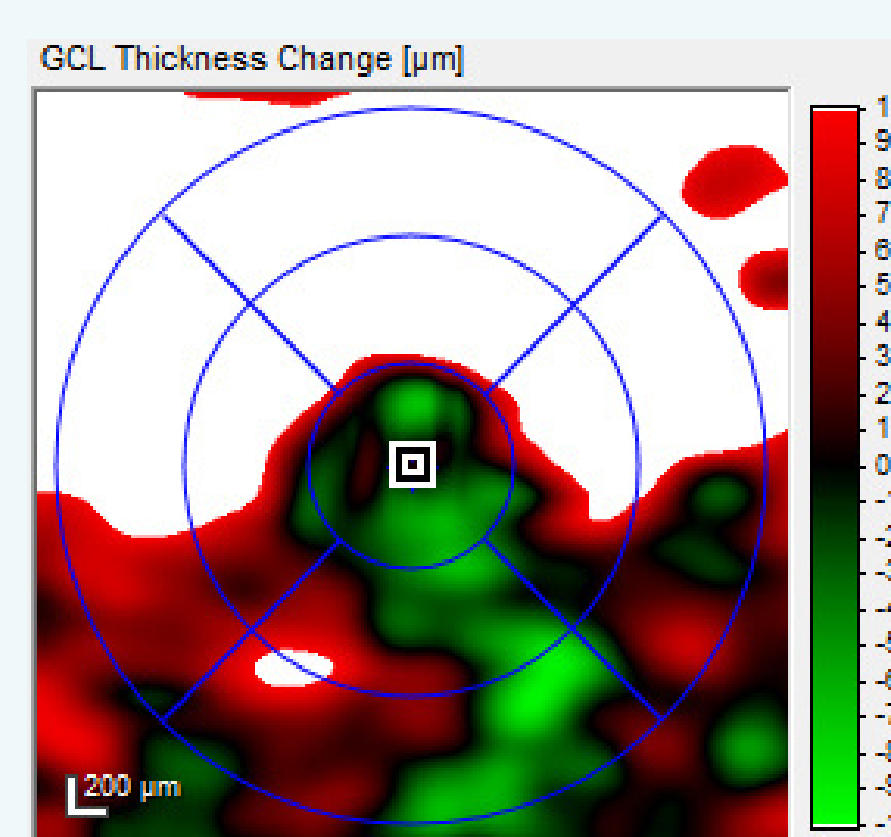
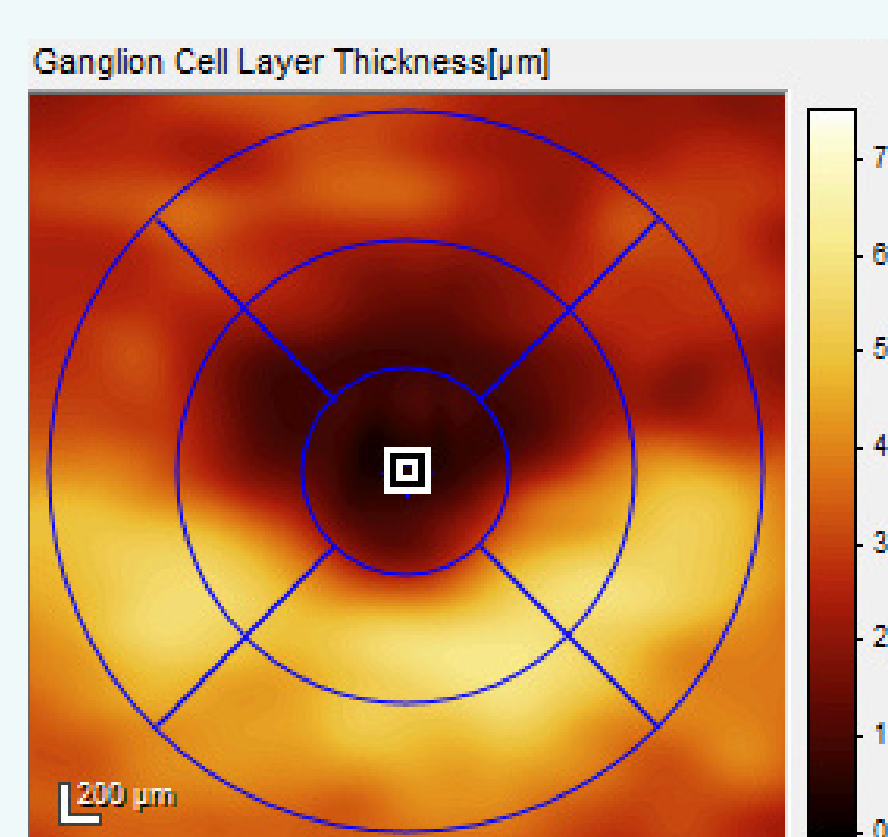
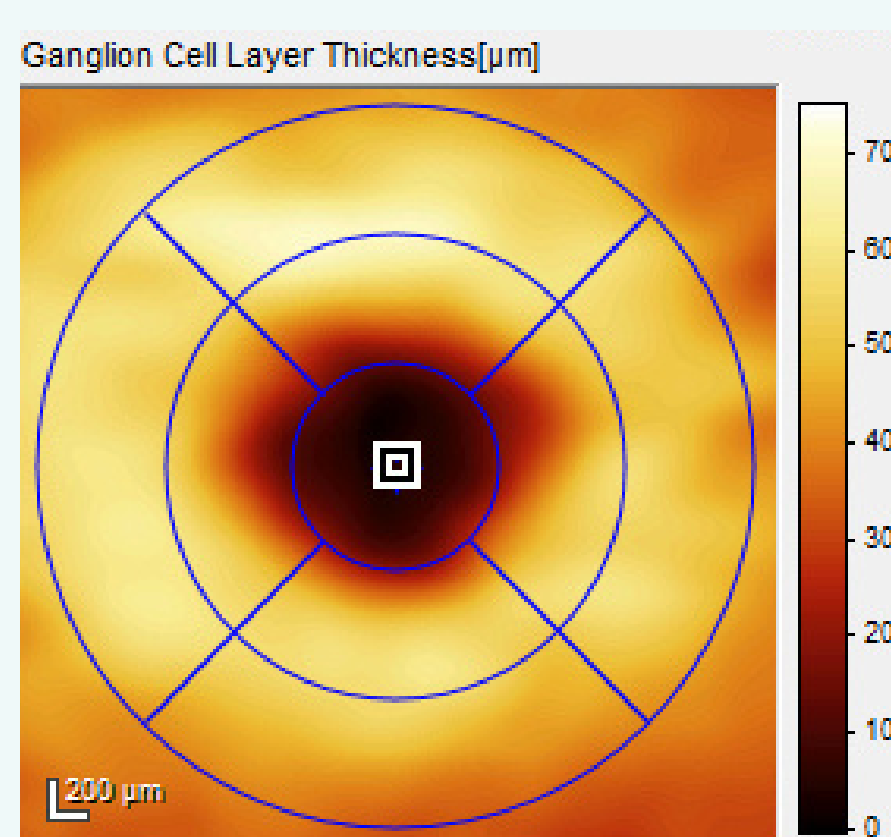
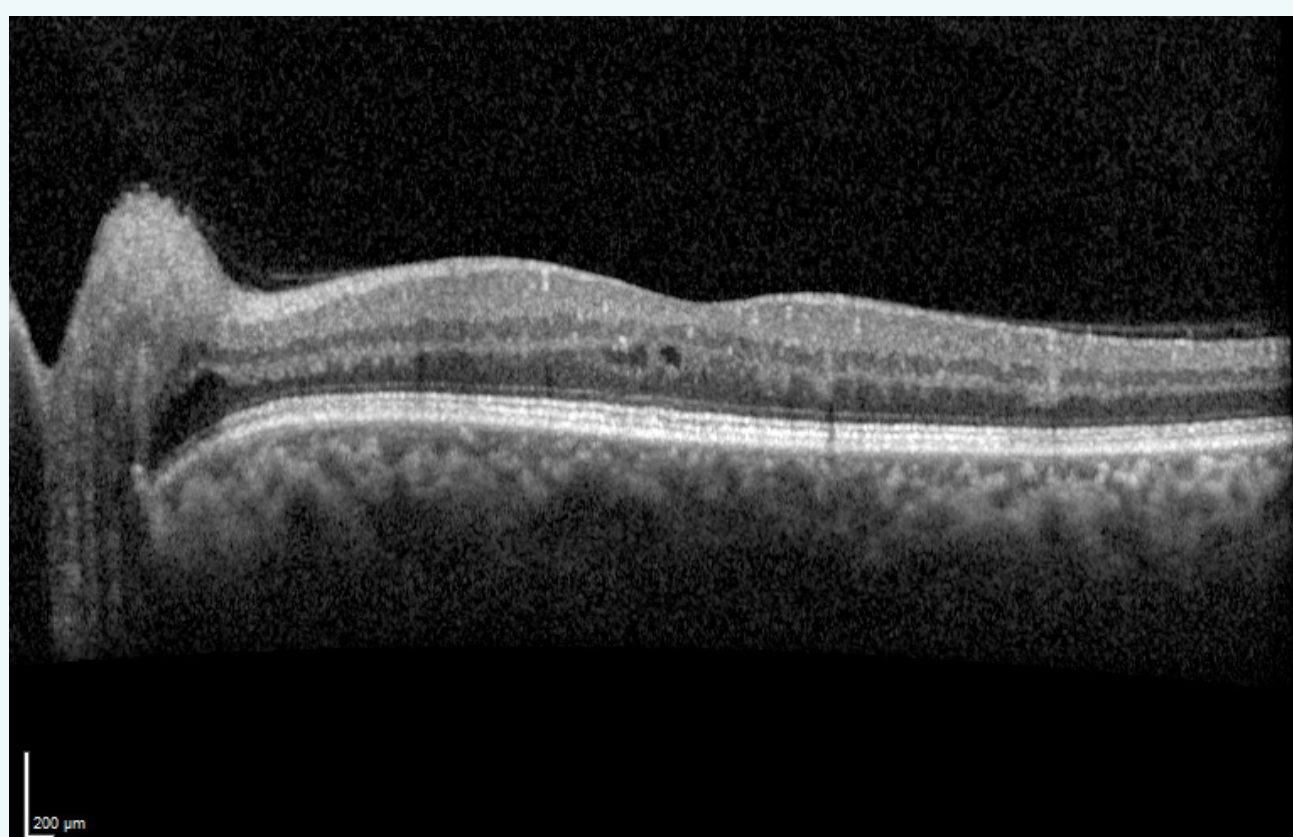
Working Dx: **Non-ischaemic CRVO (LE)**



Plan: **Observation in medical retina clinic**. No anti-VEGF initiated due to mild maculopathy



Vision: Improved to **6/7.5**
Imaging: **Resolving macular oedema and RNFL swelling**



Long-term Follow-up (2 Years)
Symptoms: **Persistent paracentral visual field loss**.
Exam: **Profound LE optic nerve pallor and thinning**.



Key History Uncovered: Patient had started Semaglutide shortly before onset.
Recent literature suggests a **potential association between GLP-1 RAs and NAION**, particularly during rapid glycaemic improvement.



Revised Dx: **NAION**
OCT: Superior ganglion cell layer loss
(left eye: **0.31 µm**; right eye: **0.42 µm**).

Discussion

- The Diagnostic Mimic:** Concurrent NPDR/Maculopathy and semaglutide-induced NAION created overlapping findings: disc oedema, haemorrhages and macular thickening.
- The Initial Pitfall:** Presentation initially mimicked non-ischaemic CRVO. Lack of diffuse venous tortuosity and the presence of a pronounced RAPD were key clinical red flags for an optic nerve aetiology.
- The Semaglutide Signal:** Onset coincided with GLP-1 RA initiation. Literature suggests a 4x to 7x increased risk of NAION in diabetics prescribed semaglutide, potentially linked to rapid glycaemic shifts or direct vascular effects on the optic nerve head.
- Final Confirmation:** 2-year follow-up imaging revealed sectoral superior GCL loss and optic pallor, pathognomonic for NAION rather than CRVO.

Take Home Points

- High Index of Suspicion:** In diabetics with sudden vision loss, a positive RAPD should always prompt a neuro-ophthalmic workup, even in the presence of known retinopathy.
- The "Semaglutide History":** Systematic screening for recent GLP-1 RA initiation/dose escalation is now essential in the workup of acute optic neuropathies.
- Multimodal Imaging Utility:** Early OCT and visual fields can provide a baseline to differentiate future ischaemic atrophy from diabetic macular changes.
- Interdisciplinary Care:** Ensure communication between Ophthalmology and the Diabetes team when NAION is suspected following GLP-1 RA use to manage glycaemic targets safely.