



Diagnosing Glaucoma in Patients on Anti-VEGF Therapy for DMO, Neovascular AMD, and Retinal Vein Occlusion: Disc Dilemma and its Clinical, Legal, and Mental Health Impact on Patients

Devaki Nayak¹, Brendan Len Yong Ji²

¹ Royal Shrewsbury and Telford NHS Trust, UK ² Wales Deanery, UK



Anti-VEGF treated eyes can mimic glaucoma — misdiagnosis leads to unnecessary treatment, anxiety, and legal risk



INTRODUCTION

- Anti-VEGF therapy for DMO, neovascular AMD, and Retinal vein occlusion (RVO) can lead to optic nerve and retinal nerve fiber layer (RNFL) changes.
- These changes may mimic glaucomatous optic neuropathy on examination and imaging.
- Misdiagnosis may result in unnecessary lifelong treatment, psychological distress, increased healthcare burden, and medico-legal consequences.



AIM:

To explore the challenges of diagnosing glaucoma in this setting and propose a structured approach to avoid misdiagnosis and its wider impact.



METHOD

A review of clinical cases and literature was conducted, focusing on:



Differentiating true glaucoma from secondary optic nerve changes due to anti-VEGF therapy, retinal ischemia, or RVO-related changes.



Multimodal imaging strategies: OCT, OCT-A, fundus photography, and visual fields.



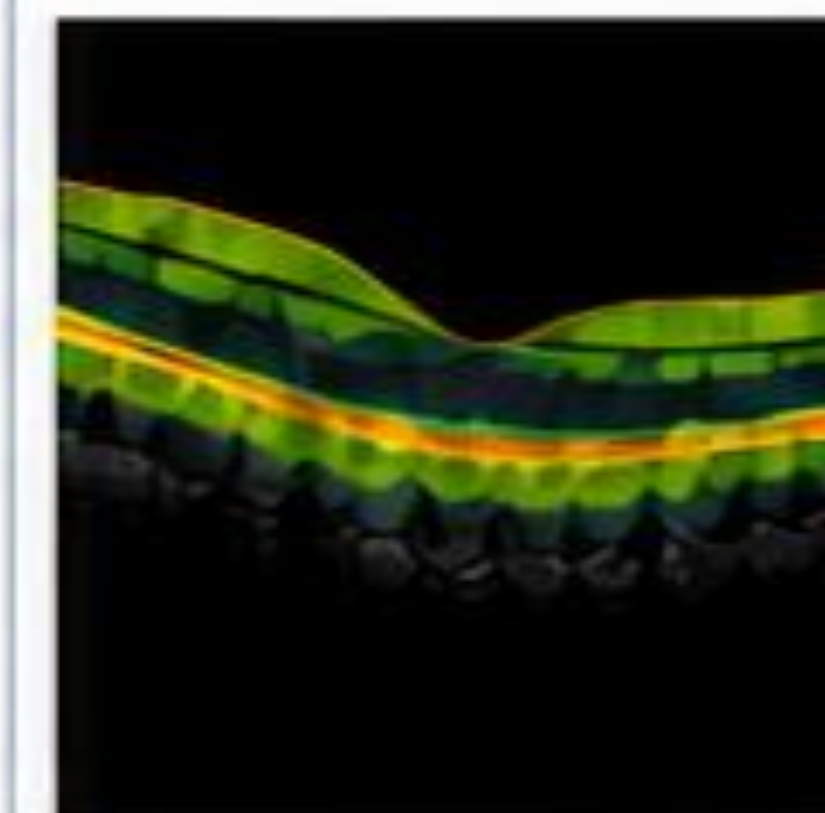
Risk stratification based on systemic factors (diabetes, hypertension) and ocular comorbidities.



Impact of misdiagnosis on patients' mental health, treatment burden, and legal accountability.

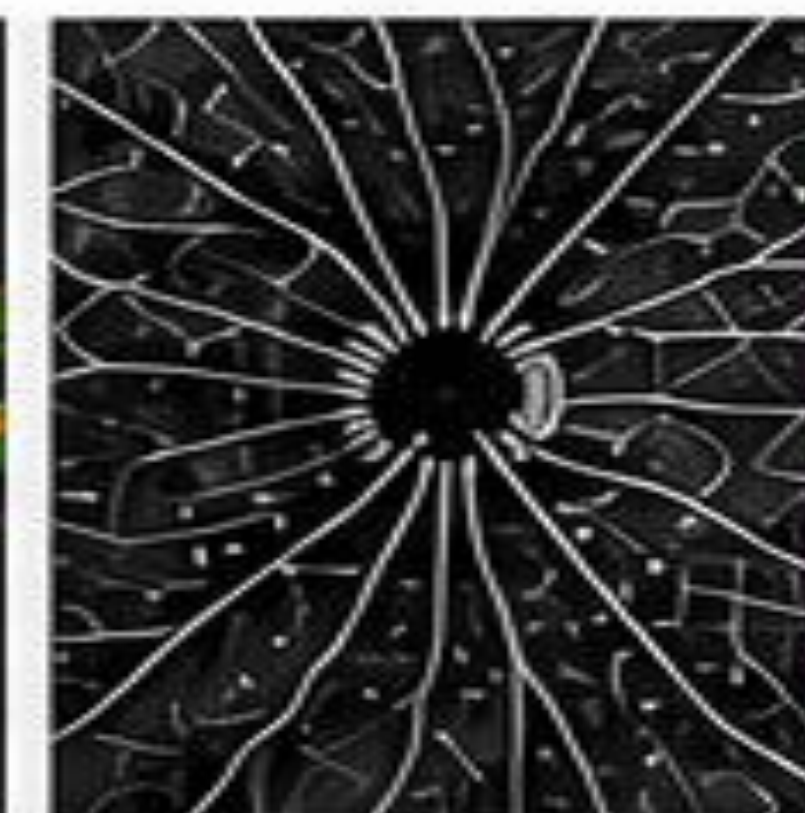
MULTIMODAL ASSESSMENT: NO SINGLE TEST IS DIAGNOSTIC

OCT RNFL



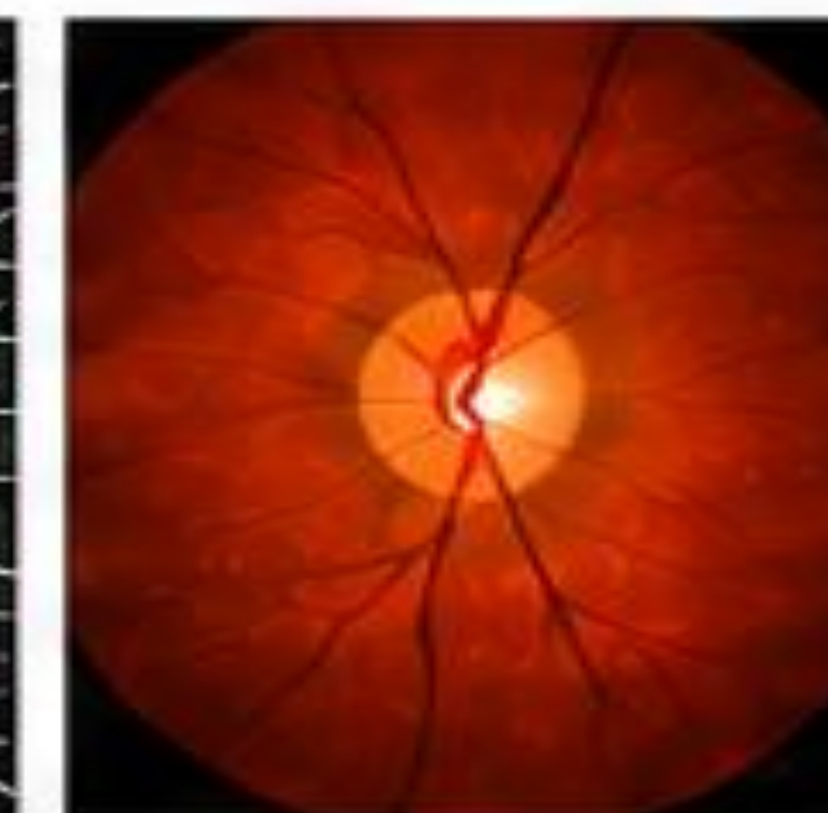
RNFL thinning can occur due to ischemia or RVO, mimicking glaucoma.

OCT-A



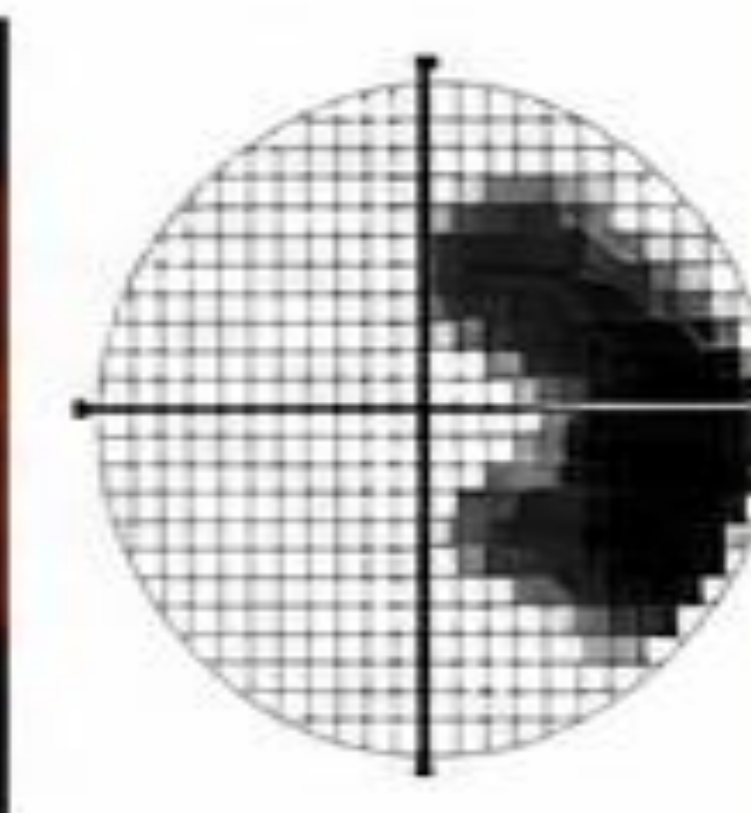
Evaluate radial peripapillary capillary density and perfusion.

FUNDUS PHOTO



Disc changes may be influenced by edema, ischemia, or prior treatment.

VISUAL FIELD



Correlate functional loss with structural and vascular findings.

No single test is diagnostic. Correlation of history, imaging, and visual function is essential.

BEFORE DIAGNOSING GLAUCOMA: CLINICAL ALGORITHM

- 1 Confirm anti-VEGF history and underlying condition (DMO, AMD, RVO)
- 2 Assess RNFL/disc pattern (focal vs diffuse, ISNT rule)
- 3 Correlate with visual fields (structure-function relationship)
- 4 Consider vascular/ischaemic context and systemic risk factors
- 5 Monitor over time (progression vs stability)
- 6 Avoid premature treatment

No progression or inconsistent features = Reconsider diagnosis

GLAUCOMA vs ANTI-VEGF MIMICS: KEY DIFFERENTIATORS

FEATURE	TRUE GLAUCOMA	ANTI-VEGF MIMICS (Ischemia / RVO / Treatment)	CLINICAL CLUE
Optic Disc Cupping	Progressive, vertical cupping	Variable, may fluctuate with edema/ischemia	Look for progression
RNFL Pattern (MOST IMPORTANT CLUE)	Focal thinning, follows ISNT rule	Diffuse or sectoral, may not follow ISNT rule	Pattern + progression matter more than thickness
Visual Field Defects	Consistent with structure, repeatable	May be atypical or inconsistent	Look for structure-function match
IOP	Often elevated	Normal or fluctuating	IOP alone does not confirm glaucoma
Risk Factors	Age, FHx, IOP, myopia	Diabetes, hypertension, RVO, macular disease	Consider vascular comorbidity
Course	Progressive	May stabilise or improve with treatment	Time reveals the truth

IMPACT OF MISDIAGNOSIS = HARM WITHOUT DISEASE



ON PATIENTS

- Lifelong diagnosis label
- Increased anxiety, stress, and reduced quality of life
- Treatment burden, side effects, and fatigue
- Loss of trust in healthcare



LEGAL & CLINICAL

- Inappropriate treatment may lead to harm
- Medico-legal claims and complaints
- Importance of documentation and informed consent



ON HEALTHCARE SYSTEM

- Unnecessary costs from overtreatment
- Increased follow-up and investigations
- Resource utilisation and clinic burden

BEST PRACTICE APPROACH



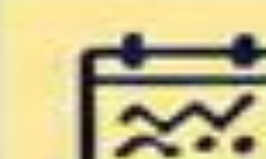
DETAILED HISTORY

Document ocular history, systemic diseases, anti-VEGF injections and disease course.



MULTIMODAL ASSESSMENT

Use OCT, OCT-A, fundus photos, visual fields, and IOP together.



LONGITUDINAL MONITORING

Assess for progression over time rather than relying on single visits.



RISK STRATIFICATION

Consider systemic and ocular risks (DM, HTN, RVO, myopia, age).



PATIENT COUNSELLING

Explain diagnostic uncertainty and involve patients in decision-making.



DOCUMENTATION

Thorough notes, imaging, rationale, and management plans are essential for legal protection.



CONCLUSION

“Glaucoma overdiagnosis in patients receiving anti-VEGF therapy is common and preventable.

Diagnosis requires progression, correlation, and clinical judgement – not imaging alone.

Accurate diagnosis, careful monitoring, patient counselling, and meticulous documentation are essential to protect patients, reduce harm, and minimise legal risk.



Not all RNFL thinning is glaucoma – context is everything.



AUTHOR INFORMATION

Devaki Nayak¹
Brendan Len Yong Ji²
Abayom Olagnju¹

¹ Royal Shrewsbury and Telford NHS Trust, UK
² Wales Deanery, UK



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None



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CONSENT TO PUBLISH

Yes



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