The Biopsychosocial Impact of Diabetes Care Disengagement on Retinopathy Progression: A Case Report

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DOI: 10.33178/SMJ.2026.17

Abstract

Background: Diabetic retinopathy is a common microvascular complication of diabetes. It is a leading cause of vision loss in adults aged less than 65 in developed countries. Despite established screening and treatment pathways, loss to follow up continues to pose a major barrier to effective disease prevention, particularly in patients with psychological vulnerability or poor social support. This case illustrates the rapid progression of proliferative diabetic retinopathy following a four-year lapse in ophthalmic and endocrine care, highlighting the interplay between mental health, self-management and sustained engagement with health care services.

Methods: The case study methodology involved a comprehensive review of the patient's ophthalmologic medical history, psychological history, social background, clinical presentation, and retinal imaging. A literature review was done on the pathophysiology of proliferative diabetic retinopathy and on the biopsychosocial model of healthcare. Consent was obtained from the patient prior to drafting the case report.

Results: This case identified a 25-year-old woman with bilateral proliferative retinopathy secondary to poor glycaemic control. After initial referral with R2M1/R1M disease (pre-proliferative/ background retinopathy with maculopathy), the patient was lost to follow-up for four years. She re-presented with bilateral R3aM1 disease (active proliferative retinopathy with maculopathy) with tractional retinal detachment in the left eye requiring vitrectomy.

Conclusion: Psychological distress, social isolation, and systemic barriers contributed to the lapse in follow-up and subsequent disease severity. The case underscores the need for integrated biopsychosocial assessment, structured mental health support, and proactive re-engagement strategies within diabetic eye services to prevent avoidable visual morbidity.

Case Background

RD is a 25-year-old woman with type I diabetes mellitus who presented to the Diabetic Retinopathy Therapy (DRT) for follow-up of bilateral proliferative diabetic retinopathy. She had previously undergone panretinal photocoagulation (PRP) and an Avastin injection to the right eye four and three weeks earlier, respectively, and was being monitored for a left tractional retinal detachment awaiting vitrectomy.

Case Details

RD was first referred to the DRT clinic four years earlier following diabetic retinopathy screening, which demonstrated R2M1 (pre-proliferative diabetic retinopathy with maculopathy) in the right eye and R1M1 (background diabetic retinopathy with maculopathy) in the left eye. She reported poor glycaemic control since the COVID-19 pandemic and was unaware of her HbA1c level.

Visual acuity was 6/6–2 in the right eye, improving to 6/5–4 with pinhole correction, and 6/9+2 in the left eye, improving to 6/5–3 with pinhole correction (normal visual acuity is 6/6). She was subsequently lost to follow-up and did not undergo diabetic retinopathy screening.

She re-presented four years after her initial appointment, following an urgent referral from the diabetic retinopathy screening service for bilateral R3aM1, indicating active proliferative diabetic retinopathy with maculopathy. She reported gradual visual loss in the left eye over the preceding year but denied pain, diplopia, floaters, or restricted eye movements. Visual acuity had deteriorated to 6/12+3 in the right eye, improving to 6/7.5+1 with pinhole correction, and 6/24 in the left eye, with no improvement on pinhole testing. Intraocular pressures were 18 mmHg bilaterally, which were within normal limits. Slit-lamp examination of the left eye revealed an extensive fibrotic membrane extending from the nasal optic disc to the inferonasal quadrant, with epiretinal fibrosis involving the macular region and associated distortion of the foveal contour. The right eye demonstrated neovascularisation and blot haemorrhages.

At follow-up after PRP and Avastin injection, vision and intraocular pressures were unchanged. The right eye showed improved neovascularisation and fewer haemorrhages, while the left eye exhibited a new vitreous haemorrhage.

She admitted to poor glycaemic control and worsening mental health over the last five years, affecting adherence to diabetes care. Alongside the lapse in ophthalmic follow up, she had not attended endocrinology services and subsequently required hospital admission for diabetic ketoacidosis two months before representation to the ophthalmology clinic. Her type I diabetes was diagnosed at age seven and she is currently managed with long and short acting insulin injections: Lantus and NovoRapid. She takes no other regular medications and has no known drug allergies. She smokes one pack per day with an 8 pack-year history. A left vitrectomy is scheduled, with review planned one week before due to the high risk of progression. She was counselled on the red flags for retinal detachment, advised to attend Eye Casualty at SIVUH if symptoms occur, and encouraged to stop smoking and optimize glycaemic control.

Discussion

Re-engagement of patients who have become disconnected from chronic-disease care pathways remains a persistent challenge across medical specialties and is particularly consequential in diabetes and diabetic retinopathy, where progression can be silent and rapid. Once a patient lapses from routine follow-up, the barriers to returning to care are rarely singular; instead, they reflect an interplay of systemic limitations, communication failures, and patient-level psychological factors. A study by Cromwell et al. examining large-scale disruptions in care during the COVID-19 pandemic highlighted the importance of outreach methods in re-engaging patients with diabetes (1). The findings showed that only active, two-way communication, particularly direct phone calls, meaningfully improved the likelihood of patients returning for follow-up care, whereas passive outreach strategies had minimal impact. This highlights a fundamental barrier: without personalised, synchronous communication, patients may not perceive an accessible pathway back into clinical care.

Quality improvement initiatives targeting patients lost to diabetic retinopathy follow-up show that disengaged individuals often have underlying markers of vulnerability including poor glycaemic control, younger age, fewer prior ophthalmic visits and psychological challenges, such as in this patient (2). Even when recalled, many remain uncontactable, underscoring how disengagement tends to reinforce itself over time. Together, these studies show that effective re-engagement requires more than appointment reminders; it relies on coordinated, patient-centred strategies that address the structural and emotional barriers driving prolonged lapses in care. In this case, the patient's four-year absence from retinopathy surveillance and diabetes services, alongside poor glycaemic control and worsening mental health, demonstrates how these barriers can intersect to allow significant disease progression.

Diabetes mellitus has a bidirectional association with many mental health disorders. Patients with diabetes have up to a 60% increased risk of developing depression (3); the inverse of this relationship is also true, with a diagnosis of depression raising the risk of developing type II diabetes by 25–60% (4).

Comorbid depression significantly worsens diabetic management and long-term outcomes, and is associated with non-adherence to dietary recommendations and higher rates of emergency admission due to depression-related crises (5). Poor mental health is further cited as a major contributor to non-attendance at medical appointments (6). The downstream effects of suboptimal diabetes care, such as diabetic retinopathy, nephropathy, and neuropathy, remain among the leading causes of morbidity and mortality in Ireland (7). Notably, diabetes-related sight loss is the most common cause of blindness in Irish adults less than 65 years old, with an average of one person per week becoming blind due to diabetic retinopathy (8). The presentation of RD exemplifies the connections between psychological wellbeing, appointment adherence, and diabetes self-management. Her deteriorating vision and ocular complications illustrate the serious consequences of lapses in diabetes care when mental health and adherence falter. This case highlights the need for structured mental health support as part of diabetes care plans.

In all chronic diseases, adequate patient education around self-management is necessary to minimise long-term complications. In diabetes mellitus, patients must self-manage much of their disease on a day-to-day basis; this includes medication adherence, dietary changes, and physical activity. Recommendations are in place for psychological care to be a component of diabetes management in Ireland (9). However, there is a 95% deficit of psychologists specialised in diabetes care in acute hospitals (10). This disconnect between psychological services available and the needs of the Irish population is contributing to morbidity and mortality in patients with diabetes. Improvements in mental health services for these individuals may have a substantial impact on the rates of diabetes complications and associated burden on healthcare services.

These considerations presented are consistent with the biopsychosocial model of illness. This framework calls on physicians to examine pathology in both psychological and social contexts, allowing for more individualised and holistic patient care (11).

Clinicians may focus primarily on the physical health of patients, with little consideration of the psychological impacts of illness, or the social supports a patient might have. Evidence shows that variations in perceived social support account for nearly 50% of the differences in chronic disease self-management behaviors (12). Adequate support is a positive predictor of effective self-management, whereas insufficient assistance is linked to loneliness, depression, and poorer health outcomes (13). Furthermore, a limited support network is associated with decreased healthcare attendance (6). For these reasons, evaluating patients' interpersonal networks should be integrated into routine clinical assessment in diabetes care, particularly for more vulnerable patients in the community.

Conclusion

This case highlights how structural barriers, limited access to psychological services, and ineffective recall systems can contribute to prolonged disengagement from diabetic eye care. The resulting progression to advanced proliferative diabetic retinopathy in a young patient illustrates the urgent need for coordinated, patient-centred approaches that address both medical and psychosocial determinants of adherence. Strengthening these supports may prevent avoidable visual morbidity.

Acknowledgements

The authors would like to thank the South Infirmary Victoria University Hospital ophthalmology department for their teaching.

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