

## Case Report

# Spontaneous Separation of Secondary Epiretinal Membrane (ERM) with Retinal Tear after Retinal Laser Photocoagulation

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## Abstract

**Purpose:** To report a case of spontaneous separation Epiretinal Membrane (ERM) with retinal break and investigation of various dimensions and influencing factors.

**Case summary:** The article presents a rare clinical case spontaneous separation of secondary Epiretinal Membrane (ERM) in a 44-years-old woman. The patient was diagnosed with secondary ERM and Retinal tear in the Right eye after loss of vision complaints. The patient had undergone 1 sessions of barrier laser photocoagulation for Retinal tear in the Right eye. A method of cautious waiting was chosen. There was no surgical treatment. The spontaneous secondary ERM separation with residual parapapillary fixation, the improvement in visual acuity, and the diminution in retinal thickness were discovered during the subsequent visit.

**Conclusion:** As spontaneous secondary ERM separation and improvement in visual symptoms is a possibility. Regular structural assessment and monitoring of the macular anatomy with OCT for spontaneous resolution of the ERM may help defer surgical intervention until the patient experiences significant and persistent reduction in vision or associated visual symptoms.

**Keywords:** Case report; Spontaneous separation; Epiretinal membrane; Retinal tear

## Introduction

Epiretinal Membrane (ERM) is a common retinal disease characterized by cellular proliferation and metaplasia that lead to the formation of a pathological fibro cellular membrane immediately superjacent to the inner retinal surface [1]. Between 7% and 11.8% of people have Epiretinal Membrane (ERM), with age being the most significant risk factor? Although the majority of ERM is idiopathic, common secondary causes include uveitis, retinal tears, cataract surgery, and retinal vascular disease [2]. Epiretinal Membranes (ERMs) develop on the surface (that is, on the internal limiting membrane) of the retina, typically at the posterior pole and the macula. ERM occurs mainly in patients older than 50 years of age and may affect both eyes in up to 13.5% of cases [3]. Treatment for symptomatic ERM using pars plana vitrectomy and membrane peeling results in significant improvement in visual symptoms in the vast majority of patients, although there are surgical risks of retinal tears, retinal detachment and endophthalmitis [4]. Young subjects, women, and myopes are the most common groups in which ERM spontaneously separate. It usually improves visual acuity and occurs in about 1% to

3% of cases overall [5-8]. Vitreous contraction, which had led to the fundus conditions that required photocoagulation, may have created alterations in the vitreous or in the membrane itself, which enhanced the peeling of the membranes [9]. There are three ways that ERM can spontaneously separate: 1) Detachment of the posterior vitreous that results in the pulling of the ERM by the vitreous (most common in adults); 2) The contracting forces of the immature ERM become stronger than its adhesions to the retina resulting in slow tangential traction on the edges of the ERM and gradual separation from the edges towards the center (remodeling common in youngsters); and 3) Acute membrane retraction toward the epicenter and tearing of the ERM at its weakest central point [10].

## Case Presentation

A 44-year-old female was presented to ophthalmology clinic due to a three-month-old complaint of blurred vision in the right eye. She did not have any eye surgery, infections, trauma, uveitis, or systemic diseases. In the right eye, the patient had a BCVA of 2/10, while in the left eye, it was 9/10. The anterior segment of both eyes was examined normally, but the posterior segment revealed pigment atrophy, retinal wrinkling in the macular region, and a tear in the right eye's supratemporal region (Figure 1). The intraocular pressure was normal in both eyes. Optical Coherence Tomography (OCT) of the affected area confirmed the ERM with a hyper-reflective layer with an increased central foveal thickness and intraretinal oedema (Figure 2). With diagnosis of retinal break associated with secondary ERM in the patient's Right eye, 1 session of retinal barrier laser photocoagulation in the supratemporal quadrants was performed. Watchful waiting strategy was chosen at 2-month follow-up, VA improved to 4/10 in the right eye. OCT revealed that ERM was separated from the surface of the macula by remaining parapapillary fixation (Figure 3). SD-OCT showed a proceeded with partition of the ERM crossing the fovea and staying connected nasal to the fovea (Figure 4).

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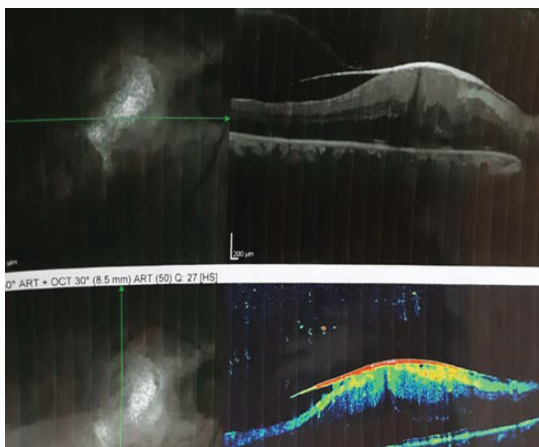
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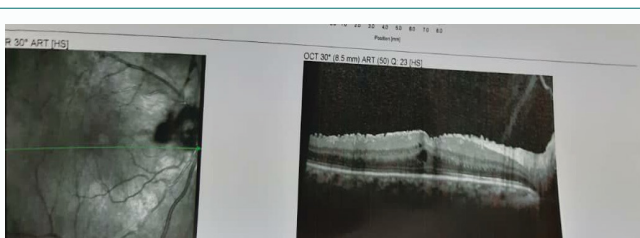
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**Figure 1:** Fundus photograph pigment atrophy and retinal wrinkling in the macular area and a break was notice in the supratemporal area of the right eye.



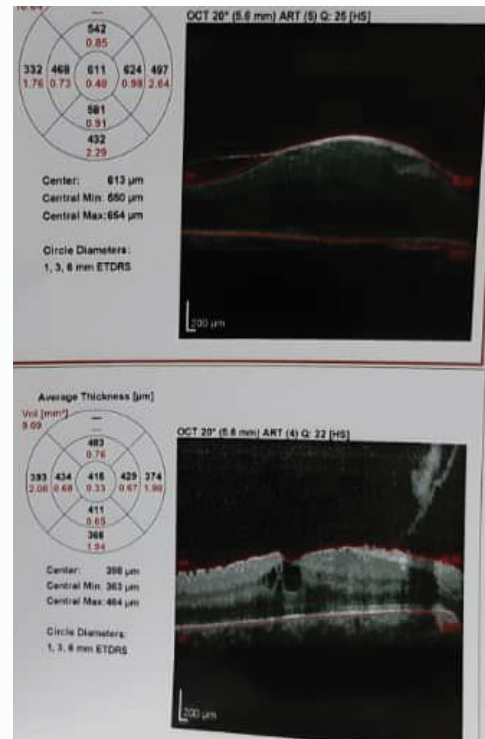
**Figure 2:** Optical coherence tomography (OCT) of the affected area confirmed the ERM with a hyper-reflective layer with an increased central foveal thickness and intraretinal oedema.



**Figure 3:** ERM was separated from the macula surface with residual papillary fixation.

## Discussion

An avascular, fibro cellular membrane known as the Epiretinal Membrane (ERM) was first described in 1865. It proliferates on the inner surface of the retina, causing varying degrees of visual impairment. Macular ERMs, in contrast to peripheral ERMs, are more visually alarming. Macular ERMs affect 2 percent of people under the age of 60 and 12 percent of people over 70 [11]. Epiretinal membrane can be secondary or idiopathic, affecting otherwise healthy eyes. In the latter, they are linked to retinal breaks, vascular retinopathy, Posterior Vitreous Detachment (PVD), ocular inflammation, some congenital disorders, and intra-ocular surgery like post-retinal detachment repair, cataract repair, retinal laser, and cryotherapy [12]. There are three ways that ERM can spontaneously separate: 1) Detachment of



**Figure 4:** SD-OCT showed a continued separation of the ERM crossing the fovea and remaining attached nasal to the fovea.

the posterior vitreous that results in the pulling of the ERM by the vitreous (most common in adults); 2) The contracting forces of the immature ERM become stronger than its adhesions to the retina resulting in slow tangential traction on the edges of the ERM and gradual separation from the edges towards the center (remodeling common in youngsters); and 3) Acute membrane retraction toward the epicenter and tearing of the ERM at its weakest central point [10]. Toxoplasma uveitis, eye trauma, and laser surgery (pan-retinal photocoagulation and YAG-laser capsulotomy) were all associated to spontaneous ERM release [13,14].

In this patient, after the Laser of Retin break, spontaneous epithelial separation occurred. According to studies, one of the causes of spontaneous separation of the ERM is increased pressure on the membrane, the closure of retina break may lead to stretching on the retinal membrane and this factor has caused this happening.

## Conclusion

As spontaneous ERM separation and improvement in visual symptoms is a possibility, asymptomatic patients and patients with mild symptoms may be monitored conservatively. Regular structural assessment and monitoring of the macular anatomy with OCT for spontaneous resolution of the ERM may help defer surgical intervention until the patient experiences significant and persistent reduction in vision or associated visual symptoms.

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