

# Non-Surgical Closure of Uveitic Macular Holes

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**Abstract:** *With the emergence of microinvasive vitreo-retina surgical modalities of 25G and 27G systems, the trend is shifting towards early surgical interventions for various retinal pathologies. But we might be forgetting that pharmacotherapy still plays an important role and may circumvent the need of surgery in some cases. Full-thickness macular holes (FTMH) are a rare association with uveitis and have a limited number of published case reports on their management protocols. Our case was a uveitic full thickness macular hole which closed well with pharmacotherapy in turn inciting us to do a literature review on the reported cases of uveitic macular holes and their existing management strategies.*

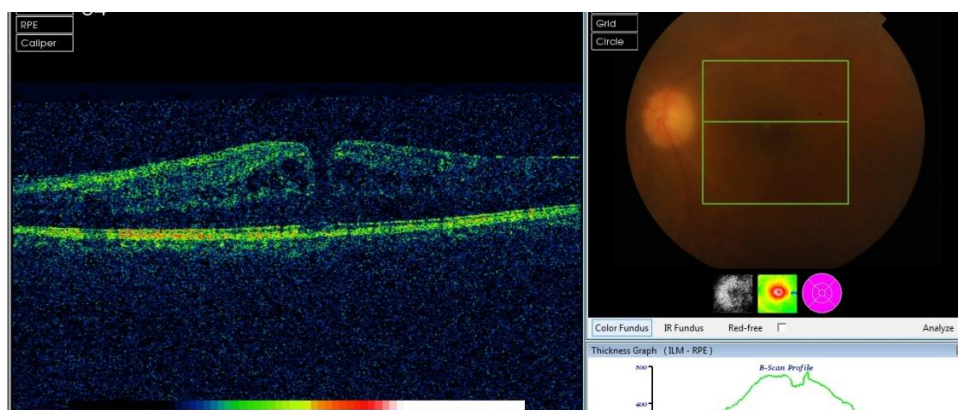
**Keywords:** Uveitis, Macular Hole

## 1. Introduction

The prevalence of macular hole ranges from 0.02 to 0.8% as reported from different geographic locations. A prevalence of 3.3 per 1000 was reported by Baltimore eye study<sup>1</sup>, Blue Mountains eye study reported 0.02% (or 0.2 per 1000),<sup>2</sup> one of the studies from Beijing indicated the prevalence in the Chinese population as 0.09% (0.9 per 1000)<sup>3</sup> and another study from Southern India found a prevalence of 0.17% (1.7 per 1000).<sup>4</sup> Presently pars plan vitrectomy with internal limiting membrane peeling with gas is recognized as an effective treatment for all FTMH except smaller (<180 micrometers) and recent holes where observation from a few weeks to 6 months is recommended to see for their spontaneous closure.<sup>5,6,7</sup> Uveitis is an intraocular inflammation that is commonly encountered by all retina specialists. It can rarely develop full-thickness macular holes which are also called inflammatory or uveitic macular holes. It has been revealed in various reports that surgical closure of uveitic macular holes is often difficult and less successful with more postoperative complications associated as compared to idiopathic macular holes. According to Hassan et al.<sup>8</sup>, the surgical closure rate of macular hole secondary to uveitis after vitrectomy was 17%, which was much lower than the closure rate for idiopathic macular

holes.<sup>9,10</sup> Literature review reveals a few reports of visual recovery in uveitic macular holes with medical management alone, so it would be valuable to add on another case where the macular hole was closed with pharmacotherapy along with visual improvement avoiding the need for a vitreoretinal surgery.

**Case:** A 40-year-old lady was referred to our clinic with the diagnosis of unilateral uveitis with a macular hole for surgery. She had complained of left eye decreased vision and subtle ocular pain for around more than a year and had been on irregular treatment from various places. Her right eye on examination was completely normal with no evidence of uveitis and a vision of 6/6 N<sub>6</sub>. Left eye best corrected visual acuity was finger counting at 3 meters, the anterior chamber had occasional cells, posterior subcapsular cataract, vitreous 2+ cells, a macular hole at the posterior pole, normal optic disc, with no evidence of snowballs or snowbanking. Intraocular pressures in both eyes was within normal limits. An Optical coherence tomography (OCT) was then performed which confirmed the presence of a full thickness macular hole left eye with adjoining cystoid spaces (Figure 1).



**Figure 1:** OCT of Left Eye showing full-thickness macular hole (FTMH) with adjacent Cystoid Spaces in a patient with Uveitis along with the fundus image having a hazy view due to Vitreous inflammation. (OCT - Optical coherence tomography)

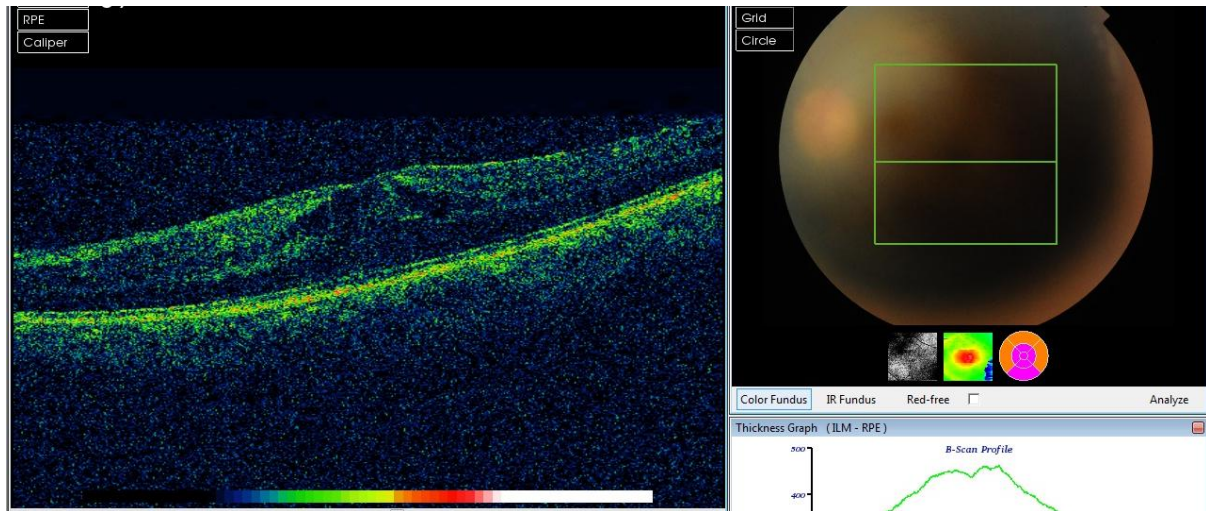
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To tackle the active uveitis and to prevent the postoperative complications of retina surgery in uveitis, patient was started on topical steroids (prednisolone acetate eye drops) along with homatropine eye drops to prevent synechiae formation. Investigations were done to look for presence of any systemic causes of uveitis and the patient was started on oral steroids (tablet prednisolone 1mg/kg body weight) after the results of the blood investigations were found to be within normal limits. She was explained about the requirement of

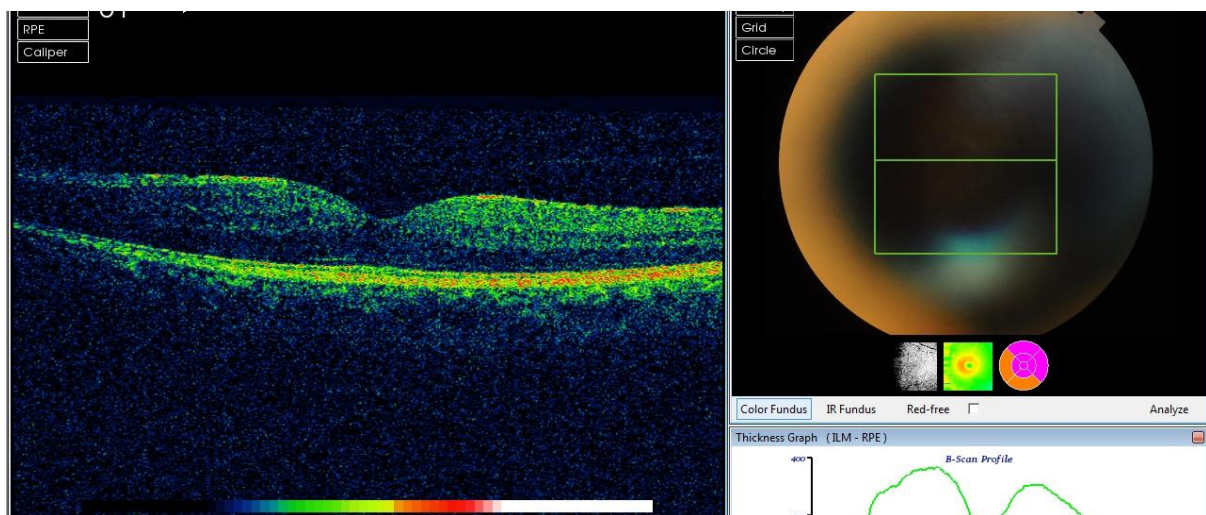
the vitreoretina surgery for the macular hole once the inflammation was taken care and also was explained about the importance of being compliant to follow ups and medications. Patient was kept on regular follow up with gradual tapering of her steroids and the surgery being postponed since her signs and symptoms both were decreasing. Two months post treatment the macular hole had full fully closed (**Figure 2**).



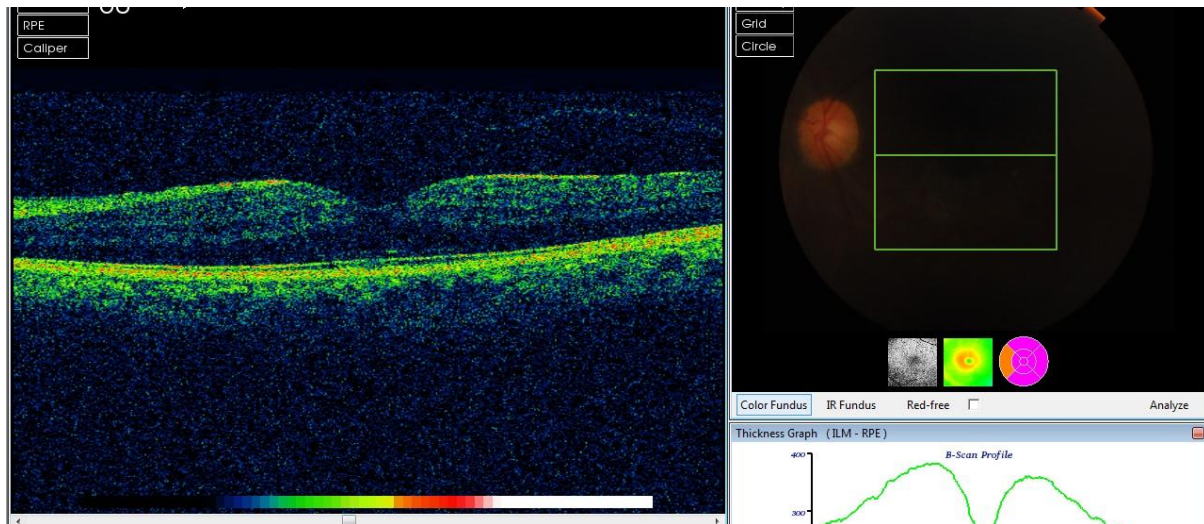
**Figure 2:** Closure of FTMH (fullthickness macular hole)after two months of medical management of Uveitis.

Vitreous has become quiet and her vision has improved to 6/24 from finger counting at 3meters. After an inactive period of around four months she underwent cataract surgery for the posterior subcapsular cataract along with intravitreal triamcinolone acetate to prevent any recurrent inflammation. Her postoperative vision at two weeks

improved to 6/12 with normal foveal contour and no evidence of macular edema or macular hole on OCT (**Figure 3**). She is on regular follow up and three month follow up also reveals normal foveal contour along with good vision (**Figure 4**).



**Figure 3:** OCT image two weeks post cataract surgery with intravitreal triamcinolone acetate showing complete resolution of macular edema and macular hole.



**Figure 4:** OCT image 3 months post cataract surgery with intra-vitreal triamcinolone acetonide showing maintenance of Normal Foveal Contour

## 2. Discussion

It is not uncommon for retina specialists to encounter uveitis cases regularly. Epiretinal membrane, vitreoretinal traction, cystoid macular edema are commonly encountered in patients with posterior uveitis, however, full-thickness macular holes are not that common a presentation. Nussenblatt<sup>11</sup> described the macular hole to be an uncommon presentation in his study of macular alterations in uveitic patients. Another extensive study that was done to look for various causes of visual impairment in patients with the intraocular inflammatory disease also didn't demonstrate any macular holes.<sup>12</sup> Macular holes might be missed in some uveitic eyes because of the vitreal inflammation hindering the clear macular image but the incoming of the advanced OCT techniques have improved the diagnostic sensitivity of macular details to a great extent in such eyes. Recurrent inflammation along with edema at the macula disrupting the retinal layers are the factors proposed to lead to the formation of a macular hole. Abnormal anteroposterior and tangential traction from the vitreoretinal interface and development of an epiretinal membrane secondary to inflammation also adds to the process of hole formation.<sup>13</sup> With the advent of micro-invasive surgical approaches, it is not very uncommon for the surgeons to consider early surgical interventions for most of the cases. The postoperative period managing recurrences and later complications is particularly challenging. The current literature search reveals conflicting outcomes of pars planavitrectomy for macular pathologies in uveitis.<sup>14</sup> Two case studies are reported which show poor surgical results in inflammatory macular holes.<sup>8,15</sup> Whereas there are other two which report successful closure of uveitic macular holes after surgery.<sup>16,17</sup> An extensive case series involving 16 eyes that underwent surgery for Uveitic Macular Holes reported favorable outcomes with 3 cases requiring re-surgeries and all cases of viral retinitis with macular holes too requiring redo surgeries.<sup>18</sup> Considering the varying outcomes post-surgery it is worth mentioning that before taking up the cases for surgical intervention it might be beneficial if a trial of pharmacological treatment could be considered in uveitic macular holes after which the non-responding ones could then be taken up for surgical intervention with no other

choice left. In the present case, control of inflammation leading to resolution of edema along with the release of the traction if present because of inflamed posterior hyaloid and glial or retinal pigment epithelial cell proliferation at the base of the hole might have led to the successful pharmacological closure of the macular hole eliminating the need for surgery. Spontaneous closure of macular holes secondary to posterior uveitis in three cases has also been reported by Bonnin et al.<sup>19</sup> and Halkiadakis et al report a case of closure of hole with peribulbar steroid injection.<sup>20</sup> Control of inflammation leading to successful hole closure has also been reported in a case of Behcet's disease by Didar et al.<sup>21</sup>

## 3. Conclusion

In summary, for macular holes associated with uveitis, medical management can be considered as the first-line treatment option and the non-resolving ones could later be considered for surgery. Medical management controlling the inflammation would also help to decrease the risk of postoperative complications. Since uveitic macular holes are uncommon more case reports are required for a better understanding of the management protocol.

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Nil

## 5. Conflict of Interest

There are no conflicts of interest

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