

Subject Area: Ophthalmology

## A case of positive COVID-19-infected patient with retinal detachment and a large macular hole: A case report

Mohammed S. Ahmed

Sohag Teaching Hospital, dr.m.shikhoun@gmail.com

Follow this and additional works at: <https://jmisr.researchcommons.org/home>



Part of the [Medical Sciences Commons](#), and the [Medical Specialties Commons](#)

---

### Recommended Citation

Ahmed, Mohammed S. (2021) "A case of positive COVID-19-infected patient with retinal detachment and a large macular hole: A case report," *Journal of Medicine in Scientific Research*: Vol. 4: Iss. 2, Article 7. DOI: [https://doi.org/10.4103/jmisr.jmisr\\_111\\_20](https://doi.org/10.4103/jmisr.jmisr_111_20)

This Article is brought to you for free and open access by Journal of Medicine in Scientific Research. It has been accepted for inclusion in Journal of Medicine in Scientific Research by an authorized editor of Journal of Medicine in Scientific Research. For more information, please contact [m\\_a\\_b200481@hotmail.com](mailto:m_a_b200481@hotmail.com).

# A case of positive COVID-19-infected patient with retinal detachment and a large macular hole: A case report

Mohammed S. Ahmed

Department of Ophthalmology, Sohag Teaching Hospital, Sohag, Egypt

## Abstract

Retinal detachment (RD) associated with macular hole accounts for 0.5% of RD. Here, we describe a rare case of RD and a large macular hole in a patient tested positive for COVID-19 in Sohag Teaching Hospital, Sohag, Egypt.

**Keywords:** COVID-19, macular hole, retinal detachment

## INTRODUCTION

Macular hole-related retinal detachment (MHRD) occurs primarily in extremely myopic eyes, but it has also been documented to occur after blunt ocular trauma [1]. Although its pathophysiology is not entirely known, MHRD in high myopia is assumed to occur for three reasons: anteroposterior vitreous traction on the posterior pole owing to posterior staphyloma [2], tangential traction on the macula owing to cortical vitreous and epiretinal membrane contraction [3,4] (5), reduced retinal choroid adherence owing to retinal epithelial pigment [2]. We report a very rare cooccurrence of retinal detachment (RD) and a large macular hole and its management in COVID-19-infected patient.

## CASE REPORT

- (1) A 45-year-old male patient came to the ER at Sohag Teaching Hospital on 14/6/2020 to the emergency department, complaining of acute diminution of a vision 2 weeks ago, with no history of hypertension or diabetes.
- (2) At the time of examination, he complained of low grid fever, dry cough, mild dyspnea, affected taste and smell, with a history of contact with a positive COVID-19-infected patient 1 week ago.
- (3) On examination (with full infection control precautions):
  - (a) General clinical examination revealed 38°C body temperature, respiratory rate was 22 pm,

140/90 mmHg arterial blood pressure, 90 ppm heart rate, and 95% O<sub>2</sub> saturation at room air.

- (b) Visual acuity of best-corrected visual acuity of right eye was hand movement, uncorrected visual acuity of left eye was 6/60, and best-corrected visual acuity of left eye was 6/18 with glass – 9.00/–1.5 × 180.
  - (i) Anterior chamber: deep, bilateral myopic anterior chamber.
  - (ii) Crystalline lens: bilaterally clear.
- (c) Fundus examination: right eye revealed total RD with large macular hole, and left eye revealed myopic changes.
- (4) Investigations were as follows:
  - (a) COVID-19 PCR revealed positive titer.
  - (b) The D-dimer test revealed positive.
  - (c) Ocular investigations:
    - fx1
    - fx2
    - fx3
    - fx4
 Ultrasonography and color photography revealed RD with macular hole.

**Correspondence to:** Mohammed S. Ahmed, MD, Department of Ophthalmology, Sohag Teaching Hospital, Sohag, Egypt.  
Tel: +20 100 717 0600;  
E-mail: dr.m.shikhoun@gmail.com

### Access this article online

Quick Response Code:



Website:  
www.jmsr.eg.net

DOI:  
10.4103/jmsr.jmsr\_111\_20

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Submitted: 30-Oct-2020 Revised: 25-Nov-2020 Accepted: 18-Dec-2020 Published: 19-May-2021

**How to cite this article:** Ahmed MS. A case of positive COVID-19-infected patient with retinal detachment and a large macular hole: A case report. J Med Sci Res 2021;4:152-4.

- fx5
- (d) Computed tomography chest revealed bilateral peripheral well-defined subpleural posterior ground-glass opacities mixed with consolidations, more noted at the right side, coronal, sagittal, and lungs' axial images.
- fx6
- fx7
- fx8
- fx9
- fx10

The procedure performed was follows:

Pars plana vitrectomy, retinal reattachment, internal limiting membrane (ILM) peeling, endolaser, and application of silicon oil tamponade.

### Management

- (1) Anesthesia:
  - We decide to do the procedure under infiltration of local anesthesia with mild sedation and close monitoring during operation.
- (2) Control on the spread of nose, mouth droplets, and operative fluids droplets?
  - (a) All of the medical staff in the operating room wore full personal protective equipment (PPE), except the surgeon and patient being without a face shield. In addition, the patient was fixed with a nasal prong oxygen line under a well-fixed surgical mask with adhesive medical plaster to cut red off the nose, as well as mouth droplets, with placement of horizontal hard transparent plastic shield fixed around eyepiece of surgical microscope 25 cm × 25 cm to isolate any droplets away from the surgeon.
  - (b) We minimized all machine parameters such as suction, cutting rate, vacuum, and infusion flow rate to minimize eye fluid droplets during and after the operation.
  - (c) Close monitoring during the entire procedure (A–Z steps) was done by an infection control member team observer with a checklist, during postsurgical wearing, getting rid of PPE, and antiseptic control for surfaces and operating room after the end of surgery and patient transfer.
- (3) Steps of the surgical procedure:
 

The steps were as usual as PP vitrectomy in such cases:

  - (a) Local anesthesia, adequate skin sterilization, and meticulous adhesive ophthalmic drape.
  - (b) Putting povidone-iodine drops 30–60 s before washing with BSS.
  - (c) 23-G valved torcher system placement.
  - (d) Core vitrectomy using TAA (Tri amcinolon asetonoid).
  - (e) Vitreous peripheral shaving.
  - (f) ILM staining with membrane blue.

- (g) PFCL (per-flouro-carbon liquid) retinal flattening.
- (h) ILM peeling with ILM peeling forceps free flap technique under PFCL.
- (i) Subretinal fluid aspiration through a peripheral break.
- (j) Endolaser application around the break.
- (k) PFCL-air fluid exchange with good subretinal fluid drying.
- (l) Silicon oil-air exchange.
- (m) We are removing the trocher system with suturing one suture all through 8/0 vicryl absorbable suture.
- fx11
- fx12
- fx13
- fx14
- fx15
- fx16
- fx17
- fx18
- fx19
- fx20
- fx21
- fx22
- fx23
- fx24
- fx25
- fx26
- fx27
- fx28
- (4) Postoperative follow-up
  - (a) It was done with wearing full PPE using slit-lamp bimicroscopy, and indirect ophthalmoscope the first day and the first week postoperatively (VA is 2/60, the retina is well-attached postoperatively under silicon oil, macular hole less opened), with the patient faced down 3 h per day for 1 week; all of these antiseptic precautions were done in each visit until COVID-19 curing and changing patient PCR from positive to negative PCR.
  - (b) One month postoperatively: examination in the same manner revealed visual acuity was 6/60, and OCT (optical coherence tomography) imaging denoted well-attached retina under silicon oil, smaller size macular hole, and with its edges coming closer.
  - fx29
  - (c) Three months postoperative. examination in the same manner revealed visual acuity was 6/18, and OCT imaging denoted well-attached retina under silicon oil, and the macular hole is mostly closed.
  - fx30

### DISCUSSION

Various surgical procedures have been described in the treatment of MHRD. A better understanding of the tractional forces and advances in surgical techniques have increased reattachment rates from ~50% to more than 90%. However,

the failure of macular hole closure and recurrent detachment remain challenging surgical problems, and visual outcomes are often disappointing.

In our case, we have some challenges as follows: (a) anesthesia, where local or general; (b) infection spread and infection control: control the spread of nose and mouth droplets and operative fluid droplets; (c) time and quality of visualization during operation with the full team wearing complete PPE; and (d) postoperative follow-up and prognosis.

We managed infection spread and infection control by preoperative examination, with full PPE for the medical staff and the patient, except face shield and goggles to achieve good visualization during the examination, and then transferring the patient to the operating room with his PPE and fixed nasal prong oxygen line under a well-fixed surgical mask with adhesive medical plaster to cut red off the nose, as well as mouth droplets. All medical team wore full PPE, and a horizontal hard transparent plastic shield fixed around eyepiece of surgical microscope 25 cm × 25 cm was placed to isolate any droplets away from the surgeon.

All medical team members who participated in this case in preparation, operation, and follow-up did not have a COVID-19 infection.

We decided to do the procedure under infiltration local anesthesia with mild sedation and close monitoring during operation. With follow-up, there was an improvement in visual acuity.

#### **Financial support and sponsorship**

Nil.

#### **Conflicts of interest**

There are no conflicts of interest.

#### **REFERENCES**

1. Margherio RR, Schepens CL. Macular breaks. 1. Diagnosis, etiology, and observations. *Am J Ophthalmol* 1972; 74:219.
2. Oshima Y, Ikuno Y, Motokura M, Nakee K, Tano Y. Complete epiretinal membrane separation in highly myopic eyes with retinal detachment resulting from a macular hole. *Am J Ophthalmol* 1998; 126:669–676.
3. Stirpe M, Michels RG. Retinal detachment in highly myopic eyes due to macular holes and epiretinal traction. *Retina* 1990; 10:113–114.
4. Seike C, Kusaka S, Sakagami K, Ohashi Y. Reopening of macular holes in highly myopic eyes with retinal detachments. *Retina* 1997; 17:2–6.