

## A Case of Valsalva Retinopathy Post Cardiopulmonary Resuscitation

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### Abstract

**Aim:** To report a rare case of valsalva retinopathy in adult following a cardiopulmonary resuscitation.

**Case report:** A 35-year-old man admitted to intensive care unit for acute exacerbation of bronchial asthma secondary to pneumonia and received cardiopulmonary resuscitation during the admission. Post extubation, he noted bilateral central reduce vision with visual acuity of 6/60 in the right eye and 6/24 in the left eye. Fundus examination showed bilateral pre-macular haemorrhage. Patient was treated conservatively and regain normal vision after six weeks with complete resolution of the pre-retinal haemorrhage.

**Conclusion:** Valsalva retinopathy is a well-described phenomenon which happen due to increase intrathoracic pressure causing rise in intravenous ocular pressusre leading to rupture of retinal capillaries. A pre-retinal haemorrhage in the macula is the usual finding at presentation. Although it involved the central area of macula, prognosis is good as seen in this case complete anatomical improvement is observed within months.

**Keywords:** Adult; Cardiopulmonary resuscitation; Pre-retinal haemorrhage; Valsalva retinopathy

### Introduction

Valsalva retinopathy is a condition when a valsalva maneuver results in pre-retinal haemorrhage of the eye [1]. Actions that cause valsalva maneuver are heavy lifting, coughing, constipation, vomiting, birth labour and balloon blowing [2]. The mechanism of valsalva retinopathy is due to a sudden rise in intrathoracic or intraabdominal pressure against a closed glottis, which in turn leads to a rapid increase within the intravenous pressure of the eye, causing spontaneous rupture of the retinal capillaries [3,4]. This case report describes a rare case of valsalva retinopathy in adult following a cardiopulmonary resuscitation.

### Case Report

A 35-year-old man with no background history of diabetes mellitus and hypertension, admitted to intensive care unit for acute exacerbation of bronchial asthma secondary to pneumonia and receive cardiopulmonary resuscitation during his admission. He noted bilateral central reduce vision post extubation with visual acuity of 6/60 in the right eye and 6/24 in the left eye. There was no relative afferent pupillary defect. Anterior segment revealed no neovascularisation. Fundus examination showed bilateral pre-macular haemorrhage. There was no presence of neovessel elsewhere or neovessel at disk. Both retinas were flat (Figure 1). Patient was treated conservatively and was monitored weekly. During weekly follow up, resolving of pre-retinal haemorrhage were seen in both eyes (Figure 2). He regains normal vision of 6/6 on both eyes after six weeks with complete resolution of the pre-retinal haemorrhage (Figure 3).

### Discussion

From the case, the cause of valsalva retinopathy occur due to the chest compression during the cardiopulmonary resuscitation as patient does not have underlying pre-existing ocular retinopathy and also no underlying systemic disease such as diabetes mellitus, hypertension, or blood disorder to contribute for the retinopathy. Chest compression causing the valsalva maneuver which lead to increase in intrathoracic pressure. When this happen, it causes rise in peripheral intraocular venous pressure, leading to rupture of retinal capillaries. Classic clinical finding is a well-circumscribed pre-retinal haemorrhage which usually affects the macula as can be seen in this case [5].

To our knowledge, this is a third case of valsalva retinopathy

occur following cardiopulmonary resuscitation. First case reported by JR Cameron, A 27-year-old healthy gentleman who receives cardiopulmonary resuscitation after collapse due to myocardial infarction event. Post extubation, he noted right eye blurring of vision and ocular examination showed vitreous haemorrhage [6]. Another case reported by Jae Hyung Kim, A 53-year-old woman who developed valsalva retinopathy post cardiopulmonary resuscitation and subsequently having branch retina artery occlusion ten days after that [7,8].

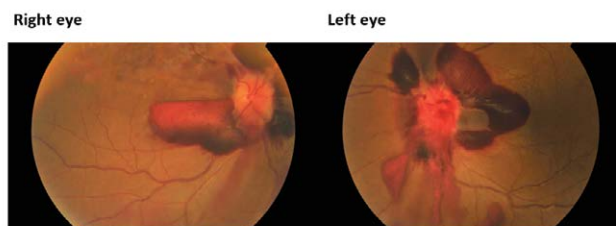


Figure 1: Fundus photo showed bilateral pre-macular haemorrhage.



Figure 2: Fundus photo showed resolving pre-macular haemorrhage.

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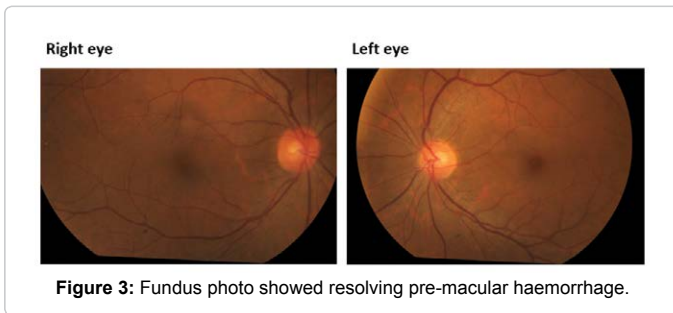


Figure 3: Fundus photo showed resolving pre-macular haemorrhage.

## Conclusion

In our case, the prognosis is good, and the condition requires only close monitoring. The pre-retinal haemorrhage is completely resolved after six weeks and visual acuity return to 6/6 on both eyes. In JR Cameron case, persistent vitreous haemorrhage for three months require surgical intervention. Post pars plana vitrectomy visual acuity resolved to 6/6. This case reports a rare presentation of Valsalva retinopathy in adult post cardiopulmonary resuscitation. Although it involved the central area of macula, which really affects the patient's

vision, prognosis is good as seen in this case complete anatomical improvement is observed within months.

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