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METHADONE ABUSE AND RETINAL VASCULAR INSULT

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ABSTRACT

We presented two methadone addict cases with retinal vascular insult the first case was a 28-year-old woman complaining of sudden right eye visual loss. Ophthalmic examination showed retinal hemorrhage. She had history of previous opium addiction and using oral methadone for 6 months. The second case is a 56-year-old man with sudden sight loss since the day before. The patient had been on a stable dose of methadone (one tablet per day) from 6 months ago and reported a 15-year history of cigarette smoking which had quit for 8 months. Ophthalmic examination showed central retinal artery occlusion. Physicians should be aware of retinal vascular complications specially, central retinal artery and retinal hemorrhage because of the important role of these vessels in vision.

Key Words:- Retinal vascular occlusion, Risk factors, drug abuse, methadone.

INTRODUCTION

Retinal vascular diseases are important as the frequent manifestations of systemic disorders, and also the major causes of visual impairment (Patz *et al.*, 1980). It is a common retinal vascular abnormality associated with conditions such as hypertension, diabetes, glaucoma, and a wide variety of hematologic disorders (Pilon *et al.*, 2006). They may occur in a variety of clinical patterns involving the venous or arterial system, either due to accidental injection into the artery or because the drug user is forced to utilize the artery as a route of drug administration following the destruction of all available veins (Maxwell *et al.*, 1972).

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In this study we presented two cases of methadone addiction for a long time and retinal vascular occlusion.

Case report

The first case was a 28-year-old woman complaining of sudden visual loss in his right eye. The Patient did not have any ocular pain prior of vascular occlusion, but 3 days before vision loss she had dizziness and foreign body sensation in her right eye.

After 2 days of starting symptoms she felt pain around her right eye. In her history, there was not any systemic predisposing factors and thromboembolic event except addiction and using oral methadone for 6 months.

Physical examination showed

Visual acuity: Right eye: 2 meter counting finger while in the left eye it was 0.6 without glasses and 10/10 with glasses. Biomicroscopic examination of anterior segment was within normal limit but posterior segment examination as showed in figure 1 revealed retinal vascular hemorrhage.

The second case is a 56-year-old man with sudden sight loss since the day before. The patient had been on a stable dose of methadone (one tablet per day) from 6 months ago and he reported a 15-year history of cigarette smoking which had quit for 8 months.

Examination finding showed:

Visual acuity: Right eye: 8/10 Left eye: Hand Motion Anterior segment exam does not show any abnormality Posterior segment exam had cherry red spot and retinal edema as showed in figure 2, the classical feature of central retinal artery occlusion (CRAO) in right eye.

Figure 1. A= Right normal fundus, B=Left fundus boat shape hemorrhage, C and D retinal hemorrhage posterior and peripheral retina of left fundus.

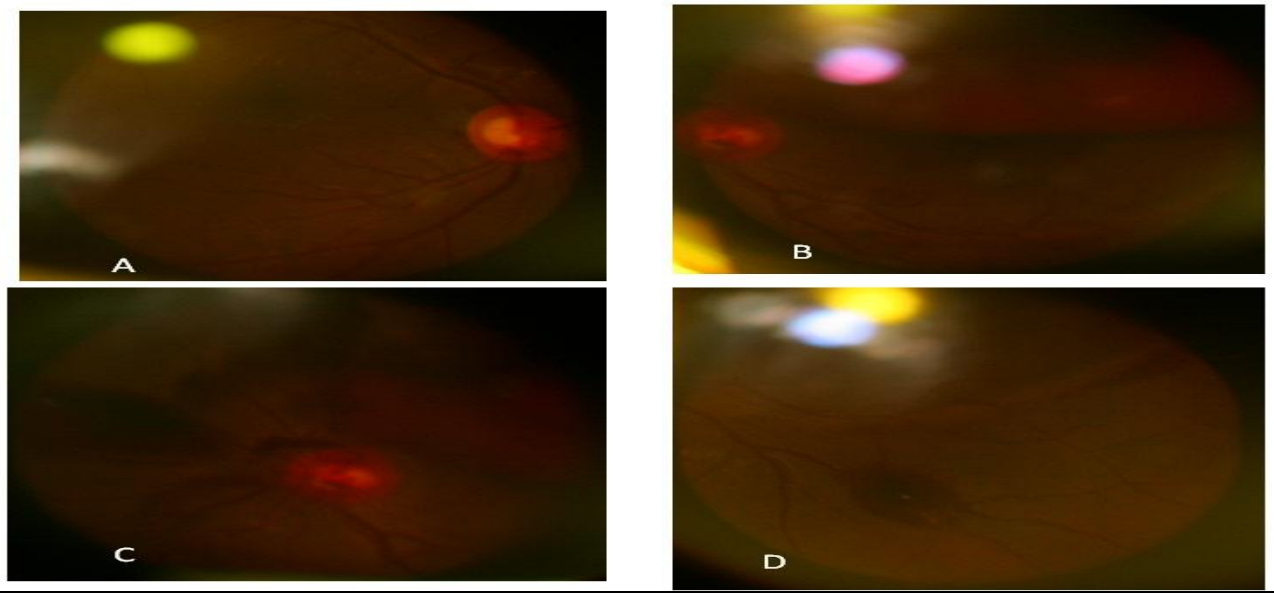
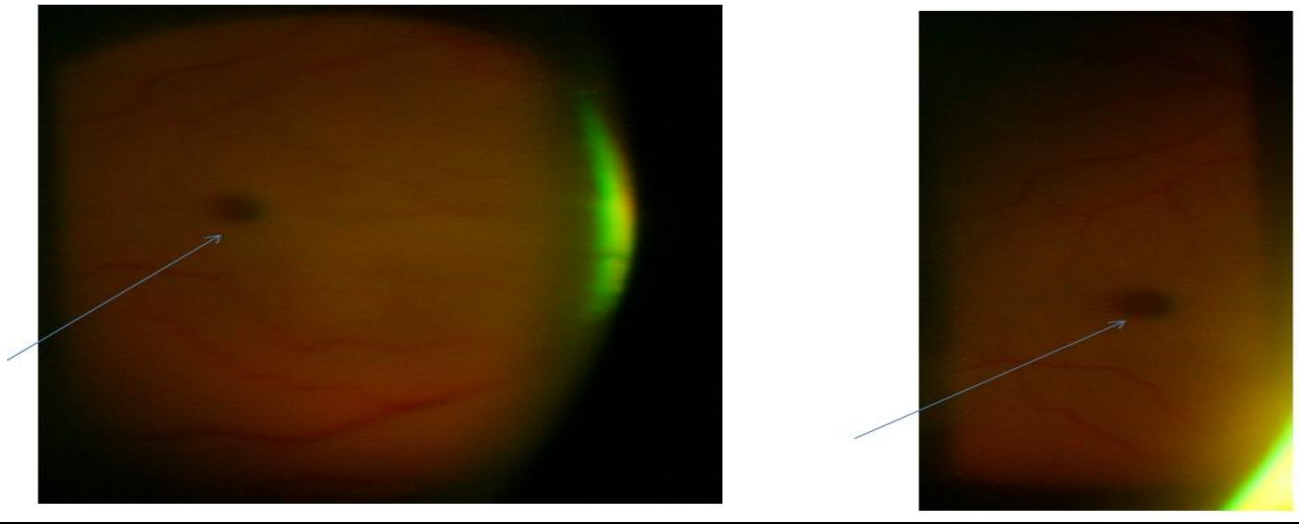


Figure 2. Central retinal artery occlusion, Cherry red spot (arrow)



DISCUSSION

This is the first reports of retinal vascular occlusion in context of methadone addiction as far as we know although one case had also a history of smoking cessation that we published the same case previously (Yaghoubi *et al.,* 2008). In a study conducted in Toronto, Devenyi et-al (1988) report a 38-year-old woman who was a multiple-drug abuser was admitted to hospital after taking an overdose of phenytoin and diazepam. She had a long and varied history of drug abuse. Occlusion of the left central retinal artery was diagnosed. They could not detect any of the known predisposing or precipitating causes for this disorder.

A 42-year-old man presented to casualty with a sudden painless loss of vision of right eye without any medication, history of migraine or any other systemic disease. He was smoker of ten cigarettes a day for the past 20 years. He had smoking 'crack' cocaine twice a week for the last 4 years, although he denied use of intranasal or intravenous abuse. (Michaelides *et al.,* 2002).

Rahman *et al.,* (2008) reported a 24-year-old white man presented with a 1-week history of sudden bilateral visual loss. He was an intravenous heroin abuser. He was on oral flucloxacillin (for an infected burn) and oral methadone (60 mg/day).

Sanches-villarego and colleagues (2014) studied on effect of topiramate on changes in retinal metabolism and function due to chronic cocaine exposure in adult rats and concluded that this treatment can partially recover mentioned changes.

In several previous animal studies, protective effects of opioid receptor activation on retinal ischemia have been discussed (Husain *et al.,* 2009, 2011, 2012).

Ocular malformations following opioid addiction has been studied in previous researches including Nystagmus, reduced vision, delayed visual maturation (Tandon *et al.,* 2009)

Although it has been revealed that opioids can affect on different ocular functions, the precise mechanisms of desired and adverse effects of opioids have not been obviously defined (Husain *et al.,* 2012).

Alison in a review study on 2004 has highlighted the ocular/visual squeals made by illicit drugs and substances such as cocaine, heroin, morphine and methadone. In this investigation, some important complications have been discussed due to adulterated heroine induced by both heroin and added substance or drug; for example visual acuity loss due to quinine and heroin abuse or endophthalmitis due to Candida albicans where heroin dissolved in lemon juice and injected. The author pointed to reduced colour vision in heroin addicts. The level of defect did not correlate with the route of consumption; pathogenesis was not explained.(Alison *et al.,* 2004) With the best of our knowledge we could not find the causal effect on retinal vascular occlusion and methadone consumptions, however there is description of oral tablet dissolution and intravenous injection induced vascular occlusion.(Vicky *et al.,* 2014)

In our cases we could not find any predisposing factors except methadone consumption. Based on above reports it is noticeable that retinal complications might be caused by different drugs and substances abuse. .

Methadone maintenance therapy is progressively used for replacement of low risk opioids with a definite dosage and route of consumption and without any adulterants instead of high risk methods and substances associated with different contaminants which sometimes are more dangerous than opioid solely although as an opioid it may lead to some complications.

On the other hand we do not actually know which illicit drugs or substances and how long has been used by our patients so it cannot be resulted that just methadone has been the main cause of these problems in these cases and more investigations must be carried out to clarify the issue.

CONCLUSION

These papers even in format of methadone maintenance therapy have alliance that it could be a predisposing factor of retinal vascular complications? Due to the substantial role of these vessels in vision, programized screening of patients on methadone maintenance therapy is recommended.

Conflict of interest: None

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