CASE REPORT

FIRST CASE REPORT OF POPPERS MACULOPATHY WITH CANNABIS (*CHARAS*) IN PAKISTAN

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Poppers is a recreational drug common in gay communities often used for euphoria and myorelaxation. It causes yellow foveal discoloration with disruption of outer segments of the foveal photoreceptors called Popper's maculopathy. We present first case of poppers maculopathy with use of *Charas* (Cannabis) from Pakistan. A 32-year-old transgender presented with bilateral gradual decrease in vision over the last two years. He gave past history of smoking cigarette and Cannabis (*Charas*). His visual acuity was 6/60 unaided and 6/36 with the help of pin hole bilaterally. Near vision was N/18 and Color vision was 12/12 on Ishihara test plate bilateral. Fundus examination revealed a yellow foveal spot at the posterior pole bilaterally. Optical coherence tomography (OCT) showed disruption of inner outer segment of foveal cones. Patient was followed up at three months after prescribing oral leutins with no improvement in vision.

Keywords: Addiction; Cannabis; Maculopathy; Transgender

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INTRODUCTION

Generally known as Poppers among the masses in Western and European countries, is an alkyl nitrate a recreational drug.[1] Inhalation of this drug is common among gay communities to induce euphoria and myorelaxation.[2,3] It causes maculopathy, macular microhole,[2] full thickness macular hole and optic neuritis[4]. Poppers maculopathy is a rare condition but causes bilateral central vision loss, phosphenes and metamorphopsia over days to months.[5] Maculopathy may result after single or multiple doses[2,6] when inhaled or ingested[7]. A case of poppers maculopathy has never been reported in Pakistan. Indeed, literature was thoroughly searched and no case report was found from this region including India, Bangladesh, Siri Lanka and Arab countries. This is the first case of poppers maculopathy due to smoking Cannabis (*Charas*), being reported from Pakistan.

CASE REPORT

A 32-year-old transgender, uneducated, dancer and stage performer by profession presented with decrease in vision over the last two years. It was bilateral, gradual and painless decrease in vision. There was no history of refractive errors or night blindness. He had never visited any ophthalmologist before. He had smoked cigarette for a year and then quitted one year back. He had also taken cannabis (*Charas*) in cigarette for a month two years back. He strictly denied use of any inhalation substance like poppers or any other addiction. He has frequently taken systemic injection of Gravibinan (Progesterone & Estradiol) for development of feminine features for last 9–10 years. He is a gay, has more than one partner and HIV negative. He has no known co-morbid. On examination visual acuity was 6/60 both eyes unaided and 6/36 with pinhole. Near vision was N/18, colour vision was 12/ 12, tested on Ishihara colour plates and a central scotoma perceived on Amsler grid. Anterior segment examination was unremarkable. Pupillary reflexes were normal. Fundus examination showed macular changes in the form of yellow foveal spots (Figure-1 & 2) in both eyes. Spectral domain Optical coherence tomography (OCT) showed disruption of the inner-outer segment of Foveal cones bilaterally (Figure 3 & 4). Central macular thickness was 191 and 193 µm in right eye and left eye respectively. He was advised to restrain from any kind of illegal drug, smoking and was prescribed oral lutein's for three months. At three months follow up, there was no improvement in visual acuity of the patient and later he was lost to follow up.

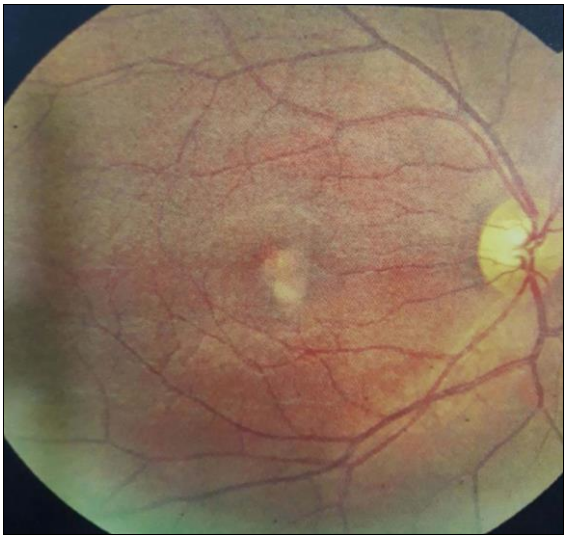

Figure-1: Colour fundus photograph of the right eye with a yellow foveal spot

Figure-2: Colour fundus photograph of the left eye with a yellow foveal spot

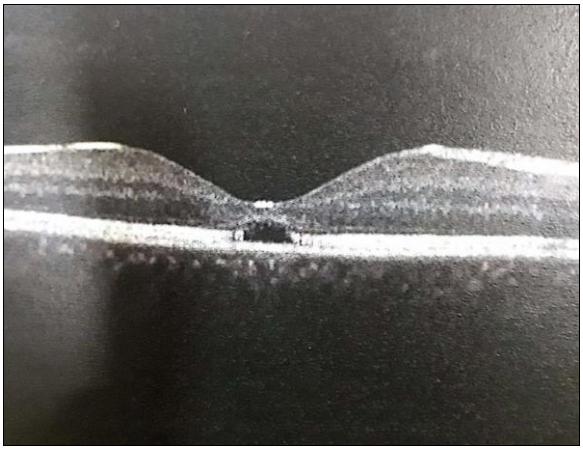

Figure-3: Optical Coherence topography (OCT) of right eye with inner outer foveal cone disturbance

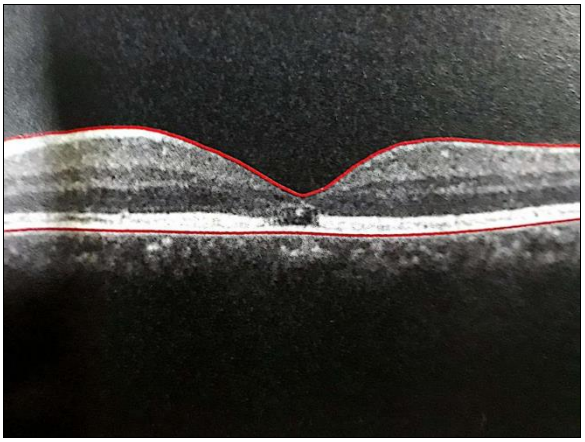

Figure-4: Optical Coherence topography (OCT) of left eye with inner outer foveal cone disturbance

DISCUSSION

Patient with poppers maculopathy presented with bilateral central vision loss over course of days to months. Poppers maculopathy is a visually significant maculopathy that causes yellow foveal discoloration with disruption of outer segments of the foveal photoreceptors.[5] The damage is limited to the layer of photoreceptors.[8] Its pathology is poorly understood but few mechanisms are thought to play role in its development. Alkyl nitrates are toxic to the photoreceptors or predisposes photoreceptors to photopic damage or alters blood flow to the photoreceptors by vasodilation.[8,9]

Solar or Welder's maculopathy, Foveolar vitreomacular traction, closed Macular hole, Tamoxifen retinopathy, Juxtafoveal telangiectasia and Stargardt disease should be considered for differential diagnosis of poppers maculopathy.[10,11] However, clinical history and relative investigations in this patient specifically Optical coherence tomography helped to exclude them to reach the diagnosis.

Charas in Urdu language, is a name given to Cannabis, derived from resin of live cannabis plant, handmade in Indian subcontinent and Jamaica.[12] Cannabis is known for its association with impaired oculomotor function,[13] dilated pupil[14] and reduced amplitude of accommodation[15]. Progesterone & Estradiol (Gravibinan) is a gender-affirming hormone prescribed for male to female transition. Its major side effect is Venous thromboembolism and mood disorder.[16]

In Pakistan *Charas* or cannabis is the most common addictive drug, being reported by Batool *et al* in 44.4% of individuals followed by Heroin in 41% and Hashish in 33.3% of respondents.[17] Another study reported, Cocaine 19% being the most frequent addictive drug. Studies conducted in Pakistan have not reported addiction of poppers or alkyl nitrates.[17,18]

Most frequent mode of addictive drug administration noted in our country is inhalation followed by smoking.[17,18] However, our patient strictly denied any kind of addiction that is being inhaled. He was not a regular Cannabis addict. He had smoked *Charas* (Cannabis) in cigarettes only for a month and had noticed gradual deterioration of vision over the last 2 years. Our patient was ignorant of the term popper or its addiction. We can assume that poppers maculopathy can be one of the adverse effects of cannabis or *Charas* especially in our country where poppers is not being reported.

Transgender community is a neglected community in the third world countries. Abandonment from the society generally lead them to substance abuse. Our patient did not seek any medical advice earlier. Unfortunately, we did not have long term follow up of

the patient. He did not show any improvement with use of lutein within 3 months. Other studies have also reported long term reduction in vision even after cessation of poppers.[7,8] It has also been proposed that there might be improvement in vision with use of oral lutein.[19]

In Western and European countries, several case series about Poppers maculopathy caused by inhalant Amyl nitrate have been published.[8,20] Literature from Pakistan and its neighbouring countries about poppers maculopathy is lacking. Indeed, we need to conduct researches about poppers addiction in different communities in Pakistan. This single case of poppers maculopathy might be the tip of an ice berg.

In conclusion, this is the first case of poppers maculopathy with use of *Charas* (Cannabis). It is the first case of poppers maculopathy being reported from Pakistan and surrounding countries including India, Afghanistan, Bangladesh, Siri Lanka and Arab after thorough literature search.

Conflict of interest: The authors have no conflict of interest to declare

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Ethical approval: The authors confirmed that this study had been prepared in accordance with COPE (Committee on Publication Ethics) rules and regulations. IRB review was not required in this study design. Informed consent was obtained from the participant after the research objective and aim, voluntary participation, right to autonomy and confidentiality, and the right to withdraw from participation in the study.

AUTHOR CONTRIBUTION

ES conceived the case, searched for literature, collected data, wrote the final manuscript. AS conceived the case, did patient follow up, searched literature and wrote initial manuscript. UF conceived the case and helped in writing the final draft. The authors are involved in writing and finalizing the draft of this article. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

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