Short Communication

Fulminant Eale's Disease and Osteonecrosis of Femur Head

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Eale's disease is quite a common condition in Asian sub-continent. We present a case of 18-year old female who developed central Eale's (involving the posterior pole along with the retinal periphery). She was started on oral steroids off and on for her recurrent branch and central retinal vein occlusions. ATT was also given for nine months. She developed Avascular necrosis of femur head as a complication of steroids and had to undergo hip joint surgery.

Key Words: Eale's disease, Avascular necrosis, Oral steroids, Branch retinal vein occlusion.

In the exhaustive list of complications of long term steroids, we find a disabling condition called Avascular necrosis (AVN) of the femur head. In Ophthalmology, steroids are inevitable in many diseases, which include Scleritis, posterior uveitis, uveal effusion syndrome, Eale's disease, optic neuritis, exudative retinal detachment and inflammatory orbital disease etc. We present a case of avascular necrosis of femur head in an 18-year old medical student who presented with Eale's disease. Eale's disease is common in Asian sub-continent and steroids with anti tubercular therapy are the mainstay of treatment. In uniocular Eale's disease involving a single quadrant of retina, it is preferable to use periocular and intravitreal steroids but when it comes to recurrent and four quadrant disease (as seen in this particular case), oral steroids have to be given.

Other causes of avascular necrosis with possible pathogenesis are discussed and recommendations are made for early detection of AVN.

CASE REPORT

An 18-year old Pakistani female came to eye outpatient department with history of floaters in her right eye for a week. On examination, her visual acuity was 6/6 partial in right eye and 6/6 in her left eye. IOP were 14 mm of mercury in each eye. Anterior

segment was normal. On fundoscopy, there was inferior hemiretinal branch vein occlusion in right eye figure 1 and 2. Left eye was normal. Patient was investigated for hematological and autoimmune abnormalities. Complete blood with ESR, urine, stool, chest X-ray, RA factor, ANA, cANCA, pANCA, protein C, protein S and anti thrombin III were normal. Patient was diagnosed as Eale's disease and oral prednisolone, 1 mg/kg body weight was started as a short course. After three months patient came with recent onset of floaters in the right eye. Visual acuity was 6/24 and fundus examination revealed central retinal vein occlusion. There were white cells in vitreous and severe perivasculitis was also seen. OCT showed frank macular edema, figure 3. Left eye was normal. Intravitreal Bevacizumab was given and oral steroids were started again to control vasculitis. Patient was prescribed ATT for nine months. After three months, vision improved to 6/6 partial in the right eye. Fundoscopy revealed resolution of retinal hemorrhages and macular edema was settled. A neovascular frond was visible at supero-nasal quadrant of retina. Pan retinal photocoagulation was done and oral steroids were gradually tapered. After three months, she complained of pain in the hip joint, which was not settled with any pain killer. She consulted an orthopedic surgeon who diagnosed Avascular necrosis (AVN) of both hip joints. Oral steroids were stopped and she underwent core decompression of both hip joints with external implant in the right hip. At her first follow up visit, the right hip joint had a progressive AVN and the disease in left hip joint was stable. After one year, she again developed sudden loss of vision in the right eye. Examination revealed dense intra gel and sub hyaloid hemorrhage. On B-scan retina was intact. The patient needed anti-VEGF in her eye to combat abnormal vascularization, which was the cause of vitreous hemorrhage. Systemic absorption of anti-VEGF could have a deleterious effect on the hip joint, which required Vascular endothelial growth factor to prevent further progression of AVN. We gave intravitreal ranibizumab because of its lesser systemic absorption than bevacizumab. After one month the hemorrhage had resolved and visual acuity was restored to 6/9 partial. Argon laser was augmented.

The patient is ophthalmologically stable at the time of this report and regular follow up by the orthopedic surgeon is still going on.

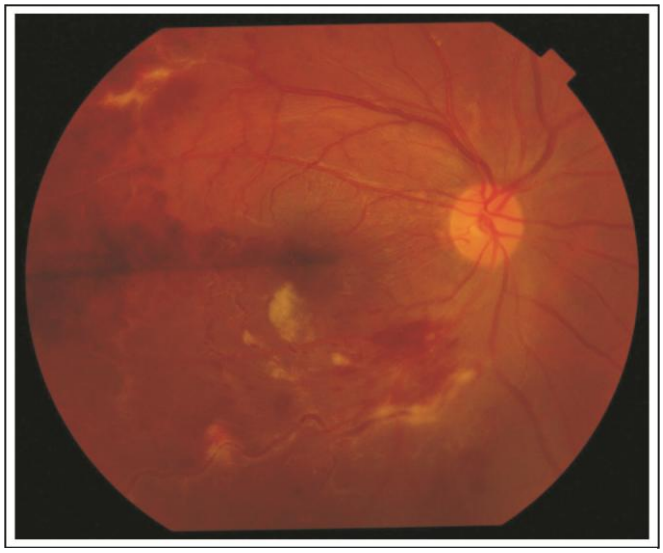

Fig. 1: Right eye showing branch retinal vein occlusion with peri-vascular sheathing.

DISCUSSION

Avascular necrosis (AVN) of femoral head was first described by Alexander Munro in 1738. In 1835, Cruveilhier described the interruption of blood flow as the cause of AVN. With advancement in diagnostic techniques, number of AVN cases has considerably increased.

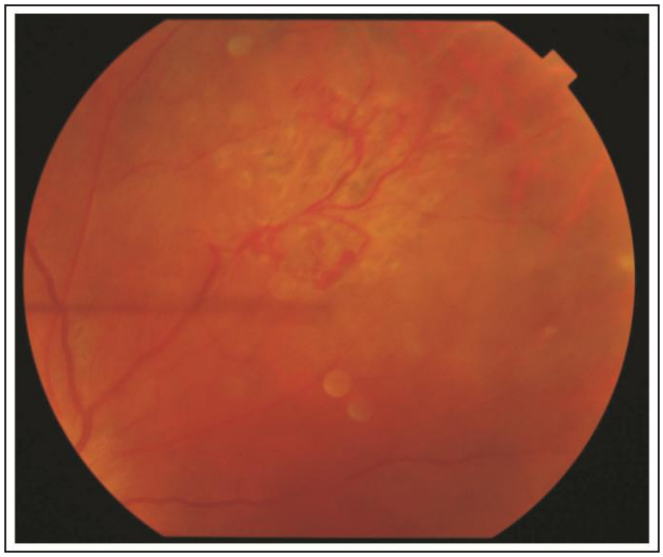

Fig. 2: Peripheral neovascular frond, which was present at 2 O'clock position of the right eye. Laser marks are also seen in the figure.

The two most important factors which contribute to AVN are corticosteroids and alcohol intake[1,2]. While corticosteroids induced AVN mainly affects the

femoral head, the cause is not yet confirmed. It is hypothesized that fat cell hypertrophy and fat embolism can result in blood compromise to the femoral head.

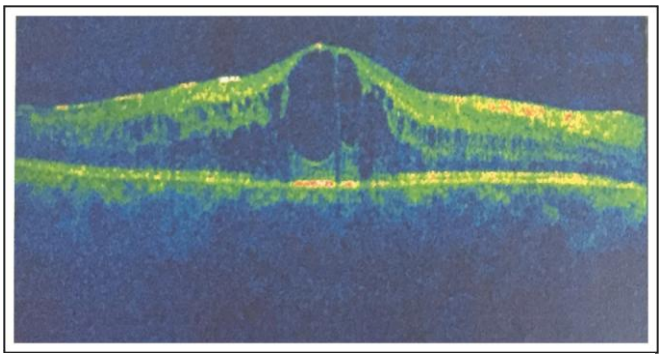

Fig. 3: OCT of the right eye showing cystoid macular edema, which developed after BRVO.

Steroids are the sole treatment in several of the medical conditions. Literature shows that the commonest conditions in which steroid induced AVN is seen, are post renal transplant and SLE[3]. In ophthalmology, steroids are used in ocular manifestations of many collagen vascular diseases for example; peripheral ulcerative keratitis, uveitis, Scleritis and epi-scleritis. Exudative retinal detachments, retino-choroiditis, optic neuritis and Eale's disease are some of the other ocular conditions in which systemic steroids are the mainstay of treatment. None of the above-mentioned disease is reported in literature for steroid induced AVN.

Although high daily doses[3], cumulative dose[4] and long duration of steroid administration are the main contributing factors, there is no consensus on the safe dose and minimum safe duration of steroid use. However, AVN does not occur in majority of cases. It can be because of other contributing factors like hyperuricemia in psoriasis and hyperlipidemias in SLE. A study was carried out in China, which showed a positive relation between atherosclerosis, male gender, urban residence, family history of osteonecrosis of the femoral head, heavy smoking, alcohol abuse, glucorticoid intake, overweight and osteonecrosis of femoral head[5]. Vascular compromise could also be from a clotting disorder or genetic abnormality[6].

In this particular patient, underlying vasculitis (which was seen in the eye as Eale's disease) could have been the contributing factor for AVN. Vasculitis can cause hyper coagulable state with resulting sludging of blood vessels and embolization. Steroids are also responsible for hyperlipidemia, which can also contribute to bone infarction. Role of lipid lowering agents in the animal models gives some clue about the high lipids levels as a contributing factor in AVN[7].

Studies have shown that vascular endothelial growth factor, which is meant for bone repair and angiogenesis, is decreased by up to 45% with the use of steroids[8]. The dilemma in our patient was that she started to develop new vessels in the eye, which caused vitreous hemorrhage. We had to give her Anti-VEGF injection in the vitreous cavity. There is considerable absorption of Anti-VEGF agents in the systemic circulation after intra vitreal injection. This could adversely affect the already compromised vascular supply of the hip joint, which needed vascular support. Hence, intravitreal ranibizumab was given which has lesser systemic absorption.

This patient used oral steroids off and on for six months because of her recurrent central retinal vein occlusions. However, AVN with daily doses as low as 5mg prednisolone and duration as short as 7 days is also described in literature[9]. Such reports favor the idea that the underlying disease for which the steroids are given can be the contributing factor in AVN.

CONCLUSION

Rare complication is not rare for the person who develops it. Surgeons and physicians should be vigilant in prescribing any medicine having, although rare but, serious complications. MRI should be recommended after six months of steroid intake (irrespective of the dose of steroid used).

There are certain situations where you need the effect of a drug at one part of the body and want to avoid the drug effects at other part. In such medical dilemmas, risk benefit ratio should be carefully calculated.

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