Bilateral Ocular Ischemic Syndrome Following Radiotherapy for Hodgkin’s Lymphoma

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ABSTRACT

We report a case of bilateral ocular ischemic syndrome in a middle aged female 7 years following radiotherapy for Hodgkin’s lymphoma involving the cervical lymph nodes. On presentation she had very early features suspicious of ocular ischemic syndrome which were confirmed with a carotid Doppler showing nearly absent circulation through the carotid system due to a radiation induced stenosis. We highlight the importance of regular screening in patients receiving radiotherapy in view of its life-threatening consequences.

Keywords: Ocular ischemia, Carotid Doppler, Hodgkins lymphoma.

INTRODUCTION

Ocular ischemic syndrome\(^1\) is a manifestation of a systemic disease presenting with signs of global ocular ischemia, such as microaneurysms, arteriolar attenuation, venular dilatation, prominent episcleral vessels, rubeosis of unknown cause or silent uveitis. We report an interesting case who presented with bilateral ocular ischemia due to total occlusion of the entire carotid arterial trunk.

CASE REPORT

A 66-year-old female presented to us with gradual bilateral loss of vision for the past 5 months. She was diagnosed elsewhere to have metabolic syndrome with diabetes mellitus, hypertension, hyperlipidemia causing retinopathy. She gave a past history of Hodgkin’s lymphoma 7 years back for which she had received chemotherapy and radiotherapy. The patient did not have any details of the treatment received except that radiation was given over the neck on both sides. She had been in total remission since then and had received no treatment till date. Her best corrected visual acuity was 6/12, N10 and 6/36, N18 respectively in right and left eyes. Intraocular pressure was 9 mm Hg in both eyes. Anterior segment evaluation was normal with early cataract changes. Fundus examination showed mild arteriolar attenuation with midperipheral microaneurysms. Fluorescein angiogram showed delayed choroidal and arterial filling, presence of a leading edge, microaneurysms and staining of both arteries and veins in late frames (Fig. 1). She was suspected to have ocular ischemic syndrome and advised for an electroretinogram. A delayed 30 Hz flicker implicit time, considered as a marker for retinal ischemia was recorded as 32.0 and 36.5 ms in right and left eye respectively confirming bilateral retinal ischemia with the left eye being more severely affected\(^2\) (Fig. 2). A subsequent carotid color Doppler ultrasonography revealed 100% stenosis in both common carotids as well as the right external and internal carotid arteries along with 99% stenosis in left external and internal carotid arteries (Fig. 3). There was no evidence of intimal plaques. The flow was normal in the vertebral arteries which most likely compensated for the vascular supply to the brain and avoided any neurological symptoms. She was referred to a cardiovascular surgeon and has been lost to follow-up since then.

DISCUSSION

Ocular ischemic syndrome is characterized by chronic ocular arterial hypoperfusion with the obstruction of flow...
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Fig. 2: ERG of both eyes showing reduced and delayed scotopic and photopic responses with 30 Hz implicit times more than 30 msec in both eyes suggestive of ischemic changes.
being commonly at the level of carotid artery. The reduction of flow is usually unilateral and commonly due to an atherosclerotic plaque. Diabetes mellitus, hypertension, hyperlipidemia contribute further to the carotid obstruction. Radiation therapy to the neck nodes is known to cause endothelial damage leading to fibroblastic deposition and luminal stenosis involving carotid artery which over long term can cause severe compromise of carotid flow. Cervical radiation therapy is a modality of treatment for initial stages of Hodgkin’s lymphoma and show very good response when combined with chemotherapy in specific histological types. Hodgkin’s lymphoma can have bimalod age of presentation with children of 15 to 25 years also getting affected. Due to the recent modalities of treatment, survival rates of these patients has increased several fold and is around 88% at present. This allows for long-term effects of the therapeutic modalities to cause various manifestations. Radiotherapy is known to have effects on the vascular system with higher incidences of coronary, subclavian and carotid arteries in that order. A 5 years trial revealed abnormal carotid Doppler in 22% and abnormal ocular Doppler in 16% of the survivors. The relative risk of stroke is nearly doubled in these survivors after a median gap of 9 years. Long-term survivors of nasopharyngeal carcinoma postradiotherapy also have shown similar incidence of carotid stenosis. Carotid disease may be picked up clinically based on symptoms of transient ischemic attacks and amaurosis fugax or on regular screening for carotid bruit on auscultation and stenosis on Doppler scan. Our patient was in remission for 7 years and had not had a carotid Doppler during this time nor did she experience such symptoms. This could be the reason for such advanced stenosis and bilateral ocular ischemic changes. Also the presence of collaterals from the external carotid and vertebral arteries could delay the presentation of ocular ischemia while her systemic diseases could contribute toward worsening of ischemic changes. A prompt referral might allow for timely surgical intervention and life saving treatment in such cases. Carotid end arterectomy has been accepted as choice of treatment in symptomatic stenosis >70% with 81% reduction in chances of further TIA’s. It can cause 80% increase in retinal flow with visual stabilization. Carotid artery stenting has also proven beneficial especially in cases with stenosis.

CONCLUSION

An ophthalmologist can play an important role in early diagnosis and referral of cases with ocular ischemic syndrome. A high index of suspicion with knowledge of variable presentations of this syndrome may be helpful in patients having undergone radiotherapy for head and neck cancers.

REFERENCES


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