

Oxaliplatin-induced papilledema: Rare case report

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Abstract:

Papilledema is the presence of bilateral optic disc edema in the presence of raised intracranial pressure and often is symmetric. We report a case of a 70-year-old male with rectal carcinoma on chemotherapy presented with minimal drop in visual acuity. The patient has bilateral disc edema and investigations including computed tomography and cerebrospinal fluid opening pressure were normal and no evidence of brain metastasis has been found. The patient was on oxaliplatin regimen and literature search has shown very few cases of platinum chemotherapy agents-induced papilledema. So far to our knowledge, oxaliplatin-induced papilledema has not been reported and knowing this condition can be sight saving for ill patients.

Keywords:

Chemotherapy, oxaliplatin, papilledema, platinum compounds, rectal cancer

INTRODUCTION

Papilledema is bilateral often characterized by symmetric optic disc involvement and associated with elevated intracranial pressure. However, elevated intracranial pressure need not always associated with papilledema. In patients with systemic malignancy, papilledema is often due to metastasis to the brain and very few other reasons have been reported. We report a case of oxaliplatin-induced papilledema in a patient with rectal carcinoma. Although platinum chemotherapeutic agents are commonly used for various malignancies, few cases of carboplatin-induced papilledema have been reported and no cases of oxaliplatin-induced papilledema has been reported so far.^[1,2] The drugs commonly indicated to cause papilledema include corticosteroids, tetracycline, cyclosporine, growth hormone, Vitamin A, and very rarely chemotherapeutic agents. This patient had a mild drop in vision and found to have early papilledema and brain metastasis has been ruled out and oxaliplatin has been stopped. Although very rare, the possibility of platinum chemotherapy drugs causing papilledema should be known by the treating doctor.

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CASE REPORT

A 72-year-old male patient who has been diagnosed to have Stage III rectal carcinoma and underwent surgical resection was started on postoperative chemotherapy oxaliplatin after checking the renal function of the patient and creatinine clearance was calculated. The patient was started on oxaliplatin 85 mg/m² intravenous route with leucovorin 200 mg/m² over 2 h followed by a slow infusion of 5-fluorouracil along with dextrose, each cycle repeated after 2 weeks. The patient's renal profile and blood counts were serially monitored and were doing well during the initial cycles of chemotherapy. Two months after starting medications, the patient had giddiness and found to have reduced creatinine clearance also patient complained of reduced visual acuity than before chemotherapy. A complete ophthalmological examination was carried out for the patient and found to have Snellen's visual acuity in both eyes on 6/24 no further improvement was noted. The anterior segment examination was normal and the fundus examination revealed bilateral hyperemic disc with margins blurred and cup disc ratio obliterated [Figure 1]. Few hemorrhages were noted along with the nerve fiber layer in the peripapillary region. Optical coherence tomography examination of retinal fiber layer analysis showed thickening in all quadrants [Figure 2].

The patient had undergone urgent neuroimaging [Figure 3] and abdominal imaging, no evidence of any brain metastasis and new

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abdominal lesions were found. Only sagittal images of noncontrast images were available and magnetic resonance venography could not be retrieved. Serum tumor markers were normal and so recurrence has been ruled out. Visual field analysis showed early centrocecal scotoma has been made out [Figure 4]. The patient

continued to receive chemotherapy and after 3 weeks, visual acuity dropped to 6/60 in both eyes with marked field defects.

Guarded lumbar puncture has been performed and found to have cerebrospinal fluid (CSF) opening pressure of 10 cm of H₂O. CSF analysis for proteins, sugars, and counts was within the normal limit. By ruling out the possibilities, the diagnosis of oxaliplatin-induced papilledema has been made. Oxaliplatin has been stopped and the patient was started on oral prednisolone 70 mg with gradual tapering over 6 months. On serial follow-up, visual acuity improved to 6/24 in both eyes over 1 year and fundus examination showed features of secondary optic atrophy in terms of mild disc pallor. On follow-up of up to two more years, no further worsening was noted.

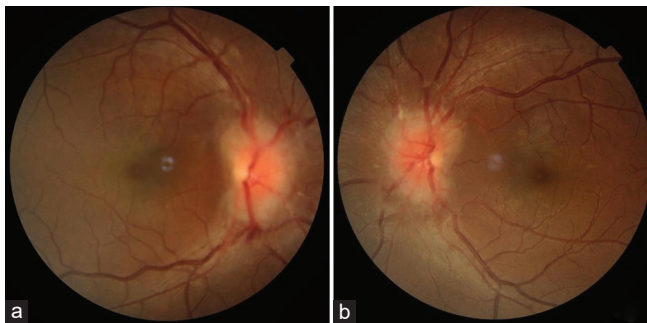


Figure 1: (a and b) Color fundus photograph of the patient in both eyes showing peripapillary edema and blurred margins with obliteration of cup: Disc ratio

DISCUSSION

Papilledema in general indicates the presence of intracranial space-occupying lesions/elevated intracranial pressure due to

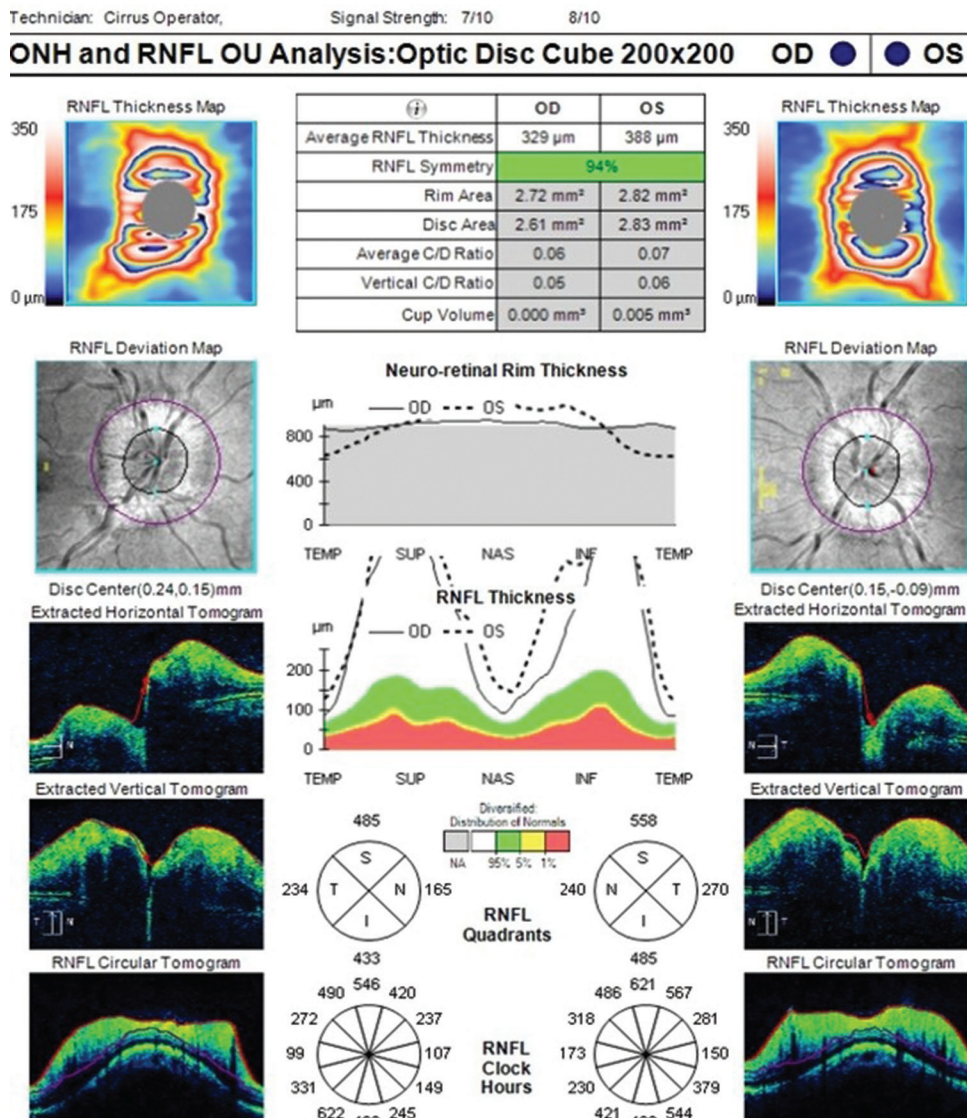


Figure 2: OCT-RNFL (Cirrus SDOCT) image of the patient showing findings suggestive of the marked disc and peripapillary edema

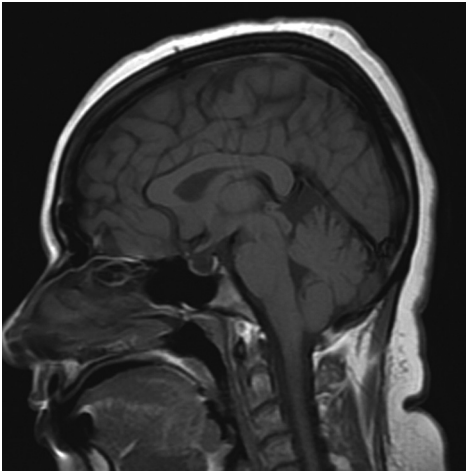


Figure 3: T1-weighted sagittal MRI image of the patient showing empty sella typically seen in idiopathic intracranial hypertension. MRI: Magnetic resonance imaging

obstruction to the flow of CSF or excessive CSF production as in cases such as choroid plexus tumors and so warrants urgent imaging and intervention. In cases with systemic malignancy associated with papilledema often intracranial metastasis is the cause, however, there are very few reports of chemotherapy agents causing papilledema. Earlier cisplatin-induced cortical blindness has been reported and found to have associated with macular degeneration, optic neuritis, and papilledema.^[3] Platinum treatment has been reported to cause papilledema and resolution occurred after discontinuation of medications.^[4,5] We report a case of rectal cancer Stage III on oxaliplatin who developed a drop in vision and bilateral disc edema with normal neuroimaging and normal CSF opening pressure. The patient vision improved a little after discontinuation of oxaliplatin but the signs of secondary optic atrophy sets in by 2 years of follow-up.

Various medications, especially corticosteroid on long-term use or after stopping, tetracycline, estrogen, growth hormone, and Vitamin A has been associated with benign intracranial hypertension with varied proposed mechanisms. The exact pathogenesis of platinum compounds such as oxaliplatin causing papilledema is not known but has been found to have elevated CSF concentration on multiple cycles which can induce toxicity resulting in papilledema. If the initial ocular symptoms are noted and prompt intervention in the form of discontinuation of the drug can reverse the ocular condition and vision can be maintained as the toxicity level will be low. This emphasizes the need for the treating physician and ophthalmologist to have an idea about oxaliplatin and platinum chemotherapeutic agents-induced papilledema which can be reversed if identified early.

In conclusion, platinum compounds can result in the development of papilledema probably due to CSF toxicity, and to our knowledge, this is the first case of oxaliplatin-induced papilledema. Physicians and ophthalmologists should have knowledge about this as prompt discontinuation of medication can save the visual acuity of these ill patients.

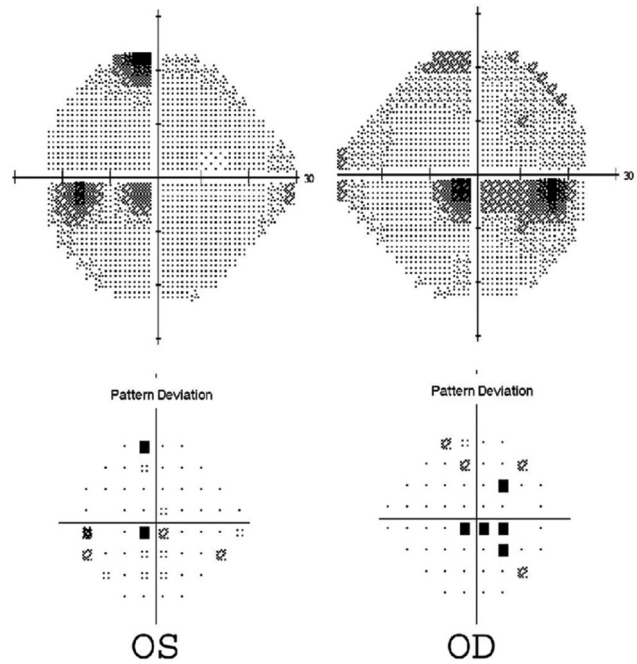


Figure 4: Pattern deviation probability chart of the patient showing evidence of centrocecal scotoma in both eyes

Consent

Written informed consent has been obtained from the patient father for publication of the case details including the photographs taken.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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