

Multidisciplinary Approach to Papilledema: A Prospective Case Series

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Abstract

Introduction: Papilledema is swelling of optic disc due to elevated intracranial pressure. If untreated, it will lead to irreversible damage to the optic disc thereby affecting vision.

Aim: To analyze various causes for the papilledema at a tertiary care hospital in South India.

Materials and Methods: A total of 75 patients were recruited for the study after informed consent signed. All subjects underwent a comprehensive ophthalmic examination, including best-corrected visual acuity, color vision, visual field test, and intraocular pressure measurement with tonometer and fundus examination including ophthalmoscope. Computed tomography and magnetic resonance imaging were done in required cases for evaluating neurologic function.

Results: Papilledema is most common in the third decade of life and rare in the fifth decade of life with a female preponderance. A headache was the most common symptom, enlarged blind spot was the most common field defect, and idiopathic intracranial hypertension was the most common etiology for papilledema in this study.

Conclusion: A complete ophthalmic and neurological investigation is warranted to prevent the onset of secondary optic atrophy in chronic papilledema. It is also advisable to have an ophthalmic consultation in all the patients with a headache to rule out papilledema. If papilledema is detected later, it could lead to loss of vision. Hence, the early detection and management are essential to prevent progress of disease and loss of vision.

Key words: Headache, Idiopathic intracranial hypertension, Intra ocular pressure, Optic atrophy, Papilledema

INTRODUCTION

Papilledema is swelling of optic disc due to elevated intracranial pressure.¹ If untreated, it will lead to irreversible damage to the optic disc thereby affecting vision. The purpose of this study is to comprehensively analyze papilledema in a South Indian tertiary care hospital for a period of 2-year. Incidence, clinical features, and symptoms of the disease were analyzed thoroughly through this clinical study.

MATERIALS AND METHODS

Prospective, observational case series was performed in 75 patients. Prior approval from the Institutional Ethics Committee was obtained, and the patients were enrolled in the study after informed consent was obtained. The study was conducted in accordance with the principles of Declaration of Helsinki. Patients who were presented with symptoms of headache, nausea and vomiting, defective vision with ophthalmoscope findings of bilateral swollen optic disc were included in this study. Patients with inflammatory optic disc edema, unilateral papilledema, and pseudo papilledema were excluded from the study.

A thorough examination of symptoms, mode of onset, duration, associated features, and the pattern of presentation was done. History of patients was carefully sought to determine the presence or absence of risk

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factors such as hypertension, head trauma, brain tumor, use of oral contraceptives, steroids for the development of papilledema.

All subjects underwent a comprehensive ophthalmologic examination including best-corrected visual acuity, color vision, field's test, intraocular pressure measurement, ophthalmoscope examination, and slit lamp biomicroscopy to examine the extent of severity. Computed tomography brain scan and magnetic resonance imaging brain scan were done in selected cases suspected of neurologic dysfunction. Complete blood count was performed in all patients to rule out the possibility of anemia as it may play a role in elevating intracranial pressure.

RESULTS

Of 75 patients, the majority of papilledema diagnosed patients (9 men and 20 women) were in between 30 and 40 years of age, constituting 40% of study population (Figure 1). The majority of patients presented to the hospital were in the early stage of papilledema thereby; it was managed early in most of the patients (Figure 2) 41% of patients had enlarged blind spot, 22% of patients had peripheral field constriction (Figure 3).

The most common symptom in maximum number of patients is headache (88%, 66 patients). Diplopia was the least reported symptom with only 9% (11 patients) experiencing it and it was due to VI nerve palsy (false localizing sign) in 9 patients while in 2 patients it was due to III and IV nerve palsy. The majority of the study population (77.4%, 58 patients) had a good visual acuity >6/18 at presentation. This can be attributed to acute onset of symptoms of papilledema in most of the patients. While, poor visual acuity was observed in 11 patients and various causes for poor visual acuity varied from dural venous thrombosis, cortical vein thrombosis, recurrent cerebellopontine angle tumor, neurocysticercosis, frontoparietal preisylvian anaplastic astrocytoma Grade 3, supratentorial space occupying lesion, and sphenoid ridge meningioma. Homonymous hemianopia was observed in 2 patients (2.6%), it is due to neurocysticercosis presenting with multiple cysts in the cerebellum and occipital cortex in one patient while it is due to mass in the parietal lobe presenting with right hemiplegia in another patient. The most common cause of papilledema is idiopathic intracranial hypertension in 24 patients with 32%. The patients with idiopathic intracranial hypertension were medically managed and showed drastic improvement in symptoms. Two patients underwent lumbar puncture to reduce the cerebrospinal fluid pressure. One was of unknown cause presenting with severe visual loss; another was a steroid induced benign intracranial hypertension,

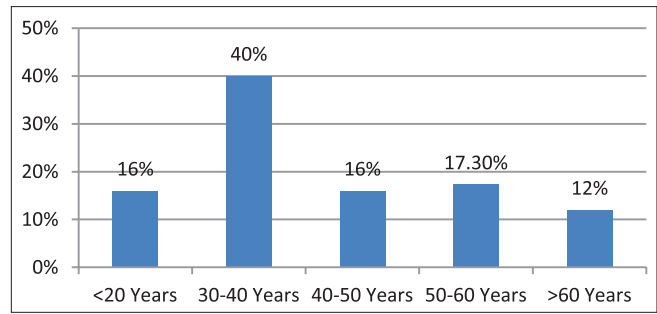


Figure 1: Bar diagram showing the age wise distribution of study population

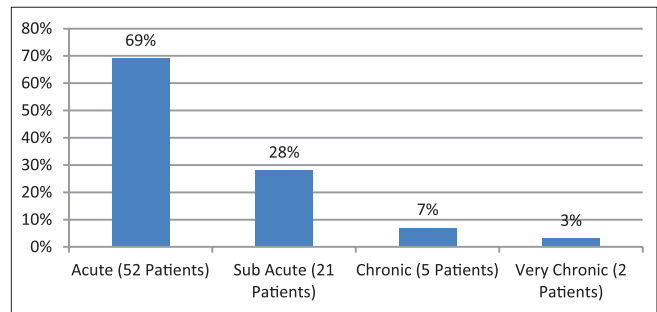


Figure 2: Bar diagram depicts the distribution of papilledema stages in study population

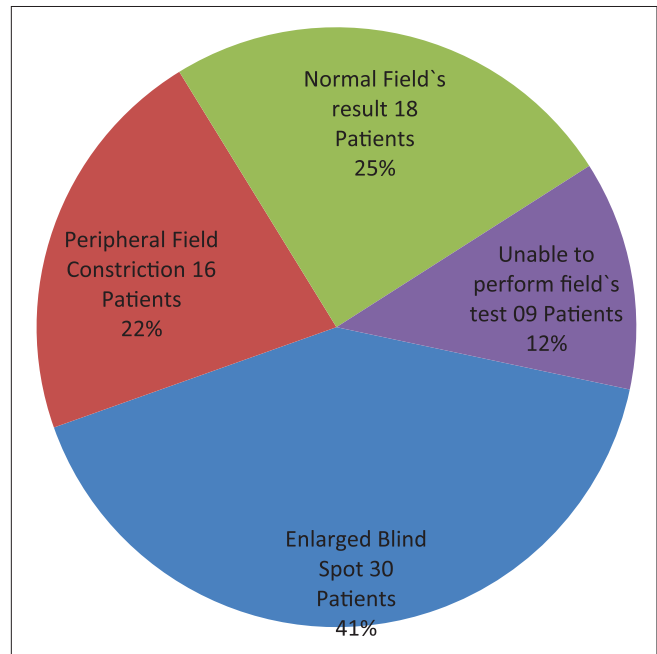


Figure 3: Pie chart showing the field's test measurements in study population

presenting with severe headache. Papilledema in patients with iron deficiency anemia (6 patients, 8%) is mainly due to cerebral ischemia and cerebral edema and it is very rare. These results are in concurrence with the results obtained by Biousse *et al.*² Out of the 75 patients in the study, one patient was a case of Behcet syndrome with deep vein

thrombosis who developed papilledema and recovered after treatment which is in concurrence with a case report by Pamir *et al.*³ 4 patients with cerebral venous thrombosis in the study presented with a sudden visual loss in both eye and multiple cranial palsies. Absolute afferent pupillary defect in both eyes was noted in 9 cases of dural venous thrombosis.

DISCUSSION

In our study, the main cause of the development of papilledema is idiopathic intracranial hypertension, and if it is left untreated, it develops to progressive visual loss; hence, there is a need for careful examination of fundal changes and visual function in the patients who were having intracranial hypertension of known or idiopathic cause. The percentage of patients who were reported with a headache in our study is in concurrence with the results obtained by Vengala *et al.*,⁴ in the study by Jacobs,⁵ it was found that patients with severe iron deficiency anemia have low levels of cytochrome oxidase which is an iron-containing enzyme, in the buccal mucosa, however, it reaches back to normal levels following treatment with iron therapy. In our patients who were having severe iron deficiency anemia, we had administered 4-5 units of blood to improve hemoglobin levels and later were placed on iron medications. A gradual reduction in optic disc swelling was observed in the patients.

In the patient who was diagnosed with Behcet syndrome, non-parenchymal neurological involvement was observed. The patient was presented to our hospital with symptoms of oral and genital sores, diplopia and severe headache. Fundoscopy indicated bilateral optic disc swelling, and bilateral enlarged blind spot was observed through the visual field test.

Magnetic resonance venography revealed deep vein thrombosis. His intraocular pressure was <20 mm Hg in both eyes. After neurologic consultation, the diagnosis was confirmed as Behcet syndrome and treatment was initiated with prednisolone 30 mg/day, warfarin 5 mg/day, azathioprine 50 mg/day patient has shown a gradual reduction in the symptoms by the end of 4th day, and optic disc swelling resolved in few months.

CONCLUSION

A high degree of suspicion, with a headache being the most common indication of papilledema, a complete ophthalmic and neurologic examination, timely imaging and a multidisciplinary approach would give an accurate diagnosis and optimum visual results in patients with papilledema. The chronicity of the papilledema is directly proportional to the onset of secondary optic atrophy and visual loss is the outcome, hence early treatment is necessary to retain vision. The rare proven causes of papilledema like Behcet syndrome and iron deficiency anemia have to be borne in mind while examining a patient with indications of papilledema.

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