Aetiology of Optic Disc Edema in a Tertiary Eye Care Centre in Nigeria

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INTRODUCTION

Optic disc swelling in clinical practice is worrisome. It is of concern to the ophthalmologist, neurosurgeon, neurologist, cardiologist, obstetrician among others. It may be a clinical presentation of diverse disease processes from benign to life threatening conditions such as raised intracranial pressure, hypertension, orbital or ocular disease. The common causes of optic disc swelling are variable. Anterior ischemic optic neuropathy (NAION) is reported to be the most common cause of optic disc swelling in Korean patients (Jung et al., 2011; Hata & Miyamoto 2017). Papilledema was the most frequent cause of unilateral and bilateral disc edema in Nepalese (Vaidya et al., 2018) and the most common cause of the bilateral disc swelling in Japanese patients (Iijima et al., 2014). Studies on the common causes of optic disc swelling in Nigerians are scarce. It is important to recognize the prevalent causes of optic disc swelling in our community in order to define priorities for appropriate intervention and health planning.

The objective of this study was to determine the aetiology of optic disc edema at the eye clinics of the University of Benin Teaching Hospital.

MATERIALS AND METHODS

This study is a retrospective study conducted at the Ophthalmology Department of the University of Benin Teaching Hospital. The Ophthalmic Outpatient Medical Record was searched to identify all new patients presenting with optic disc swelling from January 2012 to June 2019 and their case notes were retrieved. All cases, including children and adults with disc swelling (whether unilateral or bilateral) were included in the study. Patients with missing case notes were excluded from the study. Data on age, gender, laterality of optic neuropathy, visual function, and etiology of optic disc edema was obtained. The data was analyzed with the IBM SPSS Version 21 software (IBM Corp., Armonk, New York, USA). Descriptive analyses such as frequencies, mean and standard deviation were utilized.

RESULTS

There were 66 patients with bilateral or unilateral disc swelling. These included 24 males with a male: female ratio of 1:1.75. The age range was from 3years to73years; mean age 36.63years (SD=15.39). Nine patients were twenty years and below, 46 were from 21years to 50years while 11 were above 50years of age. There was bilateral involvement in 50 patients. The total number of eyes affected was 116. The visual acuity in the affected eyes is presented in Table 1. Papilledema, optic neuritis and pseudopapilledema were the most common etiologies of optic disc swelling (Table 2).

Table 1: Presenting visual acuity in affected eyes

Visual acuity	Right eye n (%)	Left eye n (%)
6/18 or better	28 (46.7)	26 (46.4)
<6/18-6/60	13 (21.7)	15 (26.8)
<6/60-3/60	3 (5)	1 (1.8)
<3/60-LP*	11 (18.3)	11 (19.6)
NLP**	5 (8.3)	3 (5.4)
Total	60 (100)	56 (100)

*LP- Light perception, **NLP- No light perception

Table 2: Aetiology of optic disc swelling

Aetiology	n (%)
Papilledema	20 (30.3)
Optic neuritis	19 (28.8)
Pseudopapilledema,	11(16.7)
Unknown	6(9.1)
CRVO*	4 (6.1)
Malignant hypertension	2 (3.0)
Uveitis	2 (3.0)
Diabetic papillopathy	1(1.5)
NAION**	1(1.5)
Total	66 (100)

*CRVO- central retinal vein occlusion, **NAION-Non arteritic anterior ischemic optic atrophy

Table 3: Aetiology by age

Aetiology	≤ 20 (n=9)	21-50 (n=46)	≥ 51 (n=11)	Total
Papilledema	2	14	4	20
Optic neuritis	5	11	3	19
Pseudopapilledema	2	9	0	11
Unknown	0	5	1	6
CRVO*	0	2	2	4
Hypertension	0	2	0	2
Uveitis	0	2	0	2
Diabetic papillopathy	0	1	0	1
NAION**	0	0	1	1
Total	9	46	11	66

*CRVO- central retinal vein occlusion, **NAION-Non arteritic anterior ischemic optic atrophy

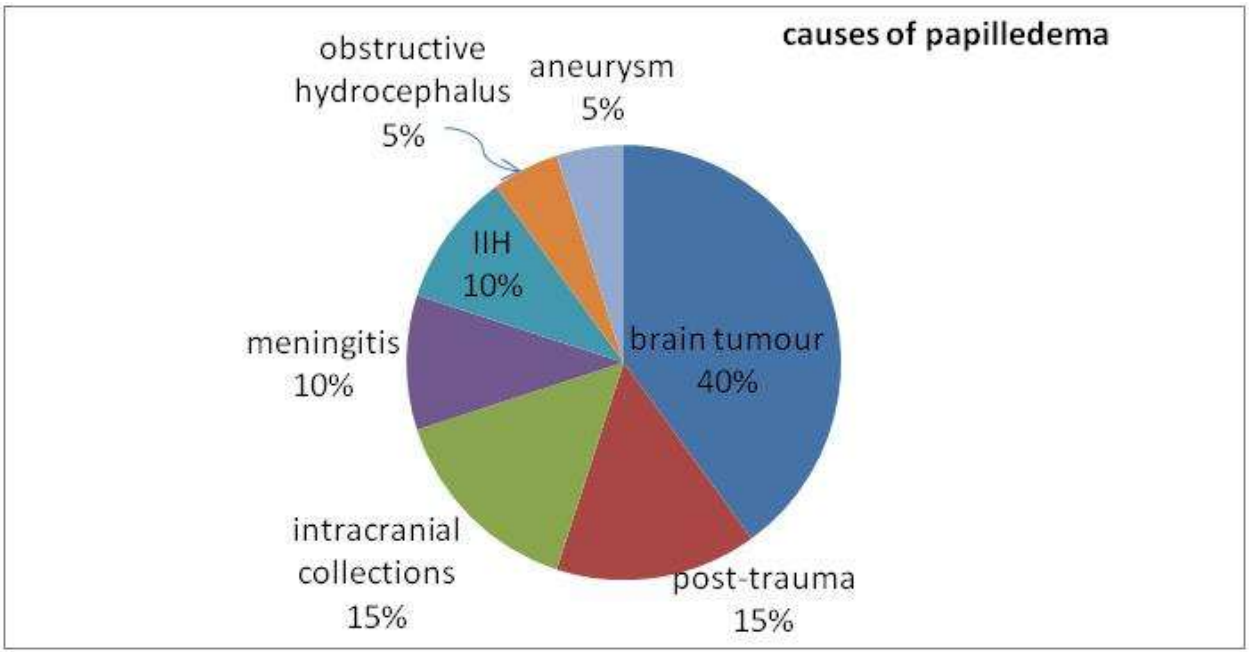

Figure 1: Causes of papilledema

DISCUSSION

There was a female preponderance in our study. This is similar to the finding by Vaidya et al. (2018) in which 64% were females but in contrast to the work by Ijeri & Jyoti (2018) who reported a slight male preponderance in 53%. Optic disc swelling associated with raised intracranial pressure is referred to as papilledema. It was seen in close to one-third of our patients and was associated mostly with brain tumours. Thus, intracranial processes should be considered in patients with optic disc swelling in our clinics. Papilledema was also the most prevalent cause of unilateral and bilateral disc edema in 35.7% of 98 Nepalese (Vaidya et al., 2018) and the most common cause of the bilateral disc swelling in 59% of 121 Japanese patients (Iijima et al., 2014). In addition, brain tumours were the most frequent cause of papilledema in these two studies (Iijima et al., 2014; Vaidya et al., 2018). However, in the work by Ijeri & Jyoti (2018), optic neuritis was the most frequent seen in 46.5% of 43 patients in Indian, while NAION was the commonest reported in 37.4% of 49 patients (Jung et al., 2011) and 22.3% of 93 patients (Hata & Miyamoto, 2017) respectively in Korea. However, in our study ischemic causes (from hypertension, diabetes and NAION) accounted only for 5% of the cases.

Pseudopapilledema was notable in this study as it was in other studies (Hata & Miyamoto, 2017; Jung et al., 2011; Vaidya et al., 2018). It is a false appearance of disc edema due to various congenital anomalies of the optic disc (Miller et al., 2008a). It should be differentiated from true disc swelling in order to save the patient from unnecessary anxiety and investigations. A detailed history and examination are useful in the differential diagnosis of optic disc swelling (Miller et al., 2008b).

CONCLUSION

Papilledema and optic neuritis were the most common etiologies of optic disc swelling at the University of Benin Teaching Hospital. Pseudopapilledema was a notable finding in our study. These aetiologies should be excluded in patients with optic disc swelling in our community.

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Conflict of interest

The authors declare that they have no conflicts of interest.

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