

NEURO-OPHTHALMIC MANIFESTATION OF NASOPHARYNGEAL CARCINOMA AT ILORIN: A FIVE YEAR REVIEW

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ABSTRACT

Background: Patients with Nasopharyngeal Carcinoma (NPC) may present with neuro-ophthalmic symptoms including visual loss. Involvement of the cranial nerves have been found to impact significantly on the individual's 5 year survival rate, which makes an early diagnosis of this condition of great importance in the management of NPC.

Material and Methods: A retrospective review of all patients with clinical and histological diagnosis of NPC over a five year period between 1999 and 2003 was carried out. Information retrieved from the records include their age, symptoms and signs with emphases on neuro-ophthalmic at presentation. Data were analysed using SPSS statistical package.

Result: Twenty records out of the 23 patients with a diagnosis of NPC seen during this period were available for review. The age range was between 20 and 60years, the Mean was 38.9years, SD 11.62. Sixty percent of the patients had neuroophthalmic manifestation with symptoms such as ocular pain, double vision, loss of vision and eye protrusion and signs such as ophthalmoplegia, exposure keratopathy and proptosis in various combinations.

Conclusion: Neuro-ophthalmic manifestations were commonly found among patients diagnosed as NPC at Ilorin. A high index of suspicion of NPC whenever a patient presents with neuro-ophthalmic signs and symptom is advocated.

Key Words: Nasopharyngeal Carcinoma, Neuro-ophthalmic.

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INTRODUCTION

Nasopharyngeal carcinoma is a common tumour in Nigeria^{1,2,3} and it usually arises from the lateral wall of the Nasopharynx, infiltrates the parapharyngeal spaces and progress through the basal foramina to invade the base of the skull and the middle cranial fossa. Tumours in the Nasopharynx may arise from epithelial cells, soft tissue, bone and cartilages, lymphoid tissue and haemopoetic tissue. Squamous cell carcinoma are said to be commonest. They spread to the paranasal sinuses and orbital tissues causing multiple cranial nerve palsy, proptosis, infiltration of cervical sympathetic chain and metastasis to cervical lymph node to cause Horner's syndrome. Nasal obstruction and epistaxis are usually late symptoms. Deafness and tinnitus result from involvement of the Fossa of Rosen Muller. Trigeminal nerves invasion leads to facial pains. Difficulty with early diagnosis and appropriate management is not unusual⁴. About 50% of patients with nasopharyngeal carcinoma have neurological

complication and this is the initial presentation in 34% of the cases. 92% of these are usually confined to the cranial nerves⁵. It has also been documented that the V and VI cranial nerves were specifically involved in 25-35% of the cases with neuro-ophthalmic presentation.^{6,7} Facial nerve involvement may lead to a decrease or increase in lacrimation, keratitis sicca and neuro-paralytic keratitis. In a nation-wide review of 150 cases over a 9 year period in Israel, five year survival in patients with cranial nerve involvement in NPC is 21% compared to 55% in those without⁵. Initial presentation with visual loss from a primary invasion of the optic nerve though rare has also been reported⁸. It is for these reasons that a high index of suspicion for NPC in patients with neuro-ophthalmic presentations is advocated.

MATERIALS AND METHODS

A five year (1999-2003) retrospective review of records of the patients with clinical diagnosis and histological confirmation of NPC as seen at the University of Ilorin Teaching Hospital, Ilorin Nigeria was carried out. Information retrieved include demographic data, symptoms and signs. Those that

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have neuro-ophthalmic presentation were further analyzed to meet the objectives of this study. SPSS II (Statistical Package for Social Sciences) was the software used for analysis of the data.

Limitation of study few numbers of patients with diagnosis and difficulty with follow-up because of referral for Radiotherapy.

RESULTS

There were 23 cases of NPC seen over the 5 year period at the ENT center. 20 records were however, available for review. Table I shows that these were comprised of 14 males and 6 females (M:F 2.3:1) with mean age of 38.9 (range 20-60 years). There were more female in age group 50-60 years, while all the people affected in age group 40-49 years were male. Also, there is a bimodal age presentation in age group 20-29 and 40-49 years as shown in table I. The least affected age group was 30-39years. Forty per cent of the patients had no neuro-ophthalmic symptoms while 60% had symptoms. The symptoms include pain in and around the eyes (50%), visual loss (30%), double vision (10%) and protrusion of the eyes (10%). (Table 2). A multiple of these symptoms were found in 35% of the patients.(Table 3). Specific Neuro-ophthalmic signs were elicited in 35% of the patients and this includes reduction in visual acuity, internal/external ophthalmoplegia, exposure keratopathy and proptosis in various combinations. 15% had only one sign while multiple signs were found in 20% of the cases. Multiple cranial nerve palsy is the commonest neuro-ophthalmic sign elicited in the study as shown in Table 2.

The cranial nerve subserving extra ocular muscles (CN 3,4,6), facial sensation (CN 5) and orbicularis ocular muscle (CN 7) were the most commonly affected in 20% of the cases, while optic nerve subserving vision was affected in 15% of the cases. CN 8 subserving hearing and hypoglossal nerve (CN 12) were affected in 10% of cases.

Table 1: Age/Sex Distribution of Patients with Nasopharyngeal Carcinoma

Age group (Year)	Male	Female	Total	%
20-29	4	2	6	30
30-39	2	1	3	15
40-49	6	-	6	30
50-60	1	3	5	25
Total	14	6	20	100

Table 2: Neuro Ophthalmic Presentations

	Type	Freq	%
Symptoms	Ocular pain	10	50
	Visual Impairment	6	30
	Diplopia	2	10
	Eye protrusion	2	10
Sign	Optic nerve lesion	3	15
	Cranial nerve 3 rd 4 th 5 th 6 th 7 th	4	20
	8 th 12 th cranial nerve lesion	2	10
	Proptosis	2	10
	Exposure keratopathy	1	5

Table 3: Number of Different Presentations

Presentation	Symptoms		Signs	
	No of Patients	%	No of Patients	%
0	8	40	13	65
1	5	25	3	15
3	4	20	1	5
>3	3	15	3	15
TOTAL	20	100	20	100

DISCUSSION

Malignant nasopharyngeal carcinoma varies in incidence from region to region all over the world, it could be as low as 1 per 100,000 at low incidence region to 15-30 per 100,000 at highest incidence region⁷. It is a common tumour in Nigeria and may occur at any age group but affects male more frequently than females Martinson¹ recorded a ratio just over 2:1 and a peak presentation between 30-40 years while Okeowo and Ajayi⁹ showed that peak period of presentation is in the 50-59 age group. Ogunleye et al⁷ recorded a male to female ratio of 2.4:1, their incidence show an increase with age from the first decade to a maximum in the third and fourth decades and fell rapidly after 50years. In this series there is a male: female ratio of 2.3:1 and there is a bimodal age distribution between age 20-29yr and 40-49years. This is lower than Martinson¹, Okeowo and Ajayi⁹ series but similar in pattern to those of Ogunleye et al⁷. There is a downward shift in age of presentation of NPC now compared to the past. Malignant nasopharyngeal carcinoma arising from the Fossa of Rosen-Muller frequently extends to the paranasopharyngeal space. The common clinical manifestations are neck masses, ear symptoms, bloody nasal discharge and cranial nerve palsy. Among the patient with cranial nerve palsy, trigeminal neuropathy is one of the most observable neurologic manifestations¹⁰. Isolated hypoglossal nerve palsy with the appearance of paralysed tongue has been reported in NPC¹¹. Visual impairment (20%) was recorded by Ogunleye et al⁷ as the most common symptoms. Okeowo & Ajayi⁹ also observed that 12.5% of their patients with NPC had visual

impairment. Martinson¹ however observed that 29% of his patients with NPC had proptosis as the most common initial presentation. In this study, ocular pain is the most common presentation, it accounts for 50% of cases, while visual impairment accounts for 30% of cases.

Diplopia and protrusion of eye account for 10% each. Perineural invasion of the extra cranial portion of the mandibular division of Trigeminal frequently occur when Nasopharyngeal carcinoma encroaches on the paranasopharyngeal region while perineural invasion of the intra cranial segment of the mandibular and maxillary division (V2) might occur when an NPC spread along the V3, through the foramen ovale. Majority of patients who had tumour invasion of the intracranial paracavernous region suffered from facial pain or paraesthesia over the distribution of the V2 and or V3¹¹. In our study cranial nerves related to ocular functions (CN 2,3,4,5,6,7) were mostly affected in about 35% of the cases while other cranial nerves 8th and 12th account for 10% of cases. Also 10% of NPC in our study had proptosis while exposure keratopathy account for 5%.

These varying presentations in patients with NPC requires that a high index of suspicion be maintained by Ophthalmologist, Neurologist, Neurosurgeon and Otorhinolaryngologist so as to ensure an early diagnosis and management of these cases.

APPRECIATION

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