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Original Research Article

Socio-demographic Characteristics of Patients with Nasopharyngeal Angiofibroma: A Cross-sectional Observational Study in BSMMU, Bangladesh

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Abstract: ***Background:*** A rare head and neck tumor that makes up about 0.5% of all head and neck neoplasms is the nasopharyngeal angiofibroma. They are benign, non-encapsulated, highly vascular tumors with a high incidence of persistence and recurrence from a histological standpoint, but they are also locally invasive tumors. ***Methods:*** This retrospective cross-sectional study was conducted by the Otolaryngology & Head Neck Surgery division at Bangabandhu Shiekh Mujib Medical University, Dhaka Medical College Hospital, and Shaheed Suhrawardy Medical College Hospital in Dhaka. The study was conducted from February through November of 2012. The total sample size for the study was 30. ***Result:*** The majority of individuals (54%) who have nasopharyngeal angiofibroma are between the ages of 16 and 20. The middle class people (40%) are more sufferers from nasopharyngeal angiofibroma. People living in rural area (53.33%) are more sufferers from nasopharyngeal angiofibroma. The majority of patients have similar symptoms such epistaxis, nasal blockage, nasal discharge, anemia, and masses in the nasal cavity. ***Conclusion:*** It is hypothesized that the affected patients' socioeconomic status and geographic location may have an impact on the biologic behavior of nasopharyngeal angiofibroma.

Keywords: Socio-demographic Characteristics, Nasopharyngeal Angiofibroma.

INTRODUCTION

A rare head and neck tumor that makes up about 0.5% of all head and neck neoplasms is the nasopharyngeal angiofibroma [1, 2]. They are benign, non-encapsulated, highly vascular tumors with a high incidence of persistence and recurrence from a histological standpoint, but they are also locally invasive tumors. It is still debatable where nasopharyngeal angiofibroma originates. Some people think it originates from the superior lip of the sphenopalatine foramen, which is where the sphenoid bone's pterygoid process and the palatine bone's sphenoid process meet. Others assert that it develops from the vidian canal's bone.

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Nasopharyngeal angiofibromas are slowly expanding tumors that first invade the nasopharynx and nasal cavity intra-nasally before moving into the pterygomaxillary space. Nasopharyngeal angiofibromas inevitably erode bone, invading the middle cranial fossa, orbit, and infra temporal fossa. The internal maxillary artery provides the majority of the blood flow to these benign tumors, but it can also receive blood from the external carotid artery, internal carotid artery, common carotid artery, or ascending pharyngeal artery [3, 4]. Although nasopharyngeal angiofibroma can develop at any age, from infancy to old age, it is typically detected between the ages of 14 and 25 [5]. The presence of sexual dimorphism and the tumor's relatively early diagnosis point to a hormone-dependent tumor [6]. IGF-II (insulin-like growth factor II) may have the ability to control the growth of nasopharyngeal angiofibroma, according to Nagai *et al*., [7]. Recurrent episodes of epistaxis, nasal obstruction, nasal discharge, blood-tinged sputum, a feeling of a foreign body in the nasal cavity, and headache are clinical features. Nasopharyngeal angiofibroma surgical intervention has long been a task for head and neck surgeons due to the tumor's rich vascularity. Recent studies have revealed the expression of proteins associated with stem cells, such as c-kit and c-myc, indicating that both contribute to the emergence of NAF. Endothelial and stromal cells have both shown to have chromosomal imbalances [8, 9]. Additionally, androgen, testosterone, dihydrotestosterone, and basic fibroblast growth factor receptors are immune-histochemically expressed, whereas estrogen and progesterone receptors are typically negative [10-12]. The etiology of Epstein-Barr virus and Human Herpes Virus type VIII is not known. 13 This study's goal was to describe the socio-demographic traits of nasopharyngeal angiofibroma patients.

OBJECTIVE OF THE STUDY

This study's goal was to describe the socio-demographic traits of nasopharyngeal angiofibroma patients.

MATERIALS AND METHODOLOGY

This retrospective cross-sectional study was conducted by the Otolaryngology & Head Neck Surgery division at Bangabandhu Shiekh Mujib Medical University, Dhaka Medical College Hospital, and Shaheed Suhrawardy Medical College Hospital in Dhaka. The study was conducted from February through November of 2012. The total sample size for the study was 30.

Inclusion Criteria:

1. All nasopharyngeal angiofibroma cases scheduled for surgery at Shaheed Suhrawardy Medical College Hospital, Dhaka Medical College Hospital, and Bangabandhu Sheikh Mujib Medical University in Dhaka within the authorized research period.
2. The patient's full age range will be taken into account.

Exclusion Criteria:

1. Patients with incurable nasopharyngeal angiofibromas.

Following a review of the hospital's nominal register for otolaryngology and head and neck surgery, the patients for this study were selected. The hospital's treatment plan and line of action were appropriately recorded. The surgical plan over a ten-year period took into account the surgeon's learning curve for endoscopic surgery and the progressive abandonment of the open technique. The tumors were staged in accordance with the Fisch classification, with stage I being limited to the nasopharynx and nasal cavity and stage II being a tumor that invaded the pterygomaxillary fossa, the maxillary antrum, the ethmoid and sphenoid sinuses with bone destruction, and stage III being a tumor that invaded the infra-temporal fossa, the orbit, and the brain (tumor with invasion of the cavernous sinus, the optic chiasm or the pituitary fossa). An analysis of the interval between embolization and surgery allowed for the identification of the fourth day, which had the highest patient volume compared to the other days. The same surgeons performed all operations (E.F.G). Statistics software SPSS version 21.0 was used for data processing. Simple and percentage frequencies, parametric measurements, means, and the standard deviation served as the basis for data analysis. The level of significance was set at P 0.05.

RESULT

Table I: Age distribution of the patients

Age group(years)	No. of patients (n=30)	Percentage (%)
0-10	00	00
11-15	08	24
16-20	18	54
21-25	04	12
25 onwards	00	00

The youngest patient suffering from nasopharyngeal angiofibroma was 13 yrs of age while the eldest was 23 yrs of age. The commonest age group suffering from nasopharyngeal angiofibroma is 16-20 yrs group and is 54% of total patients. Mean age of patient was 16 year.

Table-II: Socio-economic conditions of the patient

Socio-economic status	No of patients (n =30)	Percentage (%)
High	07	23.33
Middle	12	40
Low	11	36.66

Here shown that middle class people (40%) are more sufferers from nasopharyngeal angiofibroma.

Table-III: Residential status of the patients

Residential status of patients	No of patients (n=30)	Percentage (%)
Rural	16	53.33
Urban	14	47.66

People living in rural area (53.33%) are more sufferers from nasopharyngeal angiofibroma.

Table-IV: Clinical Features

Clinical Feature	Number (n=30)	Percentage
Epistaxis	30	100
Nasal Obstruction	30	100
Nasal discharge	25	83.33
Anemia	30	100
Facial deformity	05	30
Orbital proptosis	02	6.66
Cheek swelling	02	6.66
Visible mass in nasal cavity	24	80
Visible mass in post. rhinoscopy	27	90
Features of secretory otitis media	18	60
Rhinolalia Clausa	15	50

From above table we found that maximum patient has common features like epistaxis, nasal obstruction, nasal discharge, anaemia, mass in the Nasopharynx etc.

Table-V: Onset of Epistaxis

Duration	No. of patients (n=30)	Percentage (%)
Less than 1 month	05	16.66
1 month to 1 year	20	66.66
More than 1 year	05	16.66

66.66% of patients notice onset of Epistaxis 1 month to 12 month ago of admitting at hospital.

Table-VI: Laterality of Epistaxis

Laterelity	No of patients (n =30)	Percentage (%)
Right lateral	06	20
Laft lateral	04	13.33
Bilateral	20	66.66

Among the patients suffering from Epistaxis a high proportion (66.66%) of them has bilateral.

DISCUSSION

One tumor that presents constant diagnostic and treatment challenges is angiofibroma. Adolescent men make up the great majority of patients with nasopharyngeal angiofibroma. Clinically, the lesion typically appears as a well-vascularized mass that occupies the back of the nose and the nasopharynx, but it can also affect the nasal cavity, cheek, orbital cavity, cranial cavity, maxillary antrum, pterygomaxillary fossa, infratemporal fossa, and nasal cavity. The prevalence, clinical findings,

and surgical management of nasopharyngeal angiofibroma in our nation and abroad have recently been the subject of some research. Comparable studies from both domestic and international sources were examined. As we previously discovered, teenage males are the group that is most frequently affected by nasopharyngeal angoifibroma. Adolescent males were the group in my study that was most frequently affected (average age 16 year). Apostol and Frazell reported 40 cases of NAF in male patients in 1965 and recommended that sex chromosome studies be done if this diagnosis is confirmed in a female in order to look for androgen insensitivity syndrome, also known as testicular feminization, in phenotypically female but genetically male individuals [14, 15]. This result is also in line with a few other earlier studies [16-20]. The disease may be related to increased levels of circulating hormones given that puberty is when symptoms first appear, with the androgen, testosterone, and dihydrotestosterone receptors in tumor cells likely playing a role in pathogenesis. Because gynecomastia and other feminization symptoms are typically associated with puberty, clinicians are hesitant to use hormone therapies on patients who were treated with antiandrogenic drugs, particularly Flutamide. In a recent study, Thakar *et al*., found that only postpubertal patients showed flutamide-induced partial regression of NAF, with prepubertal and postpubertal patients responding to flutamide differently [21]. These results lend credence to the idea that the tumor pathogenesis was caused by an androgenic mechanism. Nasopharyngeal angiofibroma has affected people of middle class (40%) and low socioeconomic group (36.66%) the most, but significant (23.33%) high class people may also be affected by this disease in our nation. Similar studies produced results that were similar [22, 23]. When reviewing the literature from earlier studies [18-20] on this topic to learn more about the clinical presentations of nasopharyngeal angiofibroma, we discovered that the vast majority of patients had epistaxis (100%), nasal obstruction (100%) and intranasal mass (91%). Similar to other studies, the patient in my study had epistaxis (100%), nasal obstruction (100%), and mass in the nose (80%). When asked when their epistaxis first appeared, the majority of patients (66.67%) reported that it happened between one month and one year prior. The same percentage of patients (66.67%) also reported having bleeding from both nasal cavities. Epistaxis is a more likely symptom that prompts patients to seek medical attention sooner, but overall, the symptoms experienced by our patients and those described in the literature are comparable.

CONCLUSION

It is hypothesized that the affected patients' socioeconomic status and geographic location may have an impact on the biologic behavior of nasopharyngeal angiofibroma. By contrasting this data with other significant NAF series from various geographical regions of the world, this observation needs to be further assessed. It is necessary to better understand the role of mast cells in the pathogenesis of NAF, which may be connected to vascular proliferation. According to immuno-histochemical research, the stromal tumor cells are not myofibroblasts but rather fibroblasts. The disease presentation following initial surgery may be explained by persistence rather than recurrences, depending on the type of resection. Although the WHO discourages the use of terms referring to age, grade, and site, it is advised that the term "nasopharyngeal juvenile angiofibroma" be used instead because of the tumor's distinctive features.

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