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Clinical Staging for Accurate Preoperative Clinical Assessment of Patients with Nasopharyngeal Angiofibroma

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Abstract **Original Research Article**

Background: The location of the tumor and its accompanying symptoms, which include substantial epistaxis and nasal obstruction, cause the Nasopharyngeal Angiofibroma, a histologically and physiologically benign tumor with aggressive activity. ***Methods:*** The Otolaryngology & Head Neck Surgery division at Bangabandhu Shiekh Mujib Medical University, Dhaka Medical College Hospital, and Shaheed Suhrawardy Medical College Hospital in Dhaka carried out this retrospective cross-sectional study. The research was done in 2012, from February to November. 30 people made up the study's entire sample size. ***Result:*** The majority of individuals (54%) who have nasopharyngeal angiofibroma are between the ages of 16 and 20. 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. Maximum (90%) has varying degree anaemia at presentation. All patient has soft tissue mass in Nasopharynx, half of the patient has pterygopalatine fossa extension at presentation. Maximum (56.66 %) patient admitted with stage II nasopharyngeal angiofibroma. ***Conclusion:*** It is necessary to acquire preoperative clinical staging and imaging parameters from data of one of the largest NA case series.

Keywords: Clinical Staging, Accurate Preoperative Clinical Assessment, Nasopharyngeal Angiofibroma.

INTRODUCTION

The location of the tumor and its accompanying symptoms, which include substantial epistaxis and nasal obstruction, cause the Nasopharyngeal Angiofibroma, a histologically and physiologically benign tumor with aggressive activity [1-5]. They have a high rate of persistence and recurrence from benign, non-encapsulated, highly vascular tumors. Nasopharyngeal angiofibromas are slowly growing tumors that first invade the intra-nasal tissues of the nasopharynx and nasal cavity before spreading to the pterygomaxillary region. Inevitably eroding bone, nasopharyngeal angiofibromas invade the infra temporal fossa, orbit, and middle cranial fossa. Most of these benign tumors' blood flow comes from the internal maxillary artery, but it can also come from the external carotid artery, internal carotid artery, common carotid artery, or ascending pharyngeal artery [6, 7]. Nasopharyngeal angiofibroma can appear at any age, from early childhood to old age, however it is frequently found between the ages of 14 and 25 [8]. Sexual dimorphism and the early detection of the tumor suggest that it is a hormone-dependent tumor [9]. Clinical symptoms include headache, recurrent episodes of epistaxis, nasal blockage, nasal discharge, blood-tinged sputum, and a sense of a foreign body in the nasal cavity. An essential tool in the evaluation and the main component of surgical planning for NA is optimal imaging. It is crucial to accurately categorize the stage and exact extent of such a unique pathology since this will influence the best surgical strategy and the amount of resection that can be accomplished. The prognosis is then significantly impacted by this [10]. Any staging system must be updated often to account for advancements in our understanding of tumor characteristics, recurrence patterns, and how these aspects relate to the range of available treatments [11,

12]. Therefore, this new staging method divides tumor extension into discrete subgroups and links the severity of the illness to stage-appropriate final treatment plans. We suggest and assess a new classification system that is developed from preoperative imaging data based on our experience. Each step in this classification system places patients in a particular treatment group and specifies the surgical strategy that will be used to address any difficulties unique to that anatomical compartment. To specifically comprehend the level of tumor invasion into the skull base and beyond, preoperative computed tomography (CT) data must be thoroughly analyzed. This study explores clinical staging for precise preoperative clinical assessment of patients with nasopharyngeal angiofibroma using a classification-based surgical strategy.

OBJECTIVE OF THE STUDY

This study's goal was to investigate clinical staging for precise preoperative clinical evaluation of patients with nasopharyngeal angiofibroma.

MATERIALS AND METHODOLOGY

The Otolaryngology & Head Neck Surgery division at Bangabandhu Shiekh Mujib Medical University, Dhaka Medical College Hospital, and Shaheed Suhrawardy Medical College Hospital in Dhaka carried out this retrospective cross-sectional study. The research was done in 2012, from February to November. 30 people made up the study's entire sample size.

Inclusion standards:

- All nasopharyngeal angiofibroma cases scheduled for surgery at Bangabandhu Sheikh Mujib Medical University, Shaheed Suhrawardy Medical College Hospital, and Dhaka Medical College Hospital in Dhaka throughout the approved research period.
- The patient's entire age range will be considered.

Exclusion standards:

- Patients with nasopharyngeal angiofibromas, which are incurable.

The patients for this study were chosen after a review of the hospital's nominal register for otolaryngology and head and neck surgery. The hospital's treatment strategy and course of action were dutifully documented. The surgeon's learning curve for endoscopic surgery and the increasing abandonment of the open approach were both taken into account in the surgical plan over a ten-year period. According to the Fisch classification, the tumors were categorized into three stages: stage I, which involved only the nasopharynx and nasal cavity; stage II, which involved a tumor that had bone destruction and invaded the pterygomaxillary fossa, the maxillary antrum, the ethmoid and sphenoid sinuses; and stage III, which involved the infratemporal fossa, the orbit, and the brain (tumor with invasion of the cavernous sinus, the optic chiasm or the pituitary fossa). The fourth day, which had the highest patient volume relative to the other days, was identified through an investigation of the time period between embolization and surgery. All surgeries were carried out by the same surgeons (E.F.G). Data processing was carried out using SPSS version 21.0, a statistics program. The basis for data analysis was simple and percentage frequencies, parametric measures, means, and the standard deviation. The significance threshold was established 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: 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 III: 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 IV: 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 V: 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.

Table VI: Investigation Findings

Investigation	Number (n =30)	Percentage
Anaemia	27	90
Plain X- ray nasopharynx (L / V)		
Soft tissue mass in nasopharynx	30	100
Anterior bowing of post. Wall of maxillary sinus in lateral view	12	40
CT. SCAN		
Nasopharynx and nasal involvement	30	100
Paranasal sinus involvement	09	30
Pterygoplalatine fossa involvement	15	50
Infraptemporal fossa involvement	06	20

Maximum (90%) has varying degree anaemia at presentation. All patient has soft tissue mass in Nasopharynx, half of the patient has pterygopalatine fossa extension at presentation.

Table VII: Distribution of Grading according to Fisch staging system (Stage IV excluded from this study)

Stage	Number(n=30)	Percentage
I	06	20
II	17	56.66
III	07	23.33

Maximum (56.66 %) patient admitted with stage II nasopharyngeal angiofibroma.

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 frequency, clinical findings, and surgical management of nasopharyngeal angiofibroma in our nation and elsewhere 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). This result is in line with findings from other earlier investigations [13-17]. When analyzing the literature from earlier studies [15-17] on this topic to learn more about the clinical manifestations of nasopharyngeal angiofibroma, we discovered that the vast majority of patients had epistaxis (100%), nasal obstruction (100%) and intranasal mass (91%). Similar to earlier studies, the patient in my study had epistaxis (100%), nasal blockage (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 similar percentage of patients (66.67%) also reported having bleeding from both nasal canals. The same kinds of outcomes are seen when we evaluate other papers [15, 18, 19]. In my investigation, the primary methods of diagnosis were a CT scan of the nose and paranasal sinuses and an X-ray of the nasopharynx. It is consistent with this and other related research. 19 In a study on "Surgical approaches used for the excision of Angiofibroma" published in January 2001 by Pakistan's Isteraj S, Abdullah J, Iftikhar A, and Aziz K, it was revealed that each patient had a standard CT scan of the nasopharynx and sinuses performed to identify any potential tumor extensions and to help choose the best surgical strategy. The majority of patients in my study (56.67%) fell under Fisch staging system grade II (Stage IV excluded from this study). While 26.33% and 23.67% of patients were diagnosed with grades I and II, respectively. This compares well to other research carried out in Pakistan.19 However, wealthier nations report seeing higher cases of grade I cancers [14, 20].

CONCLUSION

It is necessary to acquire preoperative clinical staging and imaging parameters from data of one of the largest NA case series. It consistently divides patients into treatment groups with clear surgical strategies, redefining the acceptable limits of endoscopic resection of NA in challenging regions such Meckel's cave, the cavernous sinus, and the ICA. It also helps with result prediction. Furthermore, it is useful since it presents original findings on the suspected tumor's genesis and the lesion's preferred pathways of spread.

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