Angiofibroma - a study of 22 cases at Allied Hospital Punjab Medical College, Faisalabad.

Muhammad Ali Tirmizey * Imtiaz Ahmad* Babar Rafiq Khan* Muhammad Hanif* Muhammad Saleem* Ehsaan Ibrahim*

ABSTRACT

Objective: The Primary objective of the study was to study the presentation of Angiofibroma of Nasopharynx in Faisalabad ppoand to compare the results of various treatment modalities. **DESIGN**: Prospective comparative study: **SETTINGS**: The study was carried out at the department of ENT & Head & Neck Surgery Allied Hospital Faisalabad, a tertiary care hospital. **PERIOD:** June 2001 – June 2006. **PATIENTS AND METHODS:** A study of 22 cases of Angiofibroma including all cases during the 5 years was carried out. All the patients were admitted. Detailed history, physical examinations and investigations were done. CT Scan with contrast was done in all cases and in some selected cases, MRI was also done in some cases .**RESULTS:** All the patients were male between 10 – 25 years of age. All the presented with epistaxis (100%). Other features included, nasal Obstruction, nasal discharge, orbital patients proptosis, mass in the nose and obvious deformity. All the patients underwent surgical excision except two, which were found inoperable. In 3 patients, tumour was excised by transpalatal approach. In 3 patients, Transnasal – Maxillary approach using Weber Fergusson,s incision was done and in 14 patients, Lateral Rhinotomy was used. **CONCLUSIONS:** Angiofibroma is a difficult condition to deal with. Any patient with slightest suspicion must be thoroughly investigated, as early diagnosis makes huge difference in outcome.Surgical excision is the treatment of choice.

CORRESPONDENCE: Allied Hospital Punjab Medical College, Faisalabad.Telephone Res. 0418725300 Mobile 03216653153. Email. Afzal2@fsd.comsats.net.pk

INTRODUCTION

Angiofibroma is one tumour, the treatment of which always produces anxiety in the mind of the surgeon. It is benign yet biologically aggressive tumour.The tumour has primary attachment to the lateral wall of the nasopharynx and it has expansile growth and involves the surrounding regions by expansion. Spontaneous regression is doubtful and cannot be relied upon. The tumour is easy to diagnose as the triad of features, repeated epistaxis, nasal obstruction and anaemia in an adolescent male leaves little doubt about the diagnosis but it is difficult to treat.The exact aetiology is unknown but fibroblastic theory, Estrogen-androgen imbalance theory and Hamartomatous origin theory are proposed. The tumour has Primary attachment which is broad based from the posterolateral wall of nasal cavity and adjoining superolateral Nasopharyngeal wall. Sphenopalatine foramen is always involved. It has secondary extensions and grows beneath the mucosa to involve Nasal cavity, Pterygopalatine fossa, Maxillary and Ethmoid sinuses, Infratemporal fossa , Orbit and Intracranial extension through foramen lacerum, sella turcica, ethmoid and sphenoid sinuses. The gross appearance shows pale and red - lobulated and necrosed surface. It is soft and red towards the centre and firm and whitish towards the periphery. It is more firm and whitish with increasing duration. Microscopically the tumour comprises of vascular spaces with no contractile element in wall, surrounded by fibrous tissue. The clinical features include a triad of symptoms, epistaxis, nasal obstruction and rhinorrhoea. Other features include anaemia, nasopharyngeal mass, proptosis, palatal mass, Infratemporal fossa mass, neurological manifestations,Deafness and Rhinolalia

clausa. Blood supply to the tumour is mainly from Internal maxillary, Ascending pharyngeal and from internal carotid artery .Venous drainage is to Vertebral Veins, veins following arteries and multiple unnamed veins. Today, CT scanning and MRI are the most commonly used modalities for imaging of JNA. The diagnosis is usually based on the imaging and the physical examination findings. Because of its vascular nature biopsy of these lesions is contraindicated. The commonly used classification system was established by Fish in which grade 1, being confined to the nasopharynx, grade 2 being into the pterygomaxillary fossa or into the sinuses; grade 3 being into the infratemporal fossa with and without intracranial involvement and grade 4 being intracranial intradural involvement. The management for Angiofibroma is primarily surgical. Due to advancements in preoperative embolization, improved skull base surgical approaches and microsurgical techniques, surgery is usually still the main stay for initial therapy; however, radiotherapy and other modalities have been described.

Fagan 1997 advised that for smaller tumors confined to the nasopharynx, nasal cavity, ethmoids or sphenoids an endoscopic approach may be attempted. Transpalatal approaches have been described. We may do a transfacial or mid-faced degloving approach and this can even be extended using Le Fort I osteotomies. We may do a lateral rhinotomy,
medial maxillectomy approach or infratemporal fossa and facial translocation approach as well. For more extensive lesions involving the infratemporal fossa,the medial cavernous sinus, middle cranial fossa, more extensive approaches including the infratemporal fossa approach and the facial translocation approach or an extended Le Fort I, mid-faced degloving approach has been described.

All cases were treated by surgical excision except in inoperable cases in which the tumour has gone intradural and intracranial especially involved the contents of cavernous sinus in which radiotherapy is the only option.

PATIENTS AND METHODS

A study of 22 cases of Angiofibroma including all cases during the 5 years between June 2001 – June 2006 was carried out. All the patients were admitted. Detailed history, physical examinations and investigations were done. CT Scan with contrast was done in all cases and in some selected cases MRI was also done in some cases. All cases were treated by surgical excision except 2 cases in which radiotherapy was given.

DESIGN:

Prospective comparative study:

SETTINGS:

The study was carried out at the department of ENT & Head & Neck Surgery Allied Hospital Faisalabad which is a tertiary care hospital.

RESULTS

TABLE-I
(AGE DISTIBUTION)

AGE	NUMBER	PERCENTAGE
0-10	0	0%
11-20	19	86.6%
21-30	3	13.63%
31-onwards	0	0%

TABLE-II
(SEX DISTIBUTION)

AGE	NUMBER	PERCENTAGE
MALE	22	100%
FEMALE	0	0%

TABLE-III
CLINICAL FEATURES

AGE	No.	PERCENTAGE
Epistaxis	22	100%
Nasal Obstruction	22	100%
Anemia	22	100%
Nasal discharge	20	90.90%
Facial deformity	6	27.27%
Orbital proptosis	6	27.27%
Cheek swelling	4	18.18%
Visible mass in nasal cavity	20	90.90%
Visible mass in post.rhinoscopy	20	90.90%
Features of secretory otitis media	14	63.63%
Rhinolalia Clausa	10	45.45%

TABLE-IV
INVESTIGATION FINDINGS

INVESTIGATION	No.	PERCENTAGE
Anaemia PLAIN X-RAY	22	100%
Soft tissue mass in nasopharynx	22	100%
Anterior bowing of post. Wall of maxillary sinus in lateral view	10	45.45%
CT. SCAN	20	90.90%
Nasopharynx and nasal involvement	22	100%
Paranasal sinus involvement	7	31.8%
Pterygoplalatine fossa involvement	11	50.0%
Infraptemporal fossa involvement	4	18.18%
MRI Intracranial involvement	2	9.09%

TABLE-V
GRADESOF TUMOUR

GRADE	NUMBER	PERCENTAGE
I	3	13.6%
II	14	63.6%
III	3	13.6%
IV	2	9.09%

TABLE-VI
TREATMENT

TREATMENT	NUMBER	PERCENTAGE
Surgery	20	90.90%
Radiotherapy	02	9.09%

TABLE-VII
SURGICAL TREATMENT

APPROACH	No.	PERCENTAGE
Lateral Rihnotomy	14	63.63%
Transpalatine	3	13.63%
Transnasal- Muxillary using weber – Fergussen's Incision	3	13.63%

TABLE-VIII
POST. OPERATIVE COMPLICATIONS

COMPLICATION	NUMBER	PERCENTAGE
Fistula	3	13.63%
Bad scar	3	13.63%
Recurrence	3	13.63%
Infection	2	9.09%

DISCUSSION

Angiofibroma is one tumour which is always a diagnostic and therapeutic challenge. In this prospective study we treated 22 cases. The mean age of presentation in our study is 15 which compares favourably with other studies [2,5,12,17,18]. In some studies the tumour presented in adults as well [2,5,17].All the patients were male as in most of the studies, however females have also been reported in world literature (Lecture -Janet Lee). Epistaxis (100%), nasal obstruction (100%) and intranasal mass (91%) were the most common clinical features as seen in most of the studies. In our study we received relatively advanced cases as early diagnosis is difficult due to illiteracy and poor socioeconomic conditions. So the features of advanced disease, facial deformity, infratemporal fossa mass, headache and proptosis were not infrequent in our study. CT scan with contrast following positive clinical features was the mainstay of diagnosis in our study. The biopsy was not done in any case. Most of the tumours (14 -63.6%) were of grade II. Only 3 (13%) cases were diagnosed at Grade I while other 5 (23%) cases belonged to grade III and grade IV. This compares favourably with other studies done in Pakistan 16 .However the grade I tumours are observed more frequently in developed countries [6,8,10,27,30]. Lateral Rhinotomy was the main surgical approach and we did transpalatal approach in only 3(13.6%) cases. Transnasal – maxillary using Weber Fergusson's incision was used in 3(13.6%) cases. Isteraj et al. [16] used transpalatal approach in most (83%) of the cases which were combined with sublabial incision in some cases. We believe that lateral Rhinotomy is a better approach as most of the grade I and II tumours can be easily approached by this technique and this may be extended to transnasal maxillary approach by extending the incision for grade III tumours. Only 2 (9%) cases which were declared inoperable were treated by radiotherapy. The complication rate in our cases was much less as

compared to other studies. The recurrence was also quite less after a follow-up of 2-5 years.

CONCLUSIONS

1. Angiofibroma is a challenging problem
2. Early diagnosis holds the key to success
3. Lateral Rhinotomy is the best approach for most of the tumours in Pakistan

REFERENCES:

1. Andrews JC, Fisch U, Valavanis A, Aeppli U, Makek MS. The surgical management of extensive nasopharyngeal angiofibromas with the infratemporal fossa approach. Laryngoscope 1989;99:429-437.
2. Antonelli AR, Cappiello J, Di Lorenzo D, Donajo CA,Nicolai P, Orlandini A. Diagnosis, staging, and treatment of juvenile nasopharyngeal angiofibroma (JNA). Laryngoscope 1987;97:1319-1325.
3. Bremer JW, Neel HB, DeSanto LW, Jones GC. Angiofibroma: Treatment trends in 150 patients during 40 years. Laryngoscope 1986;96:1321-1329.
4. Browne JD, Jacob SL. Temporal approach for resection of juvenile nasopharyngeal angiofibromas. Laryngoscope 2000;110:1287-1293.
5. Chandler JR, Goulding R, Moskowitz L, Quencer RM. Nasopharyngeal angiofibromas: staging and management. Ann Otol Rhinol Laryngol 1984;93:322-329.
6. Cummings BJ, Blend R, Keane T, Fitzpatrick P, eale F, Clark R, et al. Primary radiation therapy for juvenile nasopharyngeal angiofibroma. Laryng-oscope 1984;94:1599-1605.
7. Danesi G, Panizza B, Mazzoni A, Calabrese V. Anterior approaches in juvenile nasopharyngeal angiofibromas with intracranial extension. Otolaryngol Head Neck Surg 2000;122:277-283.
8. Dreschler DG, Kaplan MJ, Boles R. Treatment of large juvenile nasopharyngeal angiofibroma. Otolaryngol Head Neck Surg 1992;106:278-284.
9. Duvall AJ 3d, Moreano AE. Juvenile nasopharyngeal angiofibroma: diagnosis and treatment. Otolaryngol Head Neck Surg 1987;97:534-540.
10. Economou TS, Abemayor E, Ward PH. Juvenile nasopharyngeal angiofibroma: an update of the UCLA experience, 1960-1985. Laryngoscope 1988;98:170-175.
11. Fagan JJ, Snyderman CH, Carrau RL, Janeck IP. Nasopharyngeal angiofibromas: selecting a surgical approach. Head Neck 1997;19:391-399.
12. Fisch U. The infratemporal fossa approach for nasopharyngeal tumors. Laryngoscope 1983;93:36-44.
13. Gantz B, Seid AB, Weber RS. Nasopharyngeal angiofibroma. Head Neck 1992;14:67-71.
14. Herman P, Lot G, Chapot R, Salvan D, Huy PT. Long-term follow-up of juvenile nasopharyngeal angiofibromas: analysis of recurrences. Laryngoscope 1999;109:140-147.
15. Holman CB, Miller WE. Juvenile nasopharyngeal fibroma:roentgenographic characteristics. AJR Am J Roentgenol 1965;94:292-298.
16. Isteraj S, Abdullah J, Iftikhar A, Aziz K. Surgical approaches used for the excision of Angiofibroma. J Postgrad Med Inst Jan 2001; 15 (1):46-50.
17. Kamel RH. Transnasal endoscopic surgery in juvenile nasopharyngeal angiofibroma. J Laryngol Otol 1996;110:962-968.
18. Kuppersmith RB, Teh BS, Donovan DT, Mai WY, Chiu JK, Woo SY, Butler EB. The use of intensity modulated radiotherapy for the treatment of extensive and recurrent juvenile angiofibroma. Int J Pediatr Otorhinolaryngol 2000;52:261-268.
19. Liang J, Zixiang Y, Lianq P. The nature of juvenile nasopharyngeal angiofibroma. Otolaryngol Head Neck Surg 2000;123:475-481
20. Lloyd G, Howard D, Phelps P, Cheesman A. Juvenile angiofibroma: the lessons of 20 years of modern imaging. J Laryngol Otol 1999;113:127-134.
21. McGahan RA, Durrance FY, Parke RB Jr., Easley, JD, Chou JL. The treatment of advanced juvenile nasopharyngeal angiofibroma. Int J Radiat Oncol Biol Phys 1989;17:1067-1072.
22. Nakamura H, Kawasaki M, Higuchi Y, Seki S, Takahashi S. Transnasal endoscopic resection of juvenile nasopharyngeal angiofibroma with KTP laser. Eur Arch Otorhinolaryngol 1999;256:212-214.
23. Neel HB III, Whicker JH, Devine KD, et al. Juvenile angiofibroma: review of 120 cases. Am J Surg 1973;126:547-556.
24. Newlands SD , Weymuller EA Jr. Endoscopictreatment of juvenile nasopharyngeal angiofibroma. Am J Rhinol 1999;13:213-219.

25. Radkowski D, McGill T, Heal GB, Ohlms L, Jones DT.Angiofibroma. Changes in staging and treatment. Arch Otolaryngol Head Neck Surg 1996;122:122-129.
26. Sessions RB, Bryan RN, Naclerio RM, Alford BR. Radiographic staging of juvenile angiofibroma. Head Neck Surg 1981;3:279-283.
27. Sessions RB, Willis PI, Alford BR, Harrell JE, Evans RA. Juvenile nasopharyngeal angiofibroma: radiographic aspects. Laryngoscope 1976;86:2-18.
28. Suarez C, Garcia LA, Fernandez de Leon R, Rodrigo JP, Ruiz B. Infratemporal approaches to nasopharyngeal tumors. Eur Arch Otorhinolaryngol Suppl 1997;S165-S168.
29. Tewfik TL, Tan AK, al Noury K, Chowdhury K, Tampieri D, Raymond J, et al. Juvenile nasopharyngeal angiofibroma. J Otolaryngol 1999;28:145-151.
30. Ungkanont K, Byers RM, Weber RS, Callender DL, Wolf PF, Goepfert H. Juvenile nasopharyngeal angiofibroma:an update of therapeutic management. Head Neck 1996;18:60-66.

AUTHORS:

- **Dr. Muhammad Ali Tirmizey**
  Professor & Head of ENT Unit-II,
  PMC/Allied Hospital, Faisalabad.
- **Dr. Imtiaz Ahmad**
  Senior Registrar ENT Unit-II,
  Allied Hospital, Faisalabad.
- **Dr. Babar Rafiq Khan**
  Registrar ENT Unit-II,
  Allied Hospital, Faisalabad.
- **Dr. Muhammad Hanif**
  Registrar ENT Unit-II,
  Allied Hospital, Faisalabad.
- **Dr. Muhammad Saleem**
  Medical Officer ENT Unit-II
  Allied Hospital, Faisalabad.
- **Dr. Ehsaan Ibrahim**
  Medical Officer ENT Unit-II
  Allied Hospital, Faisalabad.