JCMCTA 2009; 20 (1): 41-44

SURGICAL OUTCOME OF SUPRATENTORIAL MENINGIOMA: A STUDY OF 25 CASES

Haradhan Deb Nath [1] Md Mainuddin [2] Md Kamal Uddin [2] Ehsan Mahmood [3]

Abstract

This was descriptive study. This study was carried out at the Department of Neurosurgery Chittagong Medical College Hospital from April, 2006 to December 2008. We have studied 25 cases. After collecting patient's admission data a brief history & clinical examination was done. Supratentorial meningioma was diagnosed primarily by contrast CT scan & MRI of brain. Which was confirmed by surgery & histopathological examination. After surgery close follow up were done. Most of the sufferer was female 13(52%). The commonest age group was 40-59 years (60%). The commonest site of tumors was frontal convexity 08 (32%) and the commonest histological types were meningotheliomatous 08 (32%). Most of the patients were treated by surgery 21 (84%). Majority of patients improved after treatment 21 (84%).

Keywords: meningioma; craniotomy; intracranial pressure; CT scan; MRI

Introduction

The term meningioma is the noncommittal, all encompassing name coined by Harvey Cushing for this tumor of the meninges, which is usually benign[1]. Meningiomas account for 15% of intracranial tumors. They commonly occur in the fourth to sixth decades of life, with a mean age of 45 years at diagnosis. Females have meningiomas more often than males, but this varies according to site from a ratio of 3.2 in the supratentorial area. Ninety per cent of meningiomas are intracranial and of these about 90% are supratentorial.

As with virtually all other brain tumors, the etiology of meningicmas is unknown. Cases exist, however, in which the tumor has arisen under a fracture, from an area of scarred dura, or around a retained foreign body [2]. conceivably these factors contributed to the formation of the meningiomas, but there is no definitive evidence. Low-and high-dose radiation has been implicated in meningioma formation, especially during childhood [3].

Neuro fibromatosis I and 2 (NF-I and NF-2), genetic diseases inherited in autosomal dominant fashion may be associated with meningiomas.

The arachnoidal cap cells are most prevalent near collections of arachnoid villi at the dural-venous sinuses and their large tributaries, meningiomas may arise anywhere the cap cells are located [4].

Meningiomas are well-demarcated, round or oval, and frequently multilobulated. They are firm and pink, and vary in consistency from soft and easily aspirable to rock hard [5].

According to the site meningiomas are follows:

1. Convexity
2. Parasagittal
3. Falx
4. Olfactory groove
5. Tuberculum sellae
6. Sphenoid ridge
7. Posterior fossa
8. Intraventricular
9. Intraorbital [6]

Methodology

This was a descriptive study which was carried out at the Department of Neurosurgery Chittagong Medical College Hospital from April, 2006 to December, 2008. A total of 25 cases were selected. Before entry to the study an informed written consent was taken from each patient. A structured questionnaire was made & data were collected. Diagnosis was confirmed by CT scan, MRI and histopathological examination. The study was analyzed by SPSS program.

Table 1 : Distribution of the patients by age: (N=25)

Age years	Number	Percentages (%)
>20	01	04%
20-39	03	12%
40-59	15	60%
<60	06	24%
Total	25	100%

1. Assistant Professor of Neurosurgery Chittagong Medical College, Chittagong
2. Associate Professor of Neurosurgery Chittagong Medical College, Chittagong
3. Professor of Neurosurgery Chittagong Medical College, Chittagong

Correspondence : Dr Haradhan Deb Nath

Table II : Distribution of the patient by sex: (N=25)

Sex	Number	Percentages (%)
Male	12	48%
Female	13	52%
Total	25	100%

Table III : Distribution of the patient by presenting symptoms: (N=25)

Presenting symptoms	Number	Percentages (%)
Headache	18	72%
Vomiting	15	60%
Convulsion	12	48%
Altered Consciousness	06	24%
Visual blurring	05	20%

Table IV : Distribution of patients by clinical features: (N=25)

Clinical Features	Number	Percentages (%)
Impaired higher psychic functions	03	12%
Cranial nerve palsy	05	20%
Hemiparesis	18	72%
Monoparesis	12	48%

Table V : Distribution of patients by the site of lesions: (N=25)

Site	No	Percentages
Frontal convexity	08	32
Parietal convexity	06	24
Fronto-parietal convexity	06	24
Temporal	02	08
Olfactory groove	01	04
Occipital region	01	04
Falcine	01	04

Table VI: Distribution of patients by histological types of the tumor: (N=25)

Histological types of the tumor	WHO grade	No	Percentage
Meningotheliomatous	1	8	32%
Fibrous	1	5	20%
Transitional	1	5	20%
Psammomatous meningioma	1	3	12%
Angiomatous	1	2	08%
Atypical meningioma	11	1	04%
Anaplastic meningioma	111	1	04%

Table VII : Distribution of Patients by treatments options: (N=25)

Treatment Option	No	Percentages
Surgery	21	84%
Surgery + radiotherapy	04	16%

Table VIII : Distribution of patients by outcome after treatments: (N=25)

Outcome	No	Percentages
Improved	21	84%
Same as before	03	12%
Deteriorate	01	04%

Results

A total of 25 patients were included in the study. Out of them female (52%) outnumbered the male. The age group of 42-59 years gripped the major proportion (60%) of patients. Headache was the commonest (72%) presenting symptoms, followed by vomiting (60%). Hemiparesis (72%) was the findings major proportion of patients.

The commonest site of lesion was frontal convexity (32%). Meningotheliomatous (32%) was the major varieties of lesion. Majority of the patient were treated by surgery 84%. The 84% of patients were improved after surgery.

Discussion

This was a descriptive study. Which was carried out at the Department of Neurosurgery Chittagong Medical College Hospital? In regarding sex distribution female & male ratio of patients was 52:48. Which was more or less concomitant with the study of perry A, Scheithauer BW, Aker FV. et al[7]. The result of that study revealed female & male ratio were 3:2.

It was documented in a study the prevalence was more at 4th to 6th decade [8].

This result again reflected in this study where the age group of 40-59 years, also gripped the major proportion of patients (60%). The second heighest proportion of age group was ≥ 60 years (24%).

In this series the commonest sites of tumors were frontal convexity 08(32%). In previous study more than 70% of convexity meningioma is frontal & anterior to the central sulcus [9].

Like previous study the majority of histological types were meningotheliomatous 08(32%). In previous study meningotheliomatous was the commonest type. In this study 21(84%) patients

improved after surgery, 12% patients remain same as before, 04% patients were detoriated after surgery. Previous study shows surgery was the treatment of choice in meningioma [9].

In this study 16% of patient was treated by radiotherapy + surgery, in previous study 32% of patient was treated by partial resection with radiotherapy[10].

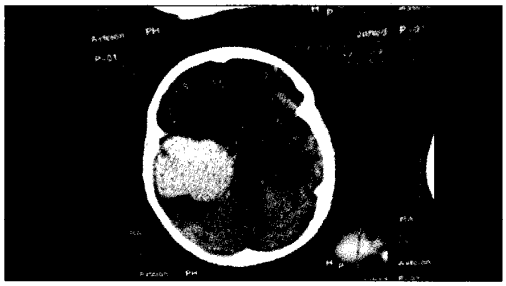

Fig 1 : Right temporal meningioma

Fig 2 : Post operative figure of temporal meningioma

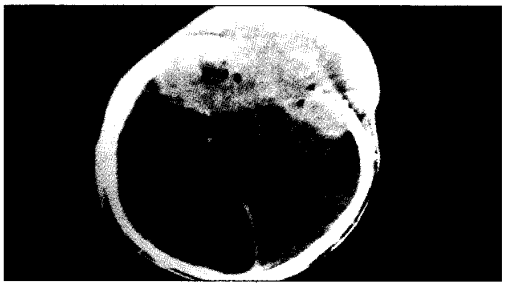

Fig 3 : Bifrontal malignant meningioma

Fig 4 : Per operative picture of tumor

From the present study it can be said that the surgery is one of the choice of treatment of meningioma and further study is recommended.

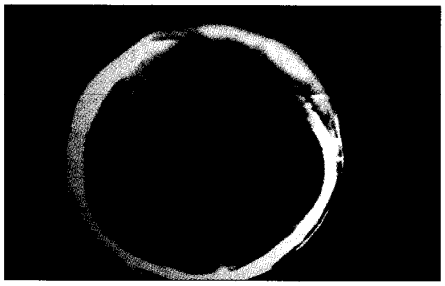

Fig 5 : Post operative figure of bifrontal meningioma

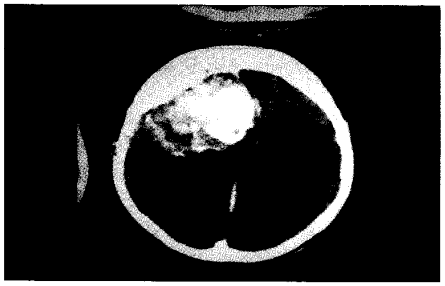

Fig 6 : CT scan of brain shows right frontal meningioma

Fig 7 : Excised meningioma

References

1. Cushing H, Eisenhardt L. Meningiomas: Their Classification, Regional Behavior, Life History, and surgical and End Results. Springfield, IL: Charles C Thomas Publisher; 1938
2. Al-Mefty O (ed). Meningiomas, New York. NY; Raven Press; 1991
3. Al-Mefty O, Kersh JE, Routh A, Smith RR. The long- term side effects of radiation for benign brain tumors in adult. J Neurosurg 1990; 73; 502-512
4. Kida S, Yamashima T, Kubota T, et al. Al light and electron Microscopic and immunohistochemical study of human

arachnoid villi. J Neurosurg 1988; 69; 425-435

5. Kleihues P, Cavenee Wk (editors). World Health Organization Classification of Tumors: Pathology and Genetics of Tumors of the Nervous system. Lyon. IARC Press; 2000
6. Zorludemir S, Scheithauer BW, Hirose T, et al. Clear Cell Meningioma. A clinicopathologic study of a potentially aggressive variant of meningioma. Am I Surg Pathol 1995; 19: 493-505
7. Perry A, Scheithauer BW, Stafford SL, et al. "Rhabdoid" meningioma; an `aggressive variant. Am I Surg Pathol 1998; 2:1482-1490
8. Cource ME, Aker FV, Scheithauer BW, Chordiod meningioma; a clinicopatholgoic study of 42 cases. Am I Surg patrol 2000; 24: 899-905
9. Kondziolka D, Levy EI, Niranjan A, et al. Long-term outcomes after meningiomas radiosurgery; physician and patient perspectives. I Neurosurg 1999; 91: 44-50
10. Barbaro N M, Gutin P H, Wilson C B, et al. Radiation therapy in the treatment of partially resected meningiomas. Neurosurgery 1987; 20: 525-528