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Original Article

Brain Tumors - Analysis of 320 Cases

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Abstract

We have studied 320 cases of brain tumour. In adults 80% tumours were supra-tentorial and 20% were infra-tentorial. In case of children, 71.25% were infra-tentorial and 29.8 % were supra-tentorial. Age ranges in our study were between 10 months to 75 years. Male to female ratio of incidence were about 2:1. All (100%) patients had cognitive impairment with features of raised intracranial pressure. Diagnosis was made on the basis of CT scan of brain (78.12%) or MRI of Brain (21.88%). Surgical intervention was done in the form of burr hole and biopsy in 45 cases (14.06%), Craniotomy with total excisional biopsy in 109 cases (34.6%) and excision and biopsy with residual tumors in 166 cases (51.81%). Peri-operative mortality in our study was 6.25%.

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Introduction

Brain tumors are a common cause of death from neurological diseases, Second only to stroke[1]. About 11000 to 13000 Americans die from primary central nervous system tumors each year[1]. About 50% of adults with brain tumors are alive 1 year following diagnosis, primary CNS tumors account for about 20% of childhood cancers and about 25% of all childhood cancer deaths[2].

Although brain tumors account for only a small percentage of all neoplastic tumors, the high incidence of brain tumours in children and young adults substantially decreases the quality of life. About 17000 new cases of primary brain tumors are diagnosed each year in USA with an annual incidence of 8.2 to 8.3.A similar number of patients develop CNS metastasis[3] .In Bangladesh diagnosis of CNS tumors are increasing because of advancement of imaging technology.

Patients and Methods

This is a prospective study of 320 cases studied between June 1994 to May 2006. Patients were neuro-psychologically examined in Rajshahi Medical College Hospital, and a private hospital in Rajshahi. Number of male patients was 220 and the number of female patients was 100 with the male female ratio of about 2:1. Age of the patients in this study ranged between 10 months to 75 years.

Clinical Presentation

All (100%) the patients presented with either features of raised intracranial pressure (ICP) like headache, vomiting, visual impairment or focal features including recurrent seizures, personality changes 5(1.56%), and dementia 30 (9.37%) of sudden onset. 250 (78.12%) patients were investigated by CT scan with or without contrast

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(Fig-i, ii & iii) and about 70 (21.88%) are diagnosed by MRI scan of brain. MRA scan is done for one patient. All the patients had routine TC, DC, Hb%, Blood sugar, Blood Urea, X-ray chest, ECG and S. electrolytes. About 30% patients had plain X-ray skull (B/V) to see the intracranial lesions with calcifications.

Fig: i- Posterior fosa tumor Meduloblastoma

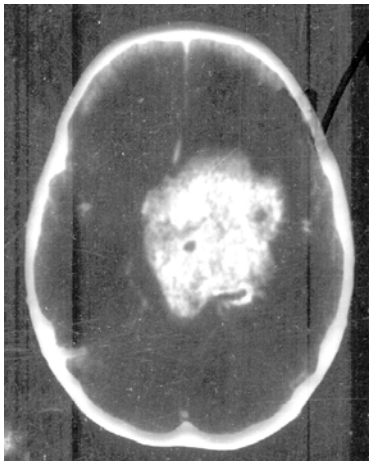

Fig: ii- Craniopharyngioma

Fig: iii- Meningioma

Surgery done (n = 320):

Name of surgery	Number of patients (%)
Burr hole biopsy	45 (14.06%)
Excision & biopsy (Total removal)	109 (34.06%)
Excision & biopsy (with residual tumor)	166 (51.81%)

In our study of 320 patients 272 (85%) patients had postoperative conventional radiotherapy for residual tumors to prevent further recurrence. Peri-operative mortality was 20 (6.25%).

Results

Supra-tentorial 200 (80%)	**Adults / Elderly (n-250)**	**Children (n- 70)**
Meningioma	68 (27.2%)	02 (2.8%)
Gliomas	86 (32%)	09 (12.85%)
Craniopharyngiomas	10 (4%)	03 (4.2%)
Metastases	35 (14 %)	02 (2.8%)
Dermoid cyst	01 (0.4%)	01 (1.4%)
Pituitary	05 (2%)	02 (2.8%)
Haemangioma	01 (0.4%)	01 (1.4%)
Infra-tentorial 50(20%)	**Adults / Elderly (n-250)**	**Children (n- 70)**
Meningioma	10 (4%)	11 (15.72%)
Gliomas	20 (8%)	13 (18.5%)
Meduloblostoma	10 (4%)	20 (28.57%)
Epndymoma	01 (0.4%)	02 (2.8%)
Epidermoid tumor	01 (0.4%)	02 (2.8%)
Schwanoma	02 (0.8%)	00 (00%)
Metastases	06 (2.4%)	00 (00%)
Arachnoid cyst	00 (00%)	02 (2.8%)
Total	**250**	**70**

Discussion

The incidence of intracranial tumors examined by neuropathology development of Institute of neurological science, Glasgow over a 5 years period shows in adults supra-tentorial 80-85% and infra-tentorial 15-20% but in children supra-tentorial 40% and infra-tentorial 60% respectively[1]. In children about 5 year survival rate with brain tumors is 58% and in adult is much lower than of children[2]. The incidence and frequency of various types of primary brain tumors varies significantly with age. Angiogenesis is essential for the growth of tumors specially glioblastoma multiforms[3]. Medulloblastoma is the most common primary tumors in children younger than 18 years[4]. Most complications can be prevented by careful peri-operative planning, meticulous technique and judicious use of prophylactic agents, e.g. anticonvulsants drugs, antibiotics etc[5].

Brain metastasis present a significant source of mortality and morbidity in patients with systemic cancer as first reported by Bucholz in 1898 [6].

For incompletely resected benign meningiomas treated with radiotherapy, residual tumors size is the most significant predictors of tumor control[7]. Small residual tumors are well controlled with conventional radiotherapy doses and techniques[8,9]. More aggressive therapies considered for large tumors[10]. In our study all patients with residual tumors had postoperative conventional radiotherapy.

Conclusion

The effective treatment of brain tumors encompasses thorough peri-operative planning, surgical technique and postoperative care. Preoperative testing, patients positioning and the surgical approach are all directed toward maximizing the surgeon's ability to remove the tumor safely.

Radical resection of intrinsic brain tumors can be performed in most patients with acceptable mortality and morbidity.

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References

1. Yamada K, UshioY, Hayakawa T et al. Effects of methyl prednisolone on peri tumoral edema. J. Neurosurgery: 1983;57:612-619
2. Samii M, Tutugiba M. Experience with 36 Surgical eases of petroclival meni giomas. Acta Neurochir (Wien): 1992 ; 118:27-32
3. Oliver T, Christar S, Michael P etal. Cognitive deficits before treatment among patients with brain tumors. Neurosurgery: 2000; 47: 324-332.
4. Jorge A L, Kurt BHJ, Jhon C etal. Pediatric low grade glioma prognosis with proton magnatic resonance. Spectroscopic imaging. Neurosurgery: 1998; 43; 809-815.
5. Rhoton AL, The temporal bone and transtemporal approaches. Neurosurgery: 200;47; S211-526
6. Fadul C, Wood J, Thaler H etal. Morbidly at mortality of craniotomy for excision of supratentoriall gliomas. Neurosurgery: 1988,38;1374-1379
7. Patchell RA, Tibbs PA, Walsh JW etal. A randomized trial of surgery in the treatment of single metastases to the brain. N. Engl J. Med: 1990, 322;494-500.
8. Cushing H. Experiences with cerebellar medulloblastoma ; A critical review. Amis: 1930,7;1-86
9. Badalament R A, Gluck RW. Surgical treatment of brain metastases from renal cell carcinoma. Urology: 1990,36;112-117.
10. Philip P, Macdonald RL, Maneur DB etal. Tumor size predicts control of benign meningiomas treated with radiotherapy. Neurosurgery: 1999,44;114-1198.

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