Medulloblastoma

Azaz Ali Shah*, M.B.,B.S., F.R.C.S.,
Postgraduate Medical Institute,
Lady Reading Hospital,
Peshawar, Pakistan.

Summary

In our series the medulloblastoma accounted for nearly 16% cases of tumour population as opposed to 25% in the prescribed text. These occurred in early two decades of life, with a survival rate much less in five years, but practically nearly the same after one year as predicted.

General Consideration

Malignant neoplasm of undifferentiated cells occurs in cerebellum.

Incidence

Overwhelmingly a tumour of the first two decades of life. In this age group medulloblastoma accounts for 25% of all primary brain tumours.

Grossly

Medulloblastomas are gray white masses that sometimes appear to be well demarcated. In young children typically located in the vermis of the cerebellum but in older patients usually occur laterally in hemisphere.

Microscopically

Very densely cellular tumour composed of sheets of small but moderately pleomorphic nuclei with varying chromatin and very little visible cytoplasm.

* Associate Professor and Incharge, Neurosurgery Unit,
PGMI, LRH, Peshawar.

The capacity for both glial and neuronal differentiation is the major feature that distinguishes the medulloblastoma from almost all other primary brain tumours.

CLINICAL COURSE
(Symptoms + Signs)

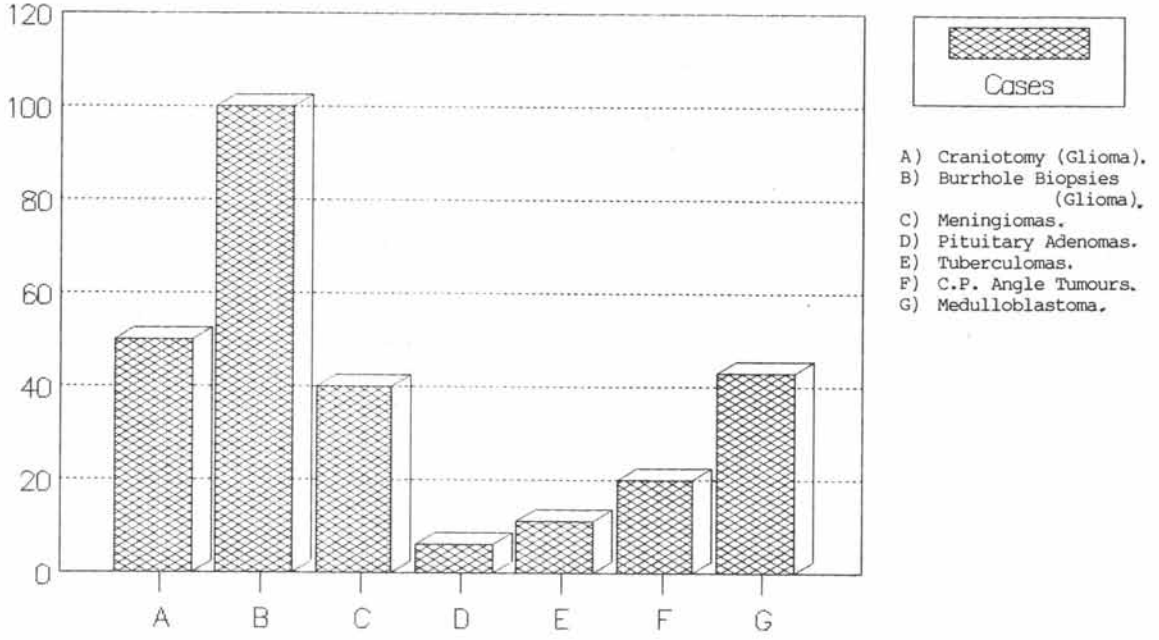
Rapid growth of this undiffeentiated tumour in an anatomically critical area results in a short clinical course.

Headache	75%
Vomiting	75%
Sense of Disequilibrium I.C.P. or Hydrocephalus	50%
Visual Disturbances (Papilledema)	50%
Wide Based Stance with Tendency to Fall Back	80%
Ataxic Gait	80%
Nystagmus	50%
Action Tremors and Lat. Medullary Synd.	90%
Hypotonia Pend. Jerk Fall to Side of Lesion Dysdiadockokinesia	

. Head Tilt :
. Stiff Neck : Common
. Bil. Abducent Nerves Palsies :
. Seizure : Metastasis to Cerebrum

TOTAL NO. OF TUMOURS OPERATED 270

(Between the year 1988 to 1991)



DIAGNOSTIC STUDIES

C.T.

Medulloblastomas are usually large, round hyperdense masses with discrete margins. There is often a moderate area of poorly circumscribed, peripheral low density corresponding oedema. The tumour brightly enhances after administration of contrast material.

They are hot cystic with no calcification and do not extend in cerebello-pontine cistern.

M.R.I.

Tumour is hypointense relative to brain on T1 weighted images and hyperintense on T2 weighted imatges.

C.S.F.

- Standard cerebrospinal fluid chemistry

Normal	57%
Proteins	25%

- Cytological in 20% variable cells.

Mylogrtaphy

10-30% Metastases.

TREATMENT

Operation

For Posteriorf Fossa Mass.

Radiation

To Brain and Spinal Cord for Metastasis.

Chemotherapy

Recurrence.

RADIATION HAZARDS

Children

Affects - Intellect.
- Skeletal Growth.
- Endocrine Functions.

Adults

Radiation Myelitis.
Myelo-suppression.
Hypopituitarisim.

Chemotherapy

C.C.N.U.
Vincristine.
Procarbazine.

Prognosis

1 Year	80%
2 Years	60%
5 Years	40%
10 Years	20%

Collin's Law

If the duration of relapse - free post-operative survival exceeds by 9 months the patient's age at the time of the initial operation, then the tumour would not recur.

Tumour Recurrence on C.T.

- An increase in the size of a contrast enhancing mass at the periphery.

- Progressive ventricular enlargement.

- Obliteration or contrast enhancement of subarachnoid cistern.

Goals of Operation

i) Tissue for Histopathological Diagnosis.

ii) To Re-establish Cerebro-Spinal Fluid Flow.

iii) To Provide Maximum Reduction of Tumour Burden.

During Operation Avoid Injury to

Fourth Ventricle.

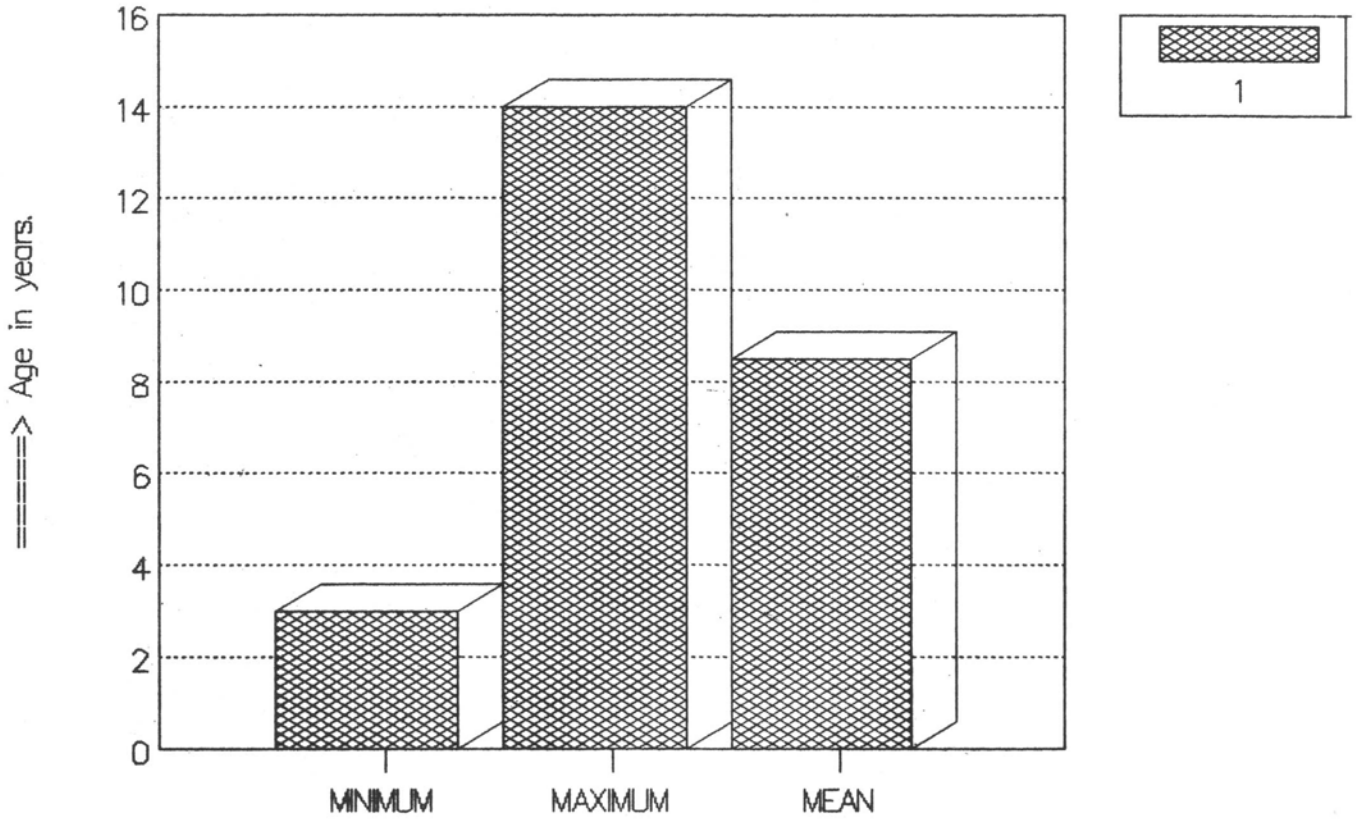
Cerebellar Peduncles.

Deep Cerebellar Nuclei.

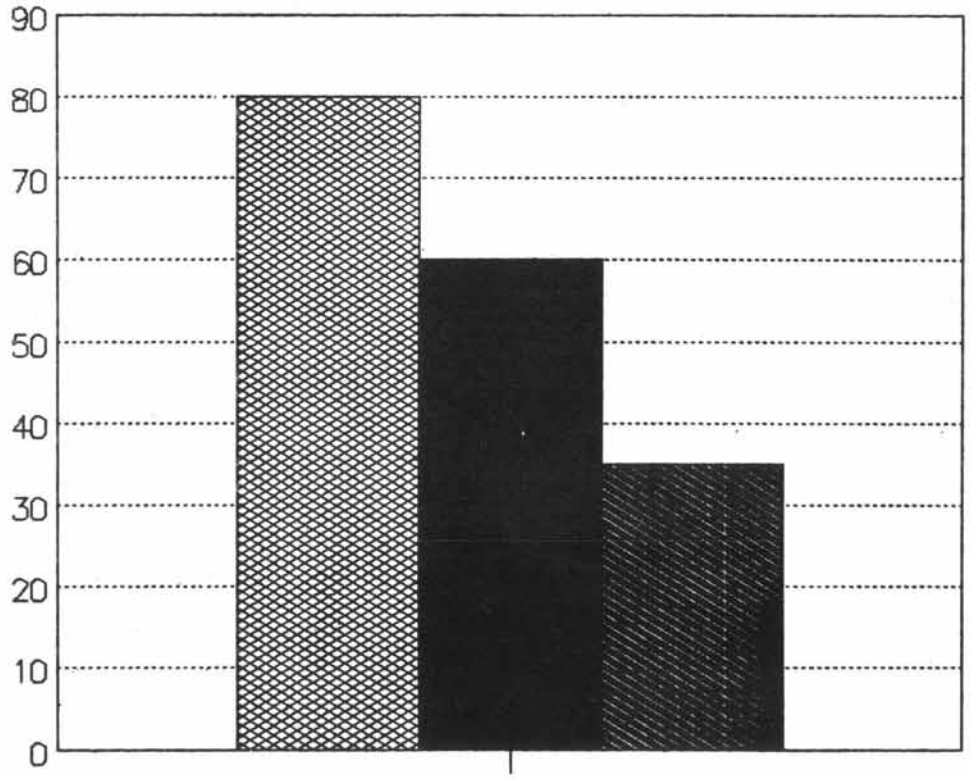
Gross Total Removal

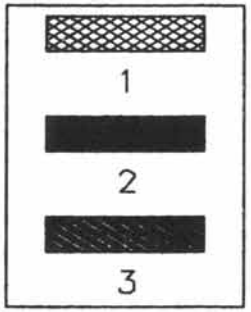
50% of Cases.

AGE INCIDENCE



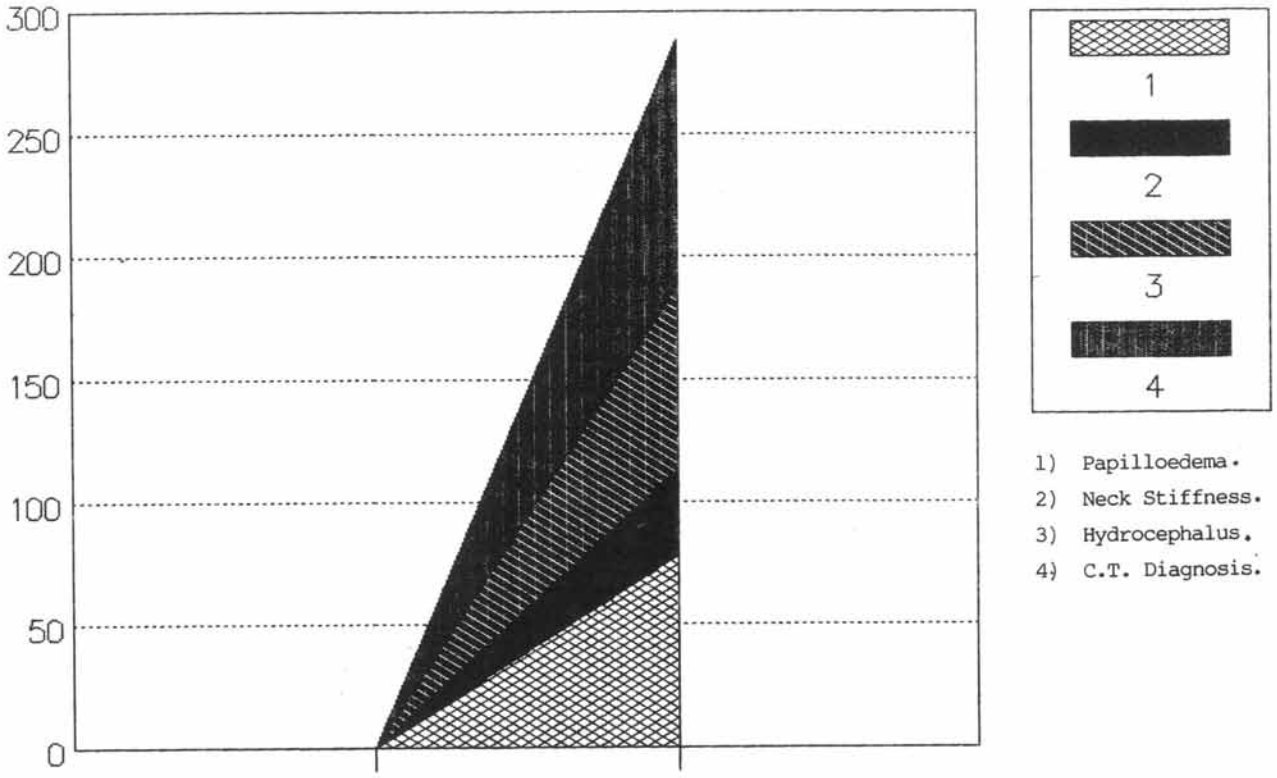
SYMPTOMATOLOGY





1) Headache and Vomiting.
2) Deterioration of Vision.
3) Ataxia.

SIGNS


300
250
200
150
100
50
0
1
2
3
4
1) Papilloedema.
2) Neck Stiffness.
3) Hydrocephalus.
4) C.T. Diagnosis.

Post Operative Irradiation

P.C.F.	5400 Rads
Brain	4000 Rads
Spinal Cord	3500 Rads
Spinal Deposits	4500 Rads

Material and Method

A total of 270 cases were operated in the period between 1988 to 1991. Fourty three cases of medulloblastoma were operated and differentiated on the basis of signs and symptoms, age group, male to female ratio, CT diagnosis and follow-up of these cases.

MEDULLOBLASTOMA

Total No. of Tumours Operated 270. (Between year 1988 to 1991).

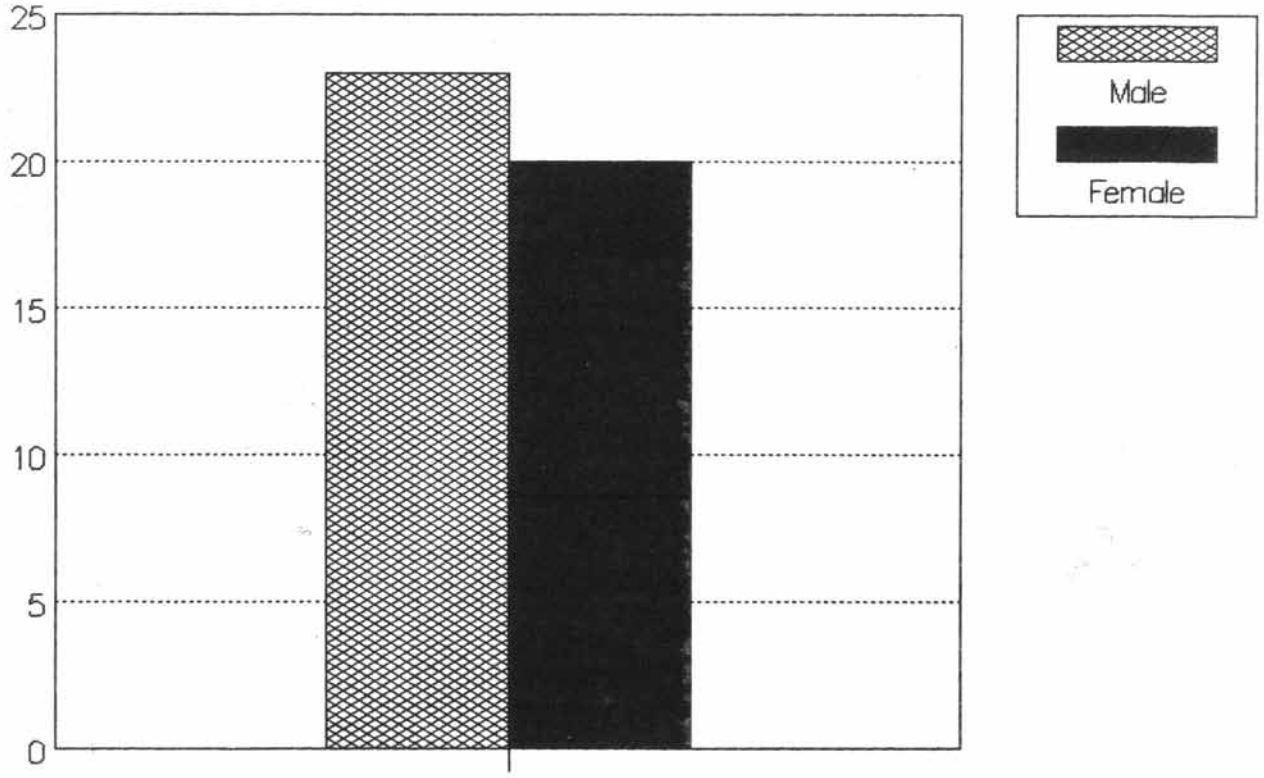
Gliomas

Craniotomy	50 Cases
Burrhole Biopsies	100 Cases
Meningiomas	40 Cases
Pituitary Adenomas	06 Cases
Tuberculomas	11 Cases
C.P. Angle Tumours	20 Cases
Medulloblastoma	43 Cases (15.9%)

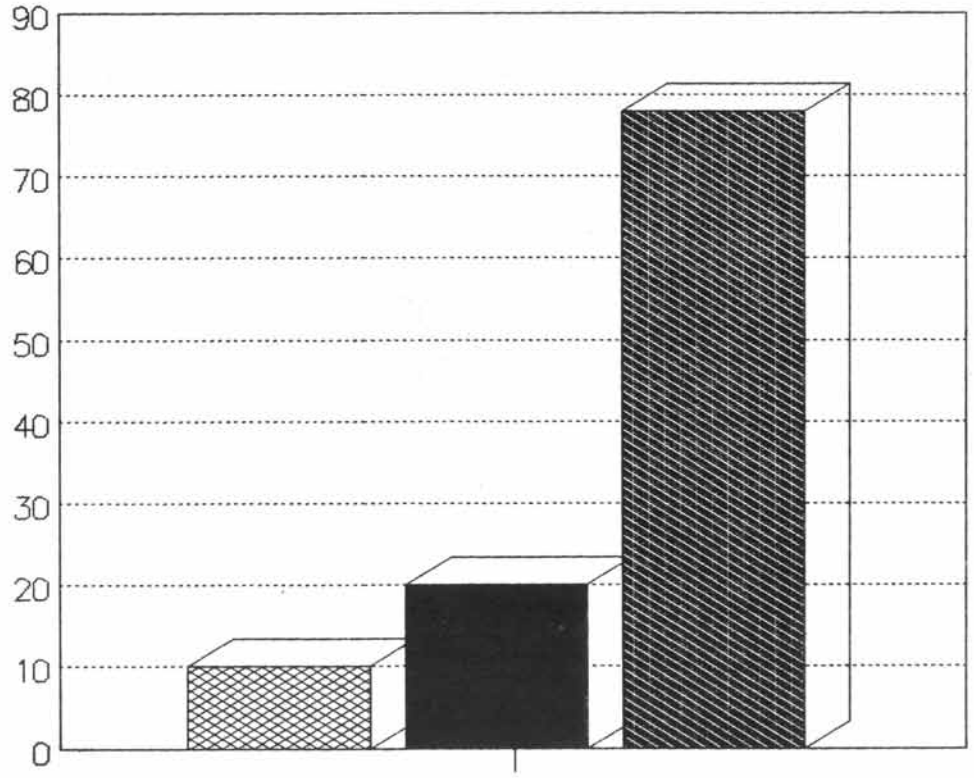
Male to Female Ratio

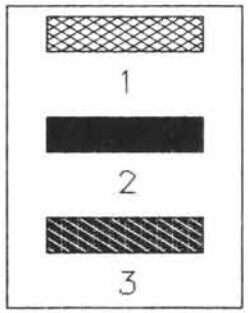
Male	23 Cases
Female	20 Cases

MALE TO FEMALE RATIO



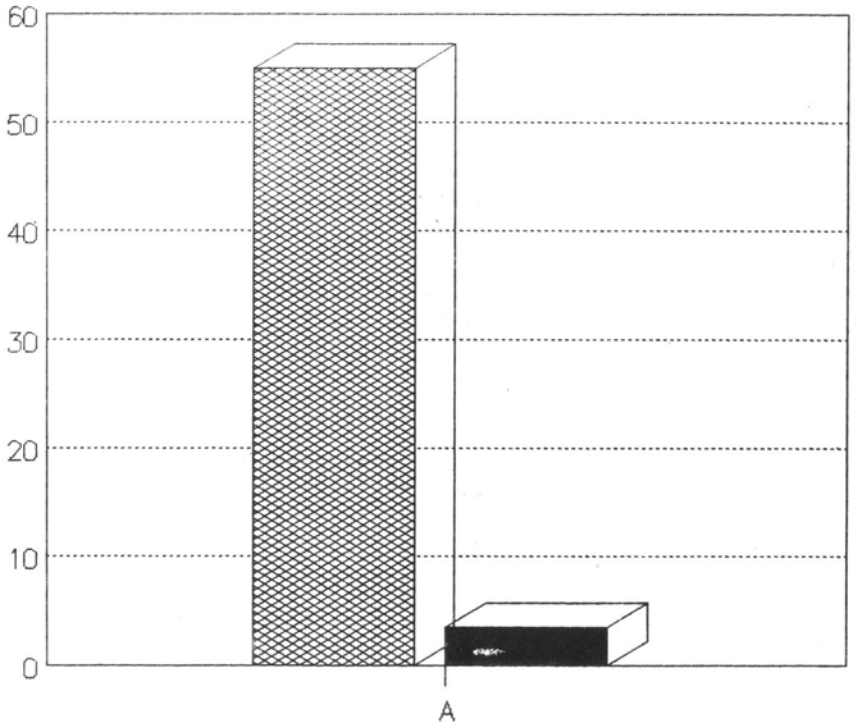
RECURRANCE RATE





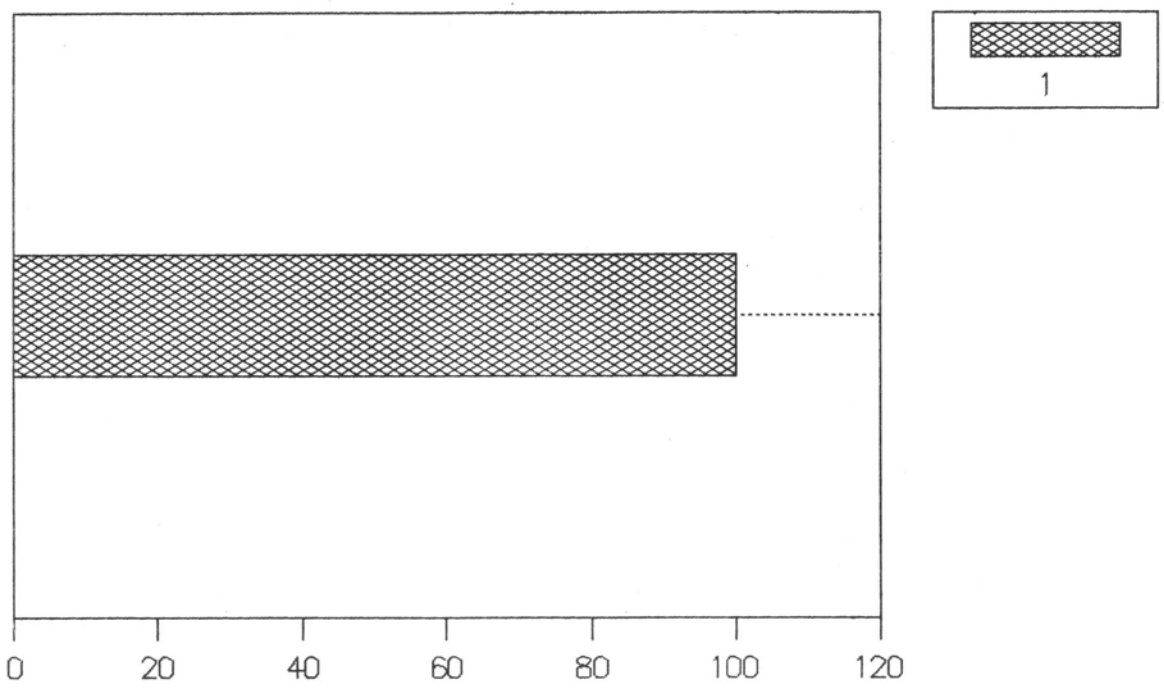
1) Five years Survival.
2) Three Years Survival.
3) One Year survival.

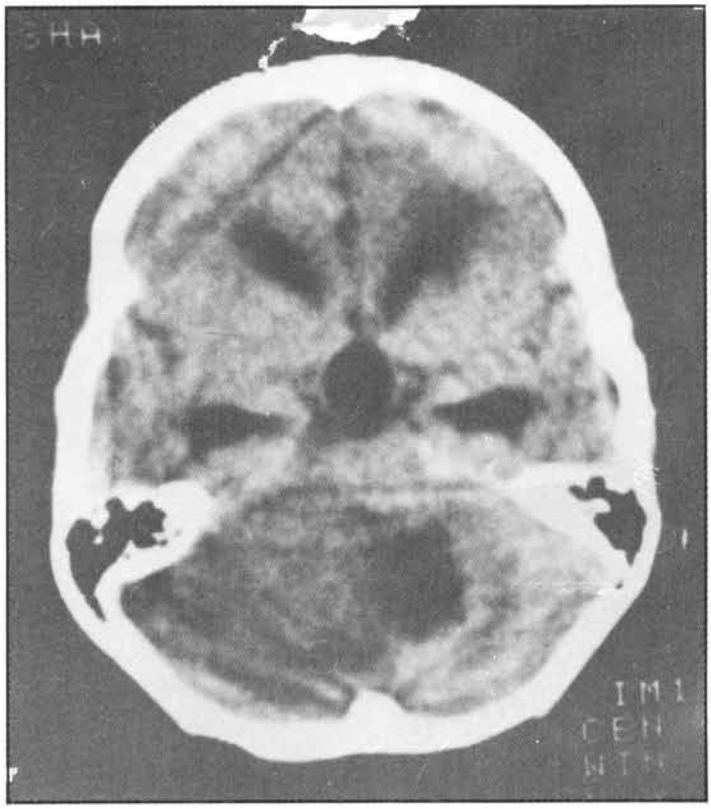
SECOND OPERATION



1) Revision Shunt.
2) Operative debulking.

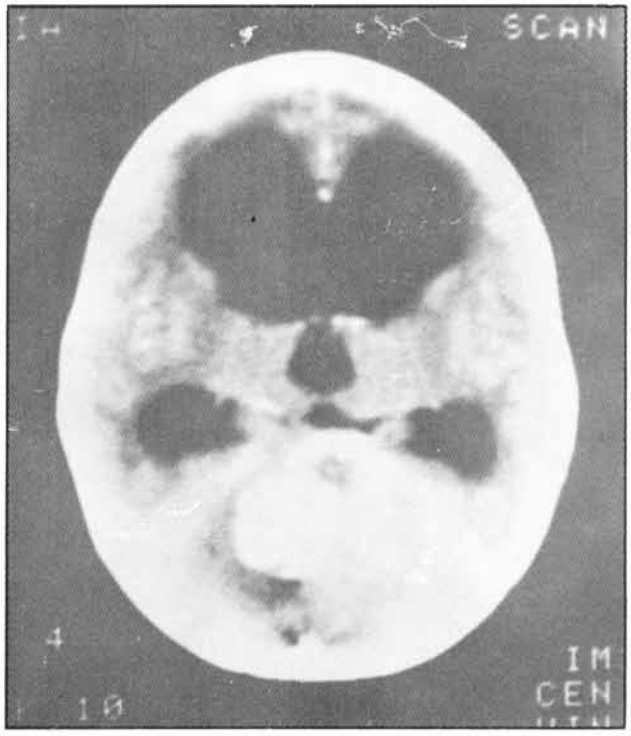
POST OPERATIVE RADIO THERAPHY





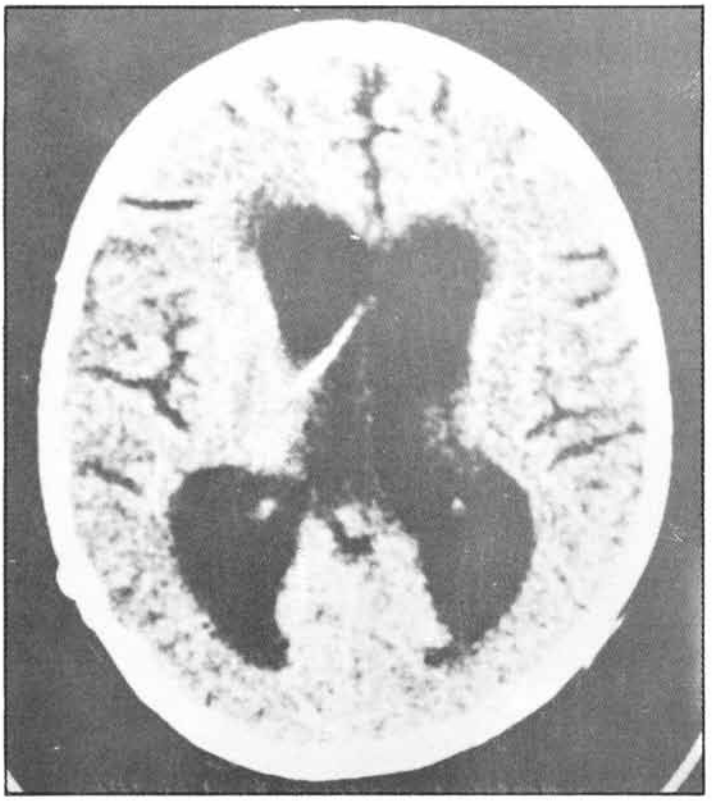
3.

Pre-contrast C.T. scan which shows pushed fourth ventricle



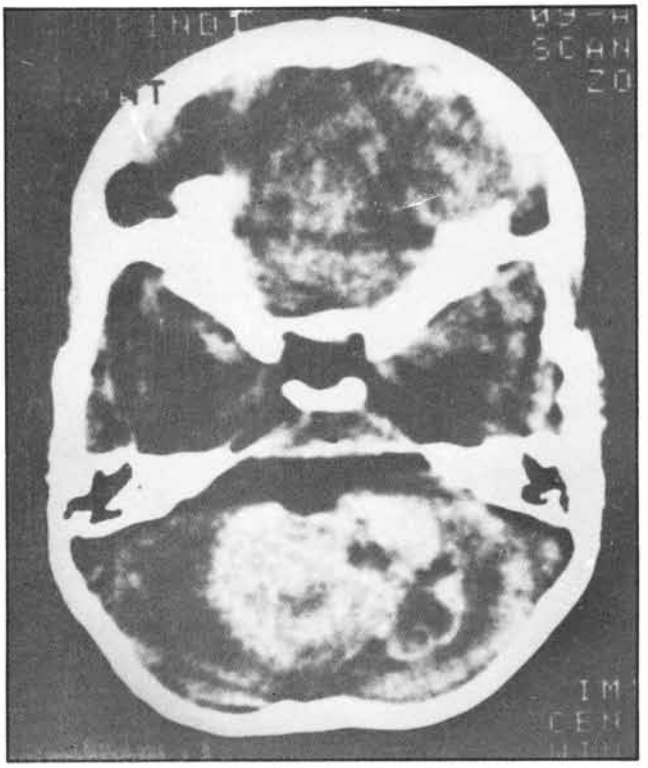
4.

Posterior fossa enhancing lesion: Medulloblastoma



1.

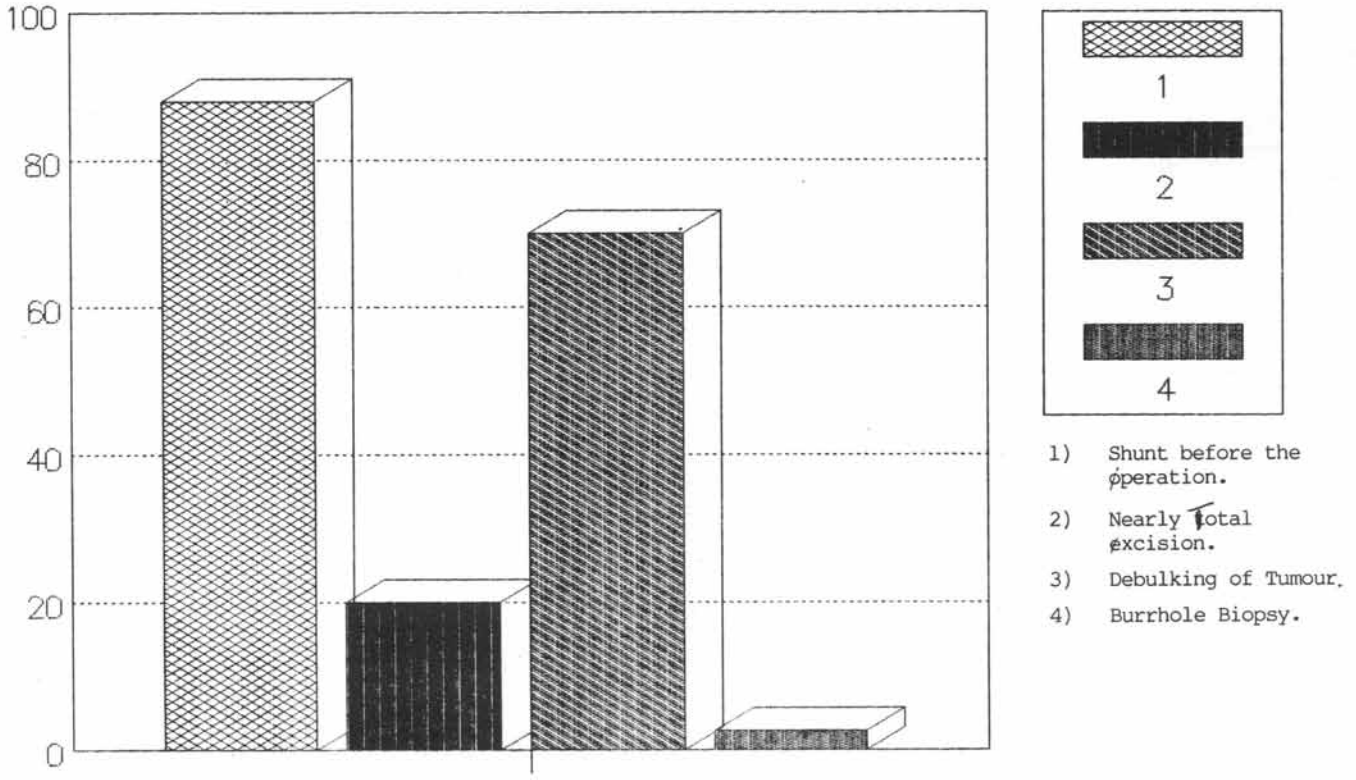
Medulloblastoma with Hydrocephalus



2.

Medulloblastoma C.T. appearance

OPERATIVE INTERVENTION



1) Shunt before the operation.
2) Nearly total excision.
3) Debulking of Tumour.
4) Burrhole Biopsy.

Age Incidence

3 to 14 years: mean age group 8.5 years

Symptomatology

Headache and vomiting	80% Cases
Deterioration of vision	60% Cases
Ataxia	35% Cases

Signs

Papilloedema	78% Cases
Neck Stiffness	35% Cases
Hydrocephalus	75% Cases
C.T. Diagnosis	100% Cases

Operative Intervention

Shunt before the operation	88% Cases
Nearly total excision	20% Cases
Debulking of tumour	70% Cases
Burrhole biopsy	2.5% Cases

Second Operation

Revision shunt	35% Cases
Operative debulking	3.5% Cases

Post Operative Radio-Therapy 100% Cases

Recurrence Rate

Five years survival	10% Cases
Three years survival	20% Cases
One year survival	78% Cases

References

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