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Original Research Paper

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INTRADURAL-EXTRAMEDULLARY SPINAL TUMORS: A CLINICO-PATHOLOGICAL STUDY

Dr Arti Sharma MD Pathology Gajra Raja Medical College, Gwalior, Madhya Pradesh

Dr Aditya Shrivastav* Associate professor Department of Neurosurgery Gajra Raja Medical College *Corresponding Author

Dr Padam Chand Mch Neurosurgery Gajra Raja Medical College, Gwalior, Madhya Pradesh

Dr Anand Sharma Assistant professor Department of Neurosurgery Gajra Raja Medical College

ABSTRACT Intradural extramedullary tumours of the spine are the commonest intradural tumours of the spine. Clinical presentation is often delayed because of variations in the presenting symptoms, which may simulate other disease and the variability of the progress of the symptoms. Magnetic resonance imaging (MRI) is the diagnostic procedure of choice for all patients. We review the available data in neurosurgery department to find out true incidence and histological type of IDEM.

KEYWORDS : Intradural extramedullary mass , Neurofibroma

INTRODUCTION

Intradural extramedullary tumours of the spine are the commonest intradural tumours of the spine. They are common in middle age group and most of them are benign in nature, most of them being nerve sheath tumours and meningiomas. Other tumors could be ependymomas, arachnoid cyst , dermoid, epidermoid, teratoma, neurenteric cyst, paragangliomas, drop metastasis, granuloma [1,2,3].

Clinical presentation is often delayed because of variations in the presenting symptoms, which may simulate other disease and the variability of the progress of the symptoms. The symptoms and signs include those produced by the involvement of the nerve roots (posterior and anterior), the cord segments and the long tracts, viz., the motor, sensory, autonomic and other tracts. Some signs pertaining to the spinal column may also become apparent [4,5].

Magnetic resonance imaging (MRI) is the diagnostic procedure of choice for all patients. IDEM are visualized readily with MRI with gadolinium and all attributed to the fact that IDEM are extra-medullary and vascularized. Advances in neuroimaging have made the preoperative diagnosis of IDEM almost certain. We review the available data in neurosurgery department to find out true incidence and histological type of IDEM.

MATERIAL AND METHOD:

The present study was retrospective study, based on data retrospectively collected from department of Neurosurgery from 2008 to 2018. All histopathological confirmed cases were studied. Patient not willing for study or not willing for surgery and those who previously operated for spinal tumor and presented with recurrence are excluded from the study. Preoperative data regarding neurological assessment were done with nurick grade constitute 1.Normal walk. 2. Slight difficulty in walking.3. Disability limiting normal walk. 4. Required assistance in walk. 5. Bed ridden. MRI finding were review to delineate the type of lesion and its relation with cord, any extrforaminal extension. All patients consistant with IDEM underwent surgical excision of mass. Postoperative neurological assessment was done and diagnosis confirmed on histopathology. Plexiform neurofibromas are irregularly expanded nerve bundles with nodular appearance, prominent myxoid matrix. Meningioma shows clusters of meningothelial cells forming whorls.

RESULT

The study was conducted on 65 IDEM patients. There were 36 (55%) male and 29(44.6%) females. Male to female ratio were 1.2:1. Most common age group was between 31-40 years followed by 21-30 years. The mean age of patients was 32 years. A distinct overall male predominance was noted in all tumor types except meningioma as shown in table 1.

Group	Number	Percentage
1-10	1	1.5%
11-20	3	4.6%
21-30	22	33.84%
31-40	28	43.07%
41-50	6	9.23%
51-60	5	7.6%
Total	65	100

Most common location was dorsal spine in 26(41%) cases, followed by cervical spine in 14 (22%), cervico-dorsal 9 (13%) (Table 2).

Table 2: Location wise distribution of Infratentorial meningioma

Location	Number	Percentage
Cervical	14	22%
Cervidorsal	9	13%
Dorsal	26	41%
Dorso-lumber	8	12%
Lumber	8	12%
Total	65	100%

Histopathology grading was done as per WHO classification of CNS tumour. It revealed that most common subtype was Schwannoma in 27(41.51% and second most common subtype were meningioma in 18(27.69%) (Table 3). Other tumor was neurofibroma in 10 (15.38%), ependymoma in 7(10.76) cases, dermoid in 2 (3.07%) cases, paragangliomas in 1 (1.5%) case.

Table 3: Histopathological distribution of Intradural extramedullary tumor

Histopathology	Number	Percentage
Schwannoma	27	41.5%
Meningioma	18	27.69%
Neurofibroma	10	15.38%
Ependymoma	7	10.76%
Dermoid/ Epidermoid	2	3.07%
Paraganglioma	1	1.5%
Others	65	100

DISCUSSION

The incidence of nerve sheath tumour reported was 35% and that of meningioma 28% of all intradural extramedullary tumours. Majority of the nerve sheath tumours were present in 3rd decade and majority of meningiomas were present in 2nd and 3rd decades with female's preponderance. Thoracic spine was common site of occurrence, which is corresponding with the literature reported by McCormick and Ramamurthy [6,7].

Our study revealed study most common site was dorsal spine (~41%) followed by cervical spine (~22%) then lumbar spine (~12%). Jee Ho Jeon et al[8] found most common site lumbar then dorsal and then cervical. Youman's neurological surgery[9] writes that nerve sheath tumors equally distributed in the spine, but 80% of meningioma occurs at thoracic spine.

Our study revealed schwannoma was most common at dorsal region then cervical and then lumbar. Meningioma was most common at dorsal region. Meningioma is more common in female and dorsal spine is the most common site. Our study other tumors as ependymomas their most common site was dorsolumber/ lumbar spine and for dermoid it was dorsal spine. Alfred T Ogdon[10] writes that ependymoma arises within the filum terminale most in its proximal intradural portion and are slight more common in men then in women. Because sample size for tuberculoma, lipoma, and hematoma was very small so generalization of the result cannot be done.

In our study most common pathological diagnosis is schwannoma (44%) and next most common pathological diagnosis are meningiomas (20%). Albanese V et al [11] series in which they found Spinal intradural extramedullary tumors account for 2/3 of all Intraspinal neoplasms and are mainly represented by meningiomas and schwannoma, with the former accounting for the 25-46% of all primary intraspinal tumors[11]. But in my study schwannoma and meningiomas account 64% of all intradural extramedullary spinal tumors. In my study other pathological diagnosis neurofibroma, ependymoma, dermoid, paragangliomas and hematoma. Other tumors could be ependymomas, arachoidcyst, dermoid, epidermoid, teratoma, neurenteric cyst, paragangliomas, drop metastasis, granuloma.

REFERENCES

1. Sloof JL, Kernohan JW, McCarthy CS: Primary Intramedullary Tumors of the Spinal Cord and Filum Terminale. Philadelphia, WB Saunders, 1964
2. Barron KD, Hiraon A. Araki S. Terry RD. Experience with metastatic neoplasm involving the spinal cord. Neurology 1959: 9:91-106
3. Klein SL, Sanford RA.Muhlbauer MS. Pediatric spinal epidural metastases. J Neurosurgery 1991: 74:70 – 75
4. Gilbert RW. Kim JH. Posner JB. Epidural spinal cord compression from metastatic tumors: diagnosis and treatment. Ann Neurol 1978: 3:40 – 51
5. Torma T. malignant tumors of spine and spinal extra dural space: ActaChirScand [suppl] 1957: 225: 1 – 176 .
6 Nurick S. The pathogenesis of the spinal cord disorder associated with cervical spond ylosis. Brain. 1972;95:87-100.
7. Mc Cormick PC. Surgical management of dumb bell tumours of the cervica l spine. Neurosurg. 1996;38:294 – 300.
8. Jee Ho Jeon et al Spinal Schwannoma; Analysis of 40 CasesJ Korean Neurosurg Soc. 2008 March; 43(3): 135–138.
9. Youmans Neurological Surgery 6th edition chapters 309 page no 3131.
10. Yam B Roka et al, Higher Cervial nondysraphic intradural extramedullary lipoma. Neurology India. Yr- 2012, Vol- 60, issue 3, page 350-351 .
11. Albanese V, Platania N. J Neurosurg Sci. 2002 Mar;46(1):18-4.Spinal intradural extramedullary tumors. Personal experience.