

Surgical Treatments of Intradural Extramedullary Tumor

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– Abstract –

Study Design : Retrospective study on 12 cases of intradural extramedullary tumor

Objecties : To analyze the clinical symptoms and the outcome of the treatments in the 12 patients who had intradural extramedullary tumors.

Summary of Literature review : In order to provide a good prognosis and achieve a satisfactory clinical outcome for the treatment of intradural extramedullary tumors, early diagnosis and careful surgical resection is necessary.

Materials and Methods : Twelve cases of intradural extramedullary tumors were treated surgically from September 1990 to July 2000. Of the 12 cases, 7 were male and 5 were female. Average follow-up period was 37 months. Mean age of the cases was 48.3 years. The followings were analyzed; 1)histopathologic diagnoses, 2)locations of tumors, 3)clinical findings, 4)duration of symptoms, and 5)radiologic findings. In addition, both changes of symptoms as well as neurologic findings during the preoperative stage and the postoperative follow-up were evaluated according to the Frankel's and Kim's criteria.

Results : Histopathologic results were as follows; 6 cases (50%) confirmed as schwannoma, 3 cases (25%) as meningioma, 1 case as epidermoid cyst, 1 case as neurofibroma, and 1 case as arachnoid cyst. Locations of tumors were as follows; 6 cases (50%) located in the thoracic region, 4 cases (33%) located in the lumbar, 1 case located in the cervical region, and 1 case located in the sacrum. Clinical findings were as follows: 6 cases complained of back pain and radiating pain to leg, 6 cases noticed motor weaknesses and sensory changes of varying degrees. The average duration from initial symptoms to admission was 57 months (23-140 months). Laminectomy and complete resection of tumors were performed in all cases. Posterior spinal fusion with instrumentation was necessary only in one case. The preoperative Frankel's grades were as follows; 6 cases were in grade C, 4 cases in grade D, and 2 cases in grade E. At the final follow-up, all cases were graded as E.

Conclusion : The Early diagnosis and careful surgical resection for intradural extramedullary tumors provide for a good prognosis as well as a positive clinical outcome. Intradural tumors should be included in the differential diagnosis of spine diseases and considered as a subdivision of orthopaedic spine surgery.

Key Words : Intradural, Extramedullary, Tumor

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가 .

1887 Gower Horsley⁸⁾

(computerized tomographic metrizamide myelography: CTMM), (MRI), (in-traoperative ultrasonography) (schwannoma) 6 (50%) 가 , (meningioma) 3 (25%), (epidermoid cyst) 1 , 1 (arachnoid cyst) 1 .

가 가 (33%), 6 (50%) 가 , 4 가 1 가 . 가 6 , 가 85 (3-

360) 가 . 가 11 , 1 가 9 , 가 3 , 12 가 12 가 가 가

12 , 1 가 , 7 (58%) , 7 (75%) , 8 , 9 , 12 11 , 1 , 가

1990 9 2000 7 1 C가 6 , D가 4 , E가 2 , Frankel 12 E , 가 7 , 가 4 , 가 1 , 가 5 , 가 1

48.3 (13 -75) , 57 (23 -140) , , , , 1 , 75 가 6 1

Frankel Kim ¹⁰⁾ 가 “ ” . 1 가 가 “ ” 5-7 , 1-5 가 .

1-A) 가 T1 가 1.8 × 1.1 × 0.5 cm (0.94g)
 (Fig. 1-D).
 1-B). T1 가 (Fig. (dumbbell)
 (Fig. 1-C).
 4, 5, 6 (Fig.

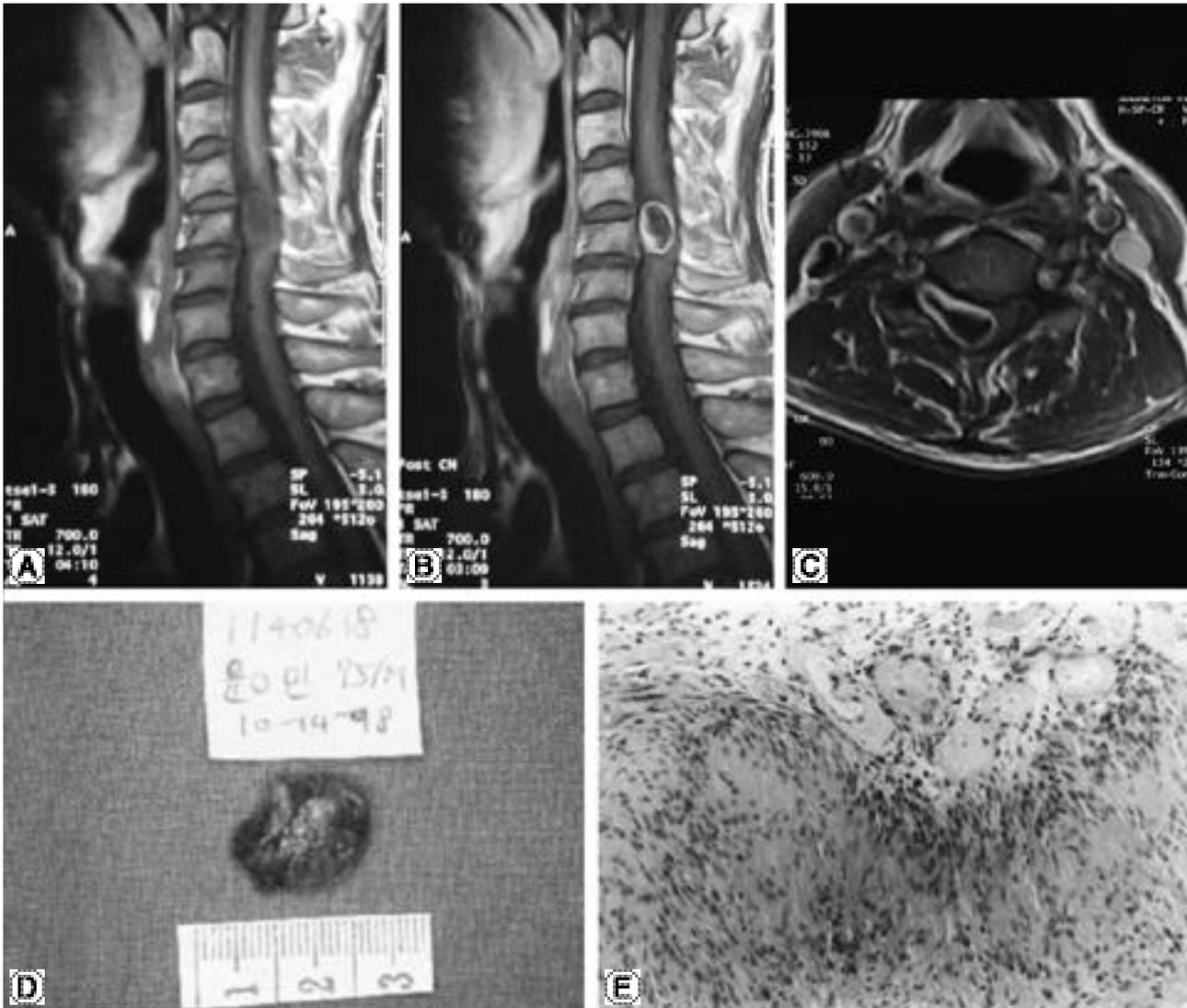


Fig. 1-A. T1-weighted sagittal MR image shows peripheral iso-signal intensity and central low signal intensity mass. The tumor is located at the C4-5 level with extension of the tumor forming a dumbbell shaped mass.
B. Gadolinium enhanced T1-weighted sagittal MR image shows marginal enhancement of homogenous high signal intensity mass.
C. Gadolinium enhanced T1-weighted axial MR image shows a dumbbell shape intradural extramedullary mass compressing spinal cord to the left side.
D. Cross section of the tumor showing a well encapsulated ovoid mass measuring 1.8 × 1.1 × 0.5 cm (0.94 g).
E. The tumor is composed of spindle cells with nuclear palisading and shows vascular hyalinization (H-E stain, × 200). These findings are compatible with schwannoma.

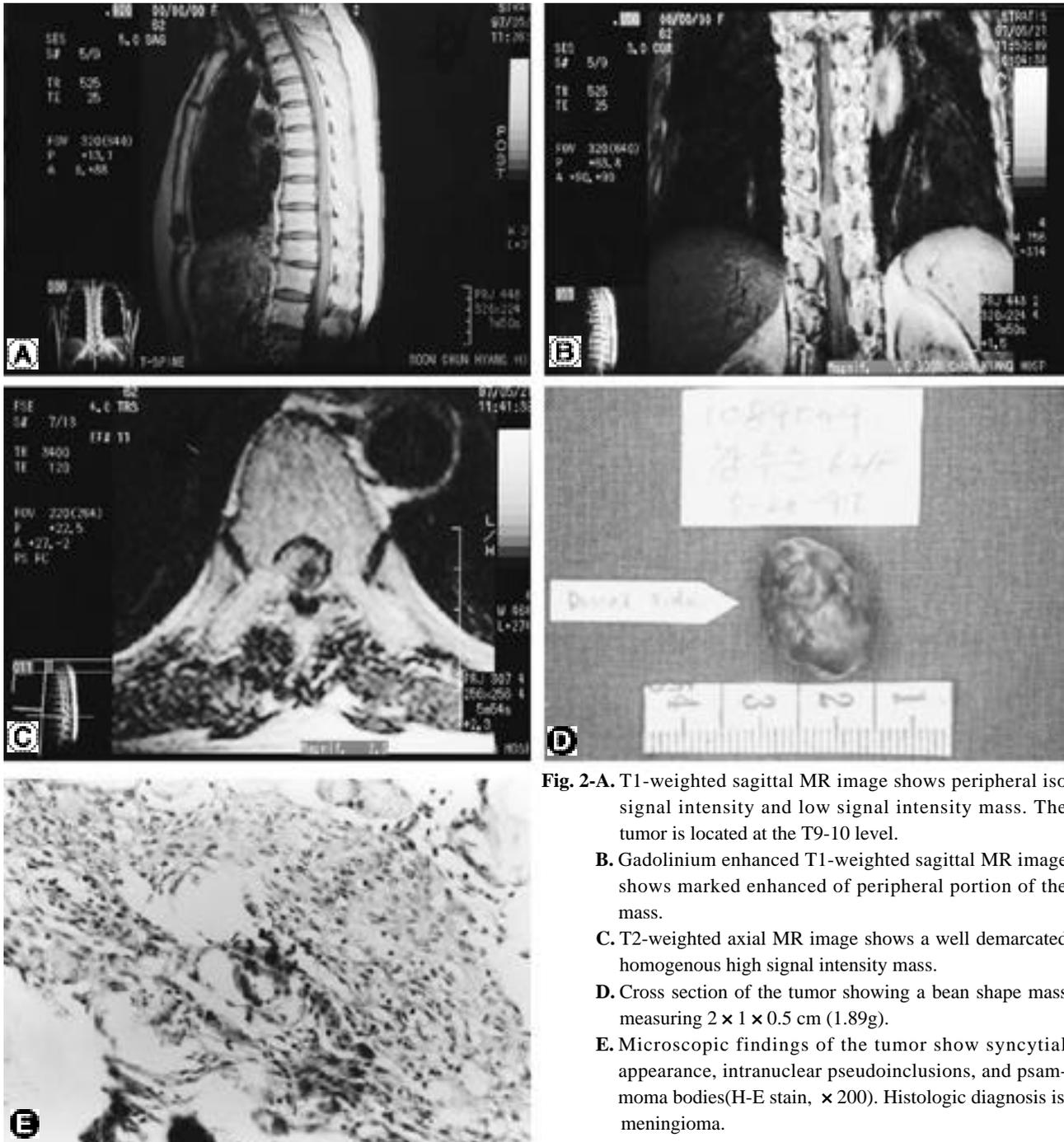


Fig. 2-A. T1-weighted sagittal MR image shows peripheral iso signal intensity and low signal intensity mass. The tumor is located at the T9-10 level.
B. Gadolinium enhanced T1-weighted sagittal MR image shows marked enhanced of peripheral portion of the mass.
C. T2-weighted axial MR image shows a well demarcated homogenous high signal intensity mass.
D. Cross section of the tumor showing a bean shape mass measuring 2 × 1 × 0.5 cm (1.89g).
E. Microscopic findings of the tumor show syncytial appearance, intranuclear pseudoinclusions, and psammoma bodies(H-E stain, ×200). Histologic diagnosis is meningioma.

T1 가 (Fig. 2-A) 가 T1 (Fig. 2-B). T2 가 (Fig. 2-C). 9, 10 10, 11 8, 가 2 × 1 × 0.5 cm (1.89g) (Fig. 2-D). 가 가 (Fig. 2-E). 5 2

Nittner ¹⁰⁾ 45% 3~10 84%, 16% 75~85%가 9.6~35%, 4~23%, 23~48%, 6.4~25% 1.10,13) 가 22.1% 18.2% 50%, 25% 가 50%, 33% 1.12) 가 가

Table 1. Analysis of intradural extramedullary tumor

No. S/A	Diagnosis	Level	Symptom involvement	Onset of symptom	Chief complaints	Op name	Frankel grade		Pain		Motor deficit		Sensory deficit		Follow up(month)	Result
							preop	postop	preop	postop	preop	postop	preop	postop		
1 F/62	meningioma	T10-T11	L1	84	MW*, P [†]	L & EB [‡]	C	E	-	-	+	+	-	-	60	Excellent
2 M/37	schwannoma	T12	L1	84	BP [‡] RP [§]	L & EB	C	E	+	-	+	+	-	-	140	Excellent
3 F/46	schwannoma	S1	L1	12	MW, P	L & EB	C	E	+	+	-	-	-	-	28	Poor
4 M/13	epidermoid cyst	L3-4	Rt	7	BP, RP	L & EB	D	E	+	-	+	+	-	-	41	Excellent
5 F/50	schwannoma	L3-4	.	132	BP, RP	L & EB	E	E	+	-	-	-	-	-	49	Good
6 M/39	neurofibroma	L4	.	120	BP, RP	L & EB	D	E	+	-	-	-	-	-	71	Good
7 M/75	schwannoma	C5-6	Rt	6	RP	L & EB	C	E	+	-	+	+	-	-	32	Good
8 F/39	meningioma	T9	L1	3	MW, P	L & EB	D	E	-	-	+	+	-	-	23	Excellent
9 M/61	arachnoid cyst	L4-5	L1	3	MW, P	L & EB	C	E	+	-	+	+	-	-	62	Excellent
10 M/54	meningioma	T10-T11	Bilat	360	MW, P	L & EB	C	E	-	-	+	+	-	-	53	Good
11 F/56	schwannoma	T8-9	.	120	BP, RP	L & EB	E	E	+	-	-	-	-	-	69	Excellent
12 M/48	schwannoma	T9-12	Bilat	84	MW, P	L & EB	D	E	-	-	+	+	-	-	50	Excellent

*: Motor weakness, †: Paraparesis, ‡: Back pain, §: Radiating pain, ||: Laminectomy, ¶: Excision & Biopsy, ** : Posterior lumbar interbody fusion, ††: CD instrumentation

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 12 가 7 , 가 5 , 48.3 , 37
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 Frankel Kim 가 가
 : 6 (50%) 가 , 3 (25%),
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 (33%), 1 . 6 (43%),
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