

가 .

:					
	가	.			
	:	1996	1	2002	6
		73		67	
					, MRI EMG
			8	75	44.7
3		46		9.7	
:				T ₁	, T ₂
			가		
		T ₂			
target pattern	6	(15%)		24	(62%)
				fasciculation	. 25 (64%)
				5	, 2
					, 1
:					

(nerve sheath) Schwann
 Schwannoma, neurilemoma
 neurinoma, perineural fibroblastoma

가
 65-1
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가 20 50 가

가 White 32 5 가

가 9), 가 (Parent nerve) 가

가 12), 가 1.

가 가 37 (55.2%) 가 가 18 , 10 , 가 1 , Tinel sign 17 (25%)

1996 1 2002 6 73

67

, MRI EMG ,

, Tinel 8 75 44.7 , 30

50 (Table 1). 3

46 , 9.7

Table 1. Age distribution

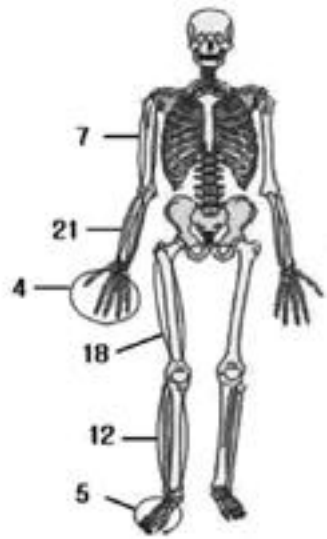
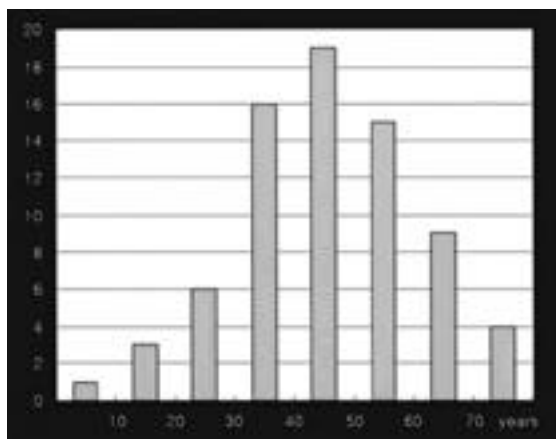


Fig. 1. Anatomic distribution

2.

가 32 , 가 35 ,
 가 21 가 ,
 가 18 .
 11 가 , 6 ,
 5 , 4 , 4 ,
 3 , 4

(Fig. 1).

3.

가 1 cm,
 22.5cm 3.1 cm , 5 cm 가
 49 (73.1%), 5 cm 18 (26.9%) .

4.

9 , 2
 , 7 .

5.

,
 가

39

T₁

, T₂
 가

(Fig. 2). T₂

target pattern 6 (15%)
 , 24 (62%)

fasciculation

(Fig. 3). 25

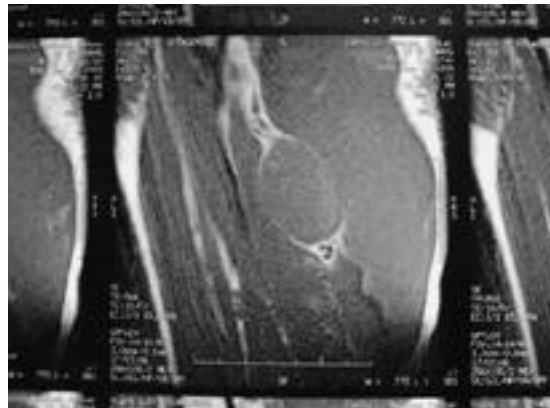


Fig. 2. T2-weighted MRI shows well-demarcated fusiform mass with intermediate signal, which is connected to parent nerve.

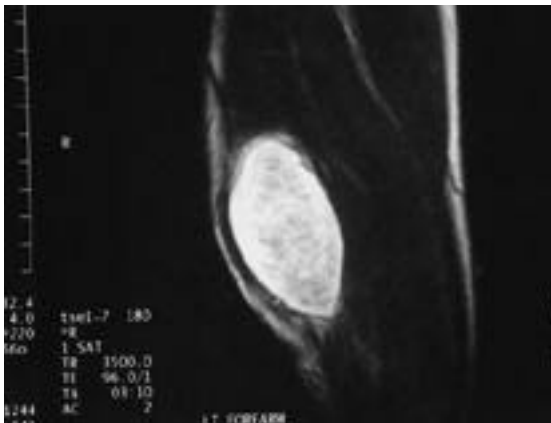


Fig. 3. T2-weighted MRI demonstrates high signal mass with inhomogeneous low signals in it, so-called fasciculation pattern.



Fig. 4. T2-weighted MRI shows huge cystic change in the tumor mass.

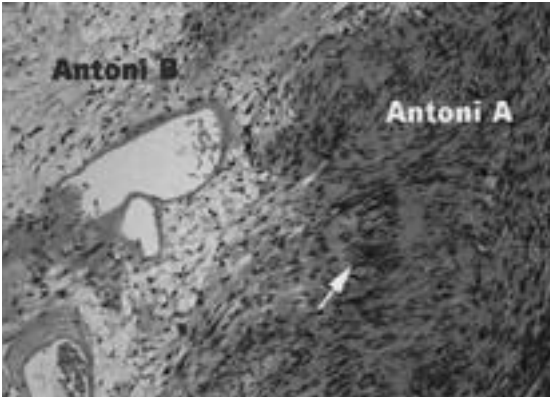


Fig. 5. Histology reveals typical Antoni A & B area with Verocay body (white arrow).

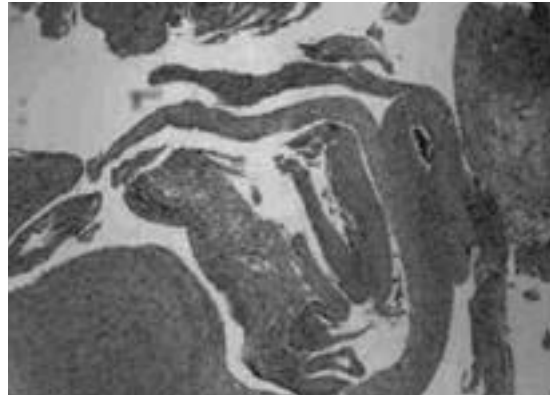


Fig. 6. Histology shows cystic degeneration, which is well reflected on MRI.

(64%)
(Fig. 4).

6.

가 . H&E
가
Antoni A 가
Antoni B
Antoni A Verocay body가
(Fig. 5). 가
Verocay body가
(Fig. 6).

7.

5
, 2 , 1
, 1
(neurofibroma)
(Schwannoma)

(capsule)

(epineurium)

9).
가
(neu-
rilemmomatosis, von Recklinghausen's disease)
. Stout⁹⁾ Enzin-
ger⁴⁾
4
(5.5%)
. Shishiba⁸⁾

(neurilemmomatosis)

(acoustic neuroma)

1,2,6,8)

5,7,14), Yamamoto¹³⁾

(neu- 15 가

가 가 63% ,
 가 , Tinel Antoni A B
 , 25% . 64%
 Tinel 가 , T₁ , T₂
 가 가
 (medi-
 astinum)
 5 cm Antoni A 가
 , White ¹²⁾ 6 cm , Das (myxoid) Antoni B ,
 Gupta ³⁾ 80% 5 cm Antoni A
 73% 5 cm Verocay body가 .
 가 Verocay body가 ,
 schwann
 가 (gland) pseudoglandular
 가 schwannoma ⁴⁾.
 가 (epineurium)
 가 (capsule)
 가 가
 T₁
 , T₂
 가
 . T₂
 target pattern 가 가
 , Suh , T₁
¹⁰⁾ , T₂
 가
 , Varma ¹¹⁾ 10 5 ,
 13 7
 15% Varma
 , target pattern

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Abstract

Schwannoma of the Extremities

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Purpose: To correlate the significant MRI findings and histologic features of the Schwannoma of the extremities and to review the clinical characteristic and the result of the surgical enucleation.

Materials and Methods: 67 patients with pathologically proven Schwannoma of the extremities, who were surgically treated at our institutes between January 1996 and June 2002, were selected for this study. The clinical records, EMG, MRI and histologic findings were reviewed. Age of the patients ranged from 8 to 75 years with average of 44.7 years. Mean follow-up period was 9.7 months with ranging from 3 months to 46 months.

Results: On MRI, Schwannoma shows a well-demarcated fusiform mass with a low to intermediate signal intensity on T₁-weighted images and high signal intensity on T₂-weighted images, which is connected to parent nerve. A target pattern with peripheral hyperintensive rim and central low intensity on T₂-weighted images was seen in 6 cases (15%), and fasciculation pattern with inhomogenous intensity in the hyperintensity on T₂-weighted images was observed in 24 cases (62%). Various degree of cystic degeneration was discovered in 25 cases (64%). Postoperative complications include tingling sense or radiating pain in 5 patients, paresthesia in 2 patients, nerve palsy in 2 patients, but all of the complications were recovered during follow-up period. There were no local recurrence or malignant change.

Conclusion: MRI demonstrates characteristic findings of Schwannoma, and very useful tool for preoperative diagnosis and planning of surgery. Exact preoperative diagnosis and meticulous enucleation are enough option of treatment.

Key Words: Extremities, Schwannoma, Nurilemoma, MRI, Enucleation

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