

Analysis of the relationship between the Epidural Spinal Cord Compression (ESCC) Scale and paralysis caused by metastatic spine tumors

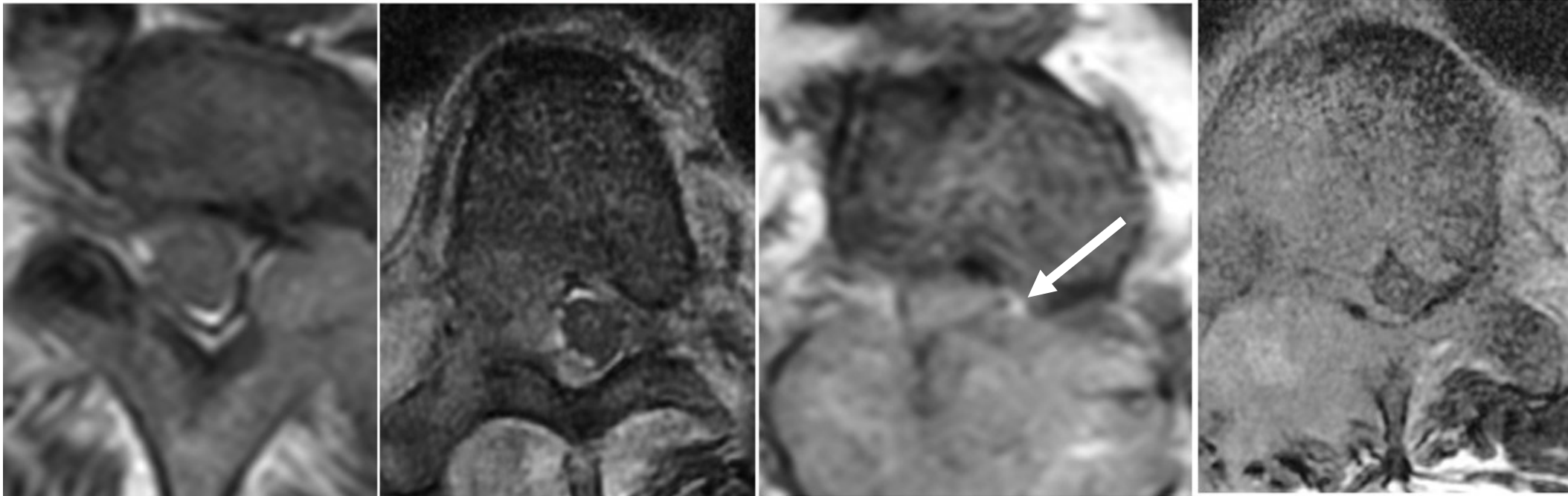
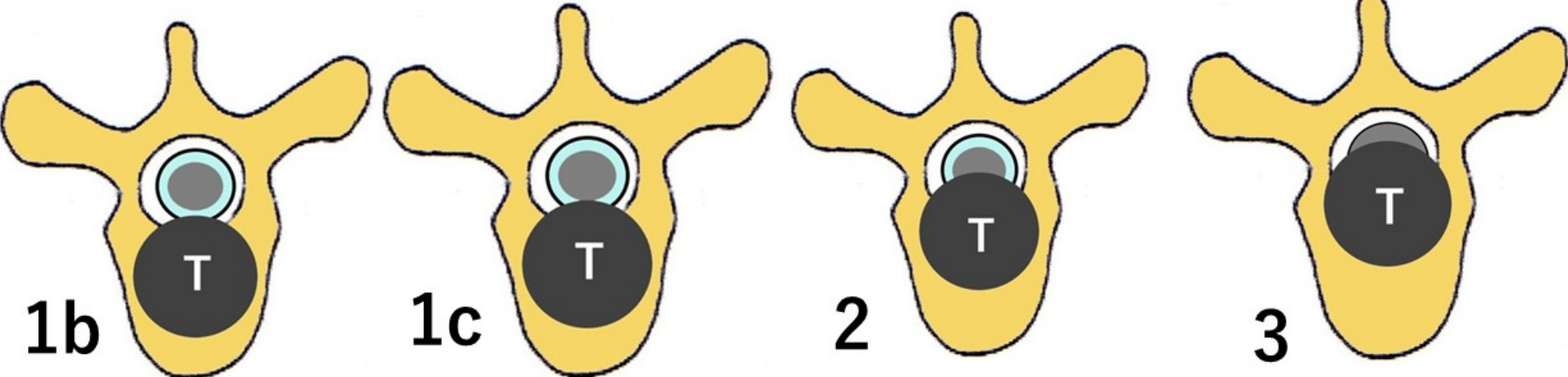
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Epidural Spinal Cord Compression (ESCC) Scale



T2 weighted axial image, Bilsky MH, et al.

Question

- 1. Was the ESCC scale correlated with the severity of paralysis?**
- 2. Which grade of the ESCC scale the borderline of paralysis?**
- 3. Which level, which the ESCC grade, which transverse localization progress rapidly severe within 3 weeks?**

Subjects 467 pts.

ESCC grade 1b or worse

Sex: 289 male, 178 female

Age: 15-92 yrs. (mean 62.4 yrs.)

Primary site: 128 lung, 49 liver, 42 prostate, 38 kidney, 37 breast, 25 multiple myeloma, etc.

Level: 12 C1-C2, 65 C3-C6, 41 C7-T2, 149 T3-T10, 80 T11-L1, 113 L1-L5, 9 S1.

Treatment: Surgery; 216 pts., Conservative; 232 pts., care only; 19 pts.

C3-C7 lesion

ESCC	ASIA	A	A+P	A+L	A+P+L
1b (n=18)	E	8	2	3	
	D	1		4	
	C				
	B				
	A				
1c (n=23)	E	2	2	2	2
	D	2	1	7	2
	C			3	
	B				
	A				
2 (n=19)	E				
	D	2	1	4	5
	C		1	3	3
	B				
	A				
3 (n=5)	E				
	D			1	2
	C				2
	B				
	A				

ESCC: Epidural Spinal Cord Compression Scale

ASIA: American Spinal Injury Association (ASIA) classification

A: Anterior lesion, A+P: Anterior and posterior lesion, A+L: Anterior and lateral lesion, A+P+L: Anterior, posterior and lateral lesion (Circumferential lesion)

C7-T2 lesion

ESCC	ASIA	A	A+P	A+L	A+P+L
1b (n=10)	E	5		1	
	D	1		1	1
	C			1	
	B				
	A				
1c (n=15)	E	1			2
	D	2	2	5	
	C			1	1
	B				1
	A				
2 (n=9)	E				2
	D				1
	C	1		2	3
	B				
	A				
3 (n=7)	E				1
	D				1
	C				1
	B			3	
	A				1

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T11-L1 lesion

ESCC	ASIA	A	A+P	A+L	A+P+L
1b (n=23)	E	17	2	1	1
	D	1		1	
	C				
	B				
	A				
1c (n=19)	E	4	2	1	2
	D	3		3	2
	C			2	
	B				
	A				
2 (n=17)	E	1		1	1
	D			4	2
	C	1		3	4
	B				
	A				
3 (n=21)	E				
	D			2	
	C				8
	B			1	8
	A				2

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A: Anterior lesion, A+P: Anterior and posterior lesion, A+L: Anterior and lateral lesion, A+P+L: Anterior, posterior and lateral lesion (Circumferential lesion)

1. Was the ESCC scale correlated with the severity of paralysis?

Transverse localization
ESCC scale



T3-T10 lesion



ESCC	ASIA	A	A+P	A+L	A+P+L
1b (n=32)	E D C B A	17	6	5 1 1	2
1c (n=23)	E D C B A	3 2 1	1 1	6 1	2 1 5
2 (n=48)	E D C B A	1	1	5 13 2	1 2 20 3
3 (n=44)	E D C B A			7 11	1 2 12 9 2

No

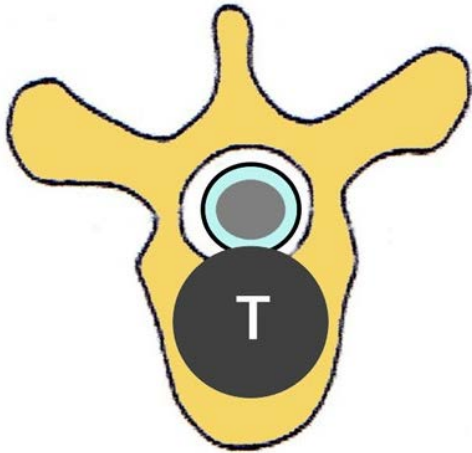
2. Which grade of the ESCC scale the borderline of paralysis?

More than 50% of patients

ASIA grade D or worse paralysis

at the C1-T2 level

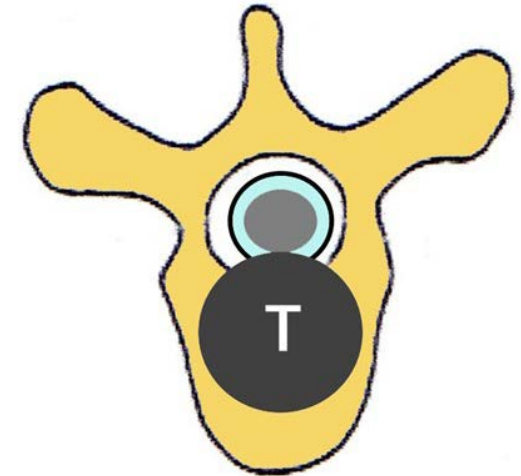
ESCC grade 1b or worse spinal cord compression



1b

at the T3-L5 level

ESCC grade 1c or worse spinal cord compression



1c

3. Which level, which the ESCC grade, which transverse localization progress rapidly severe within 3 weeks?

ESCC scale		Transverse localization			
	1b				
	1c			C7-T2	
	2			C7-T10	C7-T2 T11-L1
	3			T3-T10	T3-L1

C7-L1 level + **or** + **2** **or** **3**

Conclusion

- **The severity of paralysis was not correlated with the ESCC scale.**
- **More than 50% of patients with ESCC grade 1b or worse spinal cord compression at the C1-T2 level or ESCC grade 1c or worse spinal cord compression at the T3-L5 level developed ASIA grade D or worse paralysis.**
- **The high-risk group for rapidly progressive paralysis, which was identified based on deterioration of one grade or more to ASIA grade C or worse within the first 3 weeks after the MRI, consisted of patients with anterolateral or circumferential ESCC grade 2 or 3 spinal cord compression at the C7-L1 level.**

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We have no disclosure to declare