

Incidence and prognosis of spinal metastases as the first manifestation of malignant tumors

- Analysis of 338 patients undergoing the
surgical treatment -

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Background

- A number of studies have been performed to evaluate the prognosis of metastatic spinal tumors.
- However, there are few reports to study the prognosis of spine metastasis as the initial manifestation of malignancy.
- The aim of this study is to evaluate the incidence and prognosis of inaugural spine metastasis in patients who were diagnosed with spinal metastases and underwent the surgical treatment

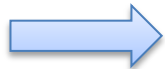
Methods

- Retrospective review of 338 patients who underwent surgical treatment for metastatic spinal tumor between Jan 1994 and Dec 2014.
- Group A : who had no previous history of malignancy and were diagnosed with primary malignancy site through spinal metastases.
- Group B : who had history of primary malignancy site.

Evaluation items

- Age / gender
- Primary origin
- Survival data
- Number of spinal metastases
- Visceral metastases
- EOCG
- Type of surgical treatment

Type 1 : Enbloc resection
Type 2 : Debulking surgery
(Intralesional piecemeal
corpectomy or curettage)
Type 3 : Simple posterior
decompression
Type 4 : Fixation only without
decompression



Comparison between group A and B

Primary malignancy site

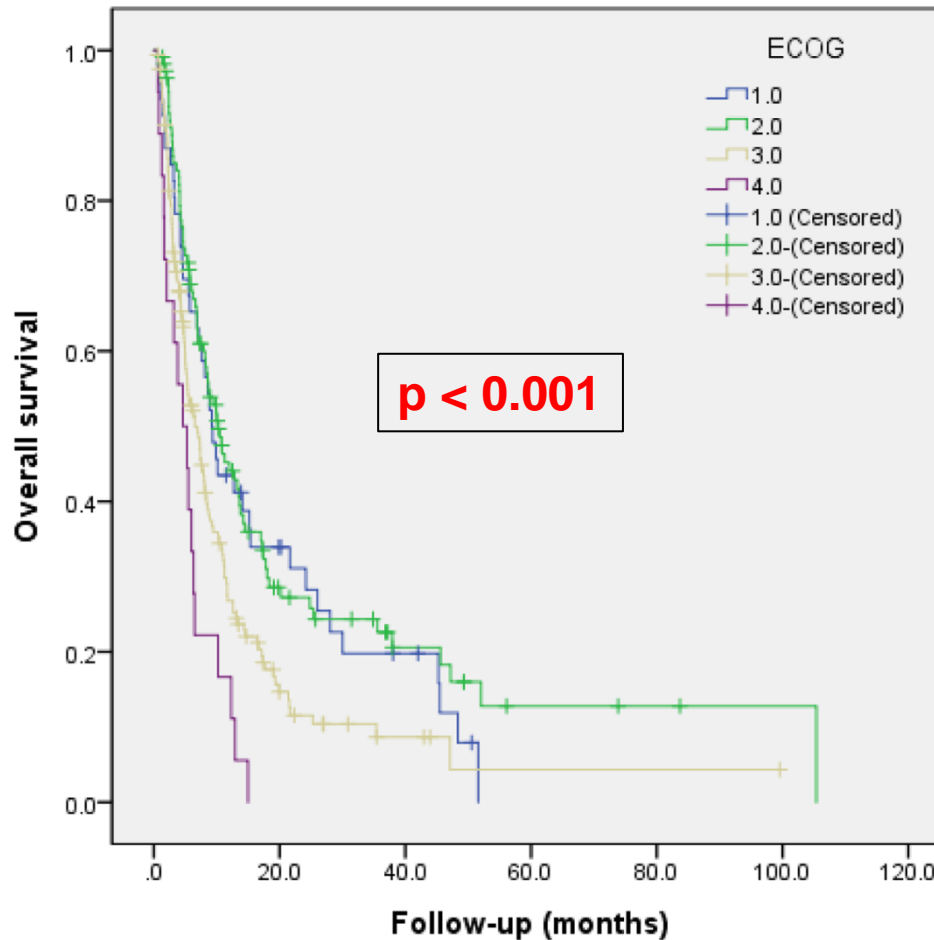
Primary site	Group A	Group B	Total (N)
Lung	35 (34.0%)	68 (66.0%)	103(30.5%)
Liver	8 (17.8%)	37 (82.2%)	45(13.3%)
Kidney	10 (30.3%)	23 (69.7%)	33(9.8%)
Colorectal	3 (10.3%)	26 (89.7%)	29(8.6%)
Breast	3 (13.6%)	19 (86.4%)	22(6.5%)
Prostate	3 (30.0%)	7 (70.0%)	10(3.0%)
Thyroid	4 (50.0%)	4 (50.0%)	8(2.4%)
Others [‡]	28 (31.8%)	60 (68.2%)	22(6.5%)
Total	94(27.8%)	244(72.2%)	338(100%)

Variables	Group A	Group B	p-value	
Patient-related factor				
Age (yrs)				
	≥ 60	56	160	0.314
	< 60	38	84	
Gender				
	Male	60	149	0.708
	Female	34	95	
Performance status (ECOG*)				
	PS 0 to 2	41	115	0.627
	PS 3 to 4	53	129	
Neurological deficits (Frankel classification)				
	A,B	6	18	0.962
	C,D	56	144	
	E	32	82	
Primary malignancy site factor[†]				
	Slow: Breast, prostate, thyroid	10	30	0.768
	Moderate: Kidney, Uterus, colorectal	14	42	
	Rapid: lung, bladder, liver, stomach, sarcoma	70	172	
Primary malignancy burden				
Major internal organ metastasis			0.001	
	Unremovable	28	108	0.252
	Removable	1	17	
	No metastasis	65	119	
Number of vertebral metastasis	≥ 3	43	127	0.252
	2	22	63	
	1	29	54	
Number of other bone metastasis	≥ 3	31	81	0.642
	1-2	19	39	
	0	44	124	
Surgical related factors				
Surgical procedure [‡]				
	Type 1	11	24	0.778
	Type 2	34	83	
	Type 3	18	59	
	Type 4	31	78	
Surgical treatment cause				
	Cord compression	55	135	0.731
	Pain	39	109	

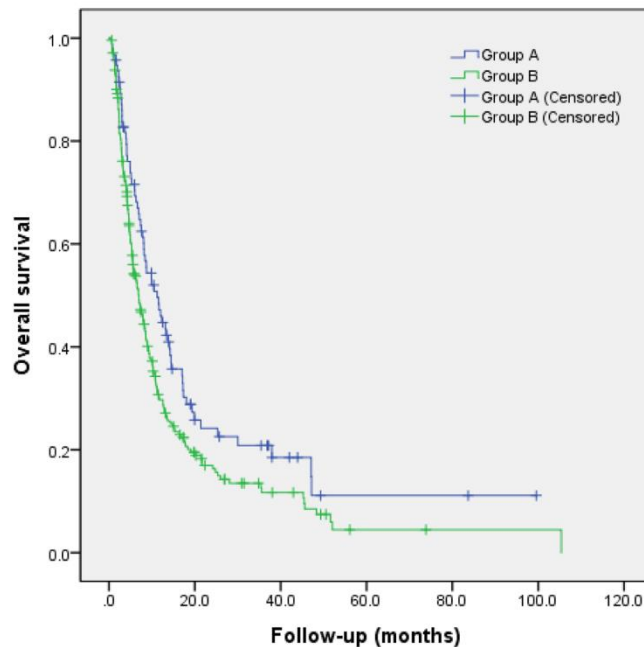
Survival time a/t primary site

Primary y site	Survival period (months)	
	Mean (95% CI)	Median (95% CI)
Lung	8.8 (6.7-10.9)	6.1 (4.3-7.9)
Liver	12.9 (8.6-17.1)	8.0 (5.7-10.3)
Kidney	14.3 (10.6-18.0)	14.3 (7.7-20.9)
Colorectal	6.0 (4.6-7.5)	4.7 (2.8-6.6)
Breast	35.5 (18.9-52.1)	21.6 (9.0-34.3)
Prostate	37.7 (9.0-66.4)	8.5 (0.0-32.8)
Thyroid	29.8 (13.3-44.2)	17.0 (12.9-21.1)
Others [†]	17.8 (2.7-12.5)	8.4 (5.4-11.4)
p-value	< 0.001	

Survival time a/t performance status



Survival time a/t groups



	Survival period (months)		p-value
	Group A	Group B	
Mean (95% CI*)	23.0 (15.5 – 30.5)	15.5 (11.8-19.2)	0.012
Median (95% CI)	11.2 (7.8 – 14.7)	7.0 (5.5 – 8.4)	

Multivariate analysis of prognostic factors affecting survival time

Variables	HR	95% CI	p-value
Primary malignancy site	0.940	0.90-0.99	0.009
ECOG status	1.400	1.19-1.65	<0.001
Group (A vs B)	1.488	1.13-1.97	0.005

Conclusion

- The incidence of spine metastases as the initial manifestation of primary malignancy was 94 patients (27.7%).
- The prognosis of group A were better compared with group B.
- When the surgical treatment was indicated, the active surgical treatment might be considered even if the patients had no treatment history of cancer.

Conflict of interest

- Nothing to disclose