

2.

1982 1 1998 12 , 198 177 (89%) , 22 (11%) , 가 177 64 (32.3%), 32 (16.2%), 30 (15.2%), 14 (7.1%), 11 (6%) . 47 (41%), 12 (11%), 10 (9%), 9 (8%) 32 (38%), 17 (20%), 11 (13%), 4 (5%) (Table 1).

3.

가 116 (58.6%), 가 26 (13.1%), 20 (10.1%), 14 (7.1%), 13 (6.6%), 가 9 (5%) , ,

115 S.P.S.S.

8.0 life table

1. 가 114 (57.6%), 가 84 (42.4%) 57 (24~86) 가 59.2 , 가 54.6 . 30 가 5 (2.5%), 30 가 17 (8.5%), 40 가 28 (14%), 50 가 57 (29%), 60 가 56 (28%), 70 35 (18%) . 60 가 37 (18.7%), 50 가 25 (12.6%) 가 (Table 1). 60 가 26 (13.1%) 가 50 , 70 , 50 가 12 (6%) 가 60 , 70 , 50 가 . , 50 , , 60 , 70 .

Table 1. Incidence of primary cancers

Primary cancer	Male(%)	Female(%)	Total(%)
Lung cancer	47(26.5)	17(9.6)	64(36.1)
Breast cancer		32(18)	32(18)
GI cancer	16(9)	14(7.9)	30(16.9)
Hepatoma	12(6.7)	2(1.2)	14(7.9)
Cervix cancer		11(6.2)	11(6.2)
Prostate cancer	10(5.6)		10(5.6)
Renal cancer	7(4)	1(0.5)	8(4.5)
Others	7(4)	1(0.5)	8(4.5)
Total	99(56)	78(44)	177(100)

Table 2. Distribution of metastatic bone tumors

Location	No of lesion(%)
Spine	116(58.6)
Pelvic bone	14(7.1)
Rib	13(6.6)
Femur	11(5.6)
Hip	9(4.5)
Humerus	6(3%)
Skull	3(1.5)
Multiple lesion	26(13.1%)
Total	198(100)

가 14 98 (49%) ,
 156 (78%) (Table 2). 가 가 100 (51%)
 116 가 14 25.6 (1~240) .
 130 (65.6%)가 가 4.9 , 33.2
 , 가 49 (37.8%), 가 33 (25.4%). , 18.3 , 4.2 ,
 32 (24.7%), 가 11 (8.5%), 가 5 13.2 , 6.9
 (3.8%) . 가 가 , 가 .
 64 , , 32
 , , 30 , ,
 , 14 , .

4. 가가 115 ,
 15.3 (1~144) , 1
 198 30.43%, 5 6.08% .
 103 86 (83%), 9 ,
 17 (17%) . 5 (7.8%), 54 , 13 , 16 ,
 4 (12.5), 3 (27.3%), 16 , 7 , 5 ,
 2 (6.7%), 1 , 15 , 23
 가 2 . , 9 , 46 , 17 ,
 11.8 .

5. 50 (25%), 40 (20%),
 2 (1%) . 131
 (66.2%)
 가 .
 (hot uptake) 가
 . Fidler^{d)}
 , 67 (33.8%) .

6. : 57.3%:42.7%
 1967 ⁸⁾ 가 2.7
 198 51 (25.7%) 1991 ⁵⁾ : 가 43.7%:56.3%
 가 42 (82%), 8 (16%) , 1995 ⁷⁾ 55%:45%
 1 (2%) 9 ⁵⁾
 5 가
 2 , 7 가
 1 , 60
 3 , 1 가 . 가 가

7. 57 (24~86)
 가 가 가 59 , 가 54 , 50 60 가

29%, 28% 가 . 1967 ⁸⁾
53.3 (29 ~ 74) 40 가 가 ,
1991 ⁵⁾ 50 가 가 , 1995 ,
⁷⁾ 50 가 가 , , ,

가 83%,
가 가 17% 가

Ackerman Spjut¹⁾ , ,
, 1974 ⁶⁾ , , (screening)
, 1982 ¹¹⁾ , ,

가 가
49% , 가 51% .

Batson²⁾ 1940 가 100 가
가 가 가

. 1965 Claim³⁾ journal, 1996)¹²⁾ 1 (Spine
2000 , (22%), (0%) ,
, ⁵⁾ (78%), (83%) .
, 가 (115)
, 15

78% . 6 가 2 가
, , 가 2 가
1991 ⁵⁾ (Fig. 1). 1
, 1995 (21.74 %), (18.18 %), (0%)
⁷⁾ , (71.43%) 가 (Fig. 2).

가 (Fig. 3).

Milch Changu⁸⁾
가
가 , , 가

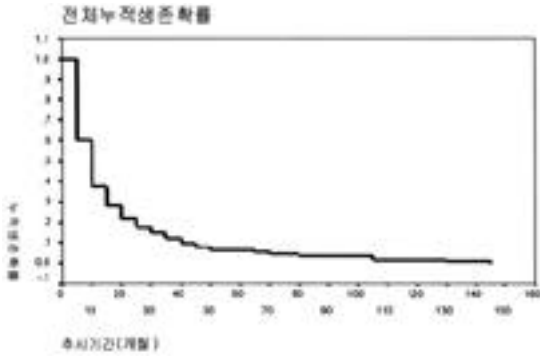


Fig. 1. Survivorship of all metastasis

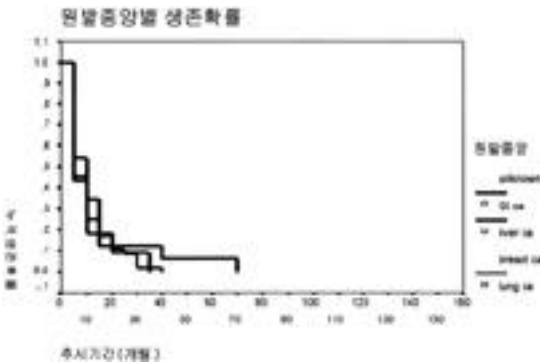


Fig. 2. Survivorship according to primary tumors

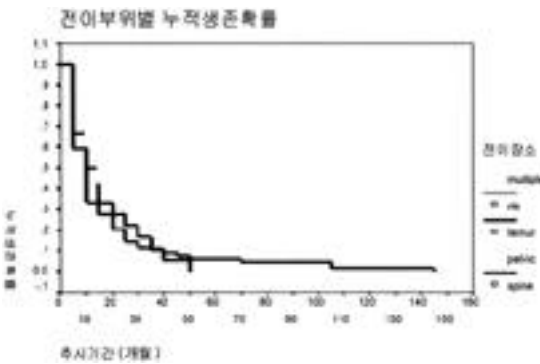


Fig. 3. Survivorship according to metastatic sites

가 (25%) 가 (38%) 가

가
15.3
.1
6
가
60%

REFERENCES

- 1) **Ackerman LV and Spjuts HJ** : Tumors of bone and cartilage, A.F.I.F, Washington DC, 1962.
- 2) **Batson OV** : Functions of vertebral veins and their role in spread of metastasis, *Ann. Surg.*, 112:138, 1940.
- 3) **Clain A** : Secondary malignant disease of bone, *Br. J. Cancer*, 19:15-29, 1965.
- 4) **Fidler IJ** : Patterns of tumor cell arrest and development, Fundamental aspects of metastasis. Amsterdam, *North Holland*, 275-289, 1976.
- 5) **Jung GY, Lee SY, Bac GH, Lee SH, An GY, Yun GS** : Clinical Analysis of meta static bone tumor. *J of Korean Orthop Surgery.* 26:1855-1859, 1991.
- 6) **Kim SS** : Clinical Analysis of 63 cases metastatic bone tumor. *J of Korean Orthop Surgery.* 9:247-255, 1974.
- 7) **Kim TS, Yim TH, Park TS, Joe JL** : Clinical Analysis of metastatic bone tumor. *J of Korean Orthop Surgery.* 30:1752-1758, 1995.
- 8) **Kim YG** : Clinical Analysis of metastatic bone tumor. *J of Korean Orthop Surgery.* 2:55-66, 1967.
- 9) **Milch RA and Changus GW** : Response of Bone to tumor Invasion, *Cancer*, 9:340-351, 1956.
- 10) **Mirra JM** : Bone tumors. Diagnosis and treatment. Philadelphia Toronto. JB Lippincot t Co, 1495-1510, 1980.
- 11) **Park BM, Gung IH, Gang SI** : Clinical Analysis of metastatic bone tumor. *J of Korean Orthop Surgery.* 17:36-47, 1982.
- 12) **Tatsui H, Onomura T, Morishita S, Masanari O, Inoue T** : Survival rates of patients with metastatic spinal cancer after scintigraphic detection of abnormal radioactive accumulation, *Spine*, Vol 21, 15: 21(18):2143-2148, 1996.

Abstract

**Clinical Analysis of Metastatic Tumors of Bone
– Survivorship Analysis after Bony Metastasis –**

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Purpose : To analyze the clinical behaviors and survivorship of metastatic bone tumors.

Materials and Methods : One hundred and ninty-eight metastatic bone tumors had been diagnosed from January 1982 to December 1998. Age and sex distribution, primary cancer types, metastatic sites, duration from diagnosed of primary tumors to bony metastases and survivorship were analysed.

Results : Mean age was 57(24~86) years old. Lung(32.3%) and breast(16.2%) cancers were two most common primary foci. The spines was the most common site of metastases especially lumbar region(38%). Survivorship analysis was done in one hundred and fifteen patients who had been followed up. The mean survival period was 15.3 months. The survivorship of hepatoma(7.1 Mons), lung(8.72 Mons) and renal cell(4.8 Mons)cancers was relatively shorter and breast cancer(54.1 Mons) longest.

Conclusion : The mean age of metastatic bone tumors of this study was older than the past reports. The axial skeletons especially spine was predominant metastatic site. The survivorship of metastatic bone tumor decreased sharply as time goes by, so early diagnosis is clue for longer survival after bony metastases.

Key Words : Bone, Metastatic bone tumor, Survivorship

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