NÖROONKOLOJİK CERRAHİ;
OMURGA VE OMURİLİK;
GENEL KAVRAMLAR, SINIFLAMA VE EVRELENDİRME

Dr.Hakan BOZKUŞ

Primer Spinal Tümörlerin Sınıflaması

Ismail SAYGIN,[a]
Mustafa Emre ERCİN,[a]
Emel ÇAKIR[a]

Turkiye Klinikleri J Neurosurg-Special Topics 2017;7(1):5-11

Histopatolojik ve Moleküler Patolojik Sınıflandırma

TABLO 1: İntradural (İD), ekstradural (ED), intramedüller (İM), ekstramedüller (EM), G (derece), M (mitoz), Bİ (beyin invazyonu), VEP (vasküler endoteliyal proliferasyon).

En sık lokalizasyon		Tümör	Görülme sıklığı	Yaş	Klinik	Histopatolojik bulgular	Moleküler patolojik bulgular
İD	İM	Astrositik tümörler	İkinci en sık İM	20-40	Ağrı, güçsüzlük, duyusal bozukluk	G2:İnfiltratif, hücresellik az, pleomorfizm az, düzensiz dağılım, mitoz- G3:İnfiltratif, hücresellik fazla, pleomorfizm fazla, düzensiz dağılım, mitoz sayısı	IDH-1/2, P53 mutasyonu, ATRX kaybı
İD	İM	Primer glioblastom	Nadir	55 yaş üstü	Ağrı, güçsüzlük, duyusal bozukluk	G4:Nekroz, mitoz, hücresellik fazla, VEP	EGFR amplifikasyonu, PTEN kaybı, P53 mutasyonu, LOH 10p/10q
		Sekonder glioblastom	Nadir	55 yaş altı		G4:Nekroz, mitoz, hücresellik fazla, VEP	IDH1/2, P53 mutasyonu, ATRX kaybı, LOH 19q/10q
		Epitelioid glioblastom	Bildirilmemiş	Çocuklarda ve genç erişkinlerde		G4: Nekroz, mitoz, hücresellik fazla, VEP, Abondan eozinofilik sitoplazma, vesiküler nükleus, melanom benzeri nükleol	BRAF-V600E mutasyonu
İD	İM	Oligodentrogliom	Çok nadir	25-30	Ağrı, motor ve duyusal bozukluk	G2:Üniform, perilerik halo, ince kapiller,MI - G3:Hücresel,pleomorfik, M artmış, nekroz, VEP	IDH1/2, CIC, FUBP1 mutasyonu, 1p/19q kodelesyonu
İD	İM > EM	Hemanjioblastom	Nadir	30-50	Ağrı ve duyusal bozukluk	Lipiten zengin stromal hücre, kapiller damar	VHL mutasyonu
İD > ED	EM	Sinir kılıfı tümörleri	En sık EM	30-40	Radiküler ağrı, uyuşma, hissizlik	Değişik morfolojik görüntüler	PRKAR1A geni ile ilişki
İD	EM	Ependimom	En sık İM	Çocuk 2-16 Erişkin 40-50	Ağrı, güçsüzlük, duyusal bozukluk	G2:Üniform ependimal hücre, rozet, nekroz +/- G3: >5 mitoz, palizatik nekroz, hücresel	22q kaybı, NF2 mutasyonu, IGF-1 ve HOX upregülasyonu, RELA füzyon
İD	EM	Meningiom	İkinci en sık EM	40-60	Motor bozukluk, duyu kaybı, ağrı	Değişik morfolojik görüntüler G1: < 4 M, Bİ - G2: ≥ 4 M veya Bİ + G3: ≥ 20 M	NF2 mutasyonu, NDRG2 hipermetilasyonu, 9p kaybı
İD	EM	Paragangliom	Çok nadir	40-50	Lokal ve yayılan ağrı	Granüler eozinofilik stoplazma, yuvalanma paterni, destekleyici hücre +	SDHB delesyonu
İD	EM	Lenfoma	Çok nadir	Ortalama 50	Nörolojik bozukluk, ağrı	Atipik lenfoid hücre infiltrasyonu	CDKN2A promoter metilasyonu, p53 mutasyonu, 6q delesyonu
ED	-	Hemanjiom	En sık benign spinal tm	Tüm yaş	Bazen lokal ağrı	Değişik çaplarda damar proliferasyonu	-
ED	-	Plazmositom	Nadir	40-60	Lokal ve yayılan ağrı	Atipik plazma hücre proliferasyonu, lokalize	IgH-MMSET(FGFR3); t(4;14)
ED	-	Multipl myelom	En sık primer malign	50-70	Lokal ağrı	Atipik plazma hücre proliferasyonu, yaygın	IgH-MMSET(FGFR3); t(4;14)
ED	-	Osteoid osteom	Sık	10-20	Aspirine duyarlı geceleri artan ağrı	Vaskülarize nidus, immatür ve sklerotik kemik	22q delesyonu
ED	-	Kordoma	Çok nadir	40-60	Lokal ağrı	Fizalliferoz hücre, fibröz septa, lobülasyon	CDKN2A ve PTEN kaybı
ED	-	Anevrizmal kemik kisti	Çok nadir	10-20	Lokal ağrı	Endoteli kanla dolu boşluk, fibröz septa	t(16;17)(q22;p13)
ED	-	Dev hücreli kemik tümörü	Çok nadir	20-50	Lokal ağrı	Mononükleer hücreler, osteoklast tipi dev hücreler	20q11 amplifikasyonu
ED	-	Eozinofilik granülom	Çok nadir	0-10	Ağrı, patolojik kırık	Langerhans hücreleri, eozinofillerin eşlik ettiği inflamatuar hücreler	BRAF mutasyonu

WHO 2016

Omurga Tümörleri

- Primer tümörler
  - Selim
    - Hemanjiom, E.granulom, O.osteom, Osteoblastom, Ostoekondrom, Anevrizmal kemik kisti, Dev hücreli tm.
  - Malin
    - Osteosarkom, Ewing's sarkomu, Kondrosarkom, Kordoma
- Metastazlar
  - Akciğer, Meme, Prostat, Böbrek, GİS, Tiroid

SPINE Volume 22, Number 9, pp 1036–1044
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Spine Update

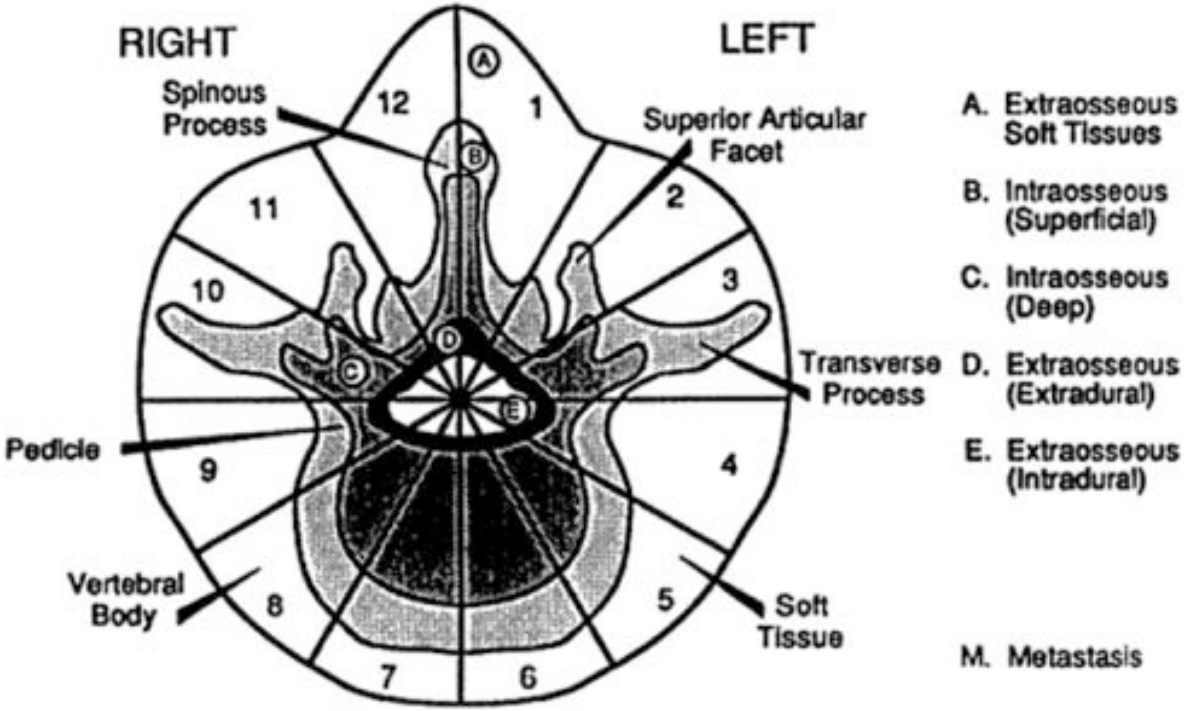
Primary Bone Tumors of the Spine

Terminology and Surgical Staging

Stefano Boriani, MD,* James Neal Weinstein, DO, MS,†
and Roberto Biagini, MD‡

WBB (Weinstein, Boriani, Biagini) Sınıflandırması, 1997

Enneking sınıflandırması, Clin Orthop 1980

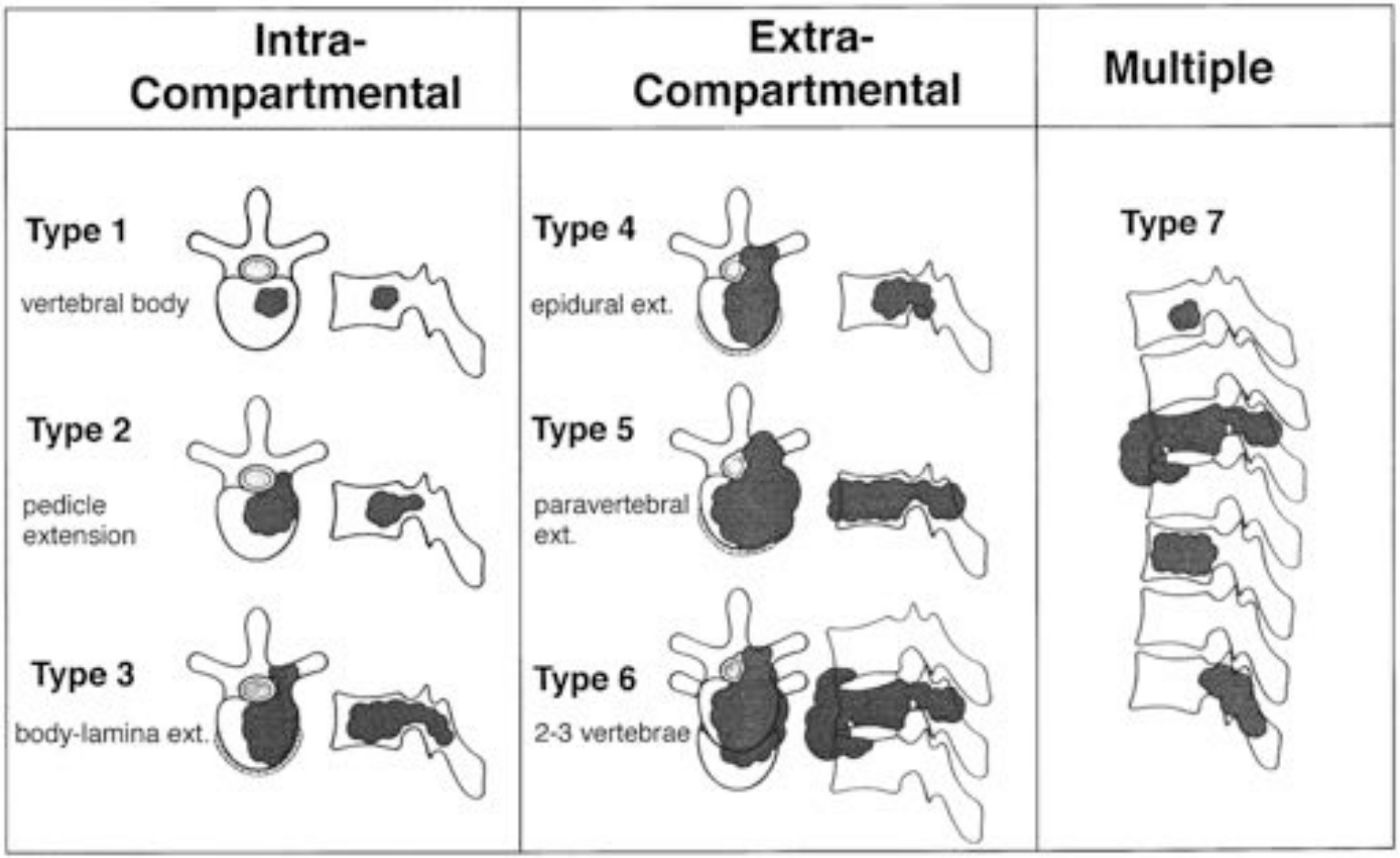


Anatomik Sınıflandırma;
Primer omurga tm. cerrahisinde geçerli, metastazlarda uygun değil

SPINE Volume 26, Number 3, pp 298–306

Surgical Strategy for Spinal Metastases

Katsuro Tomita, MD, PhD, Norio Kawahara, MD, PhD, Tadayoshi Kobayashi, MD,
Akira Yoshida, MD, Hideki Murakami, MD, and Tomoyuki Akamaru, MD



Anatomik Sınıflandırma;
Cerrahi seçimi ve prognoza katkısı ?

SPINE Volume 26, Number 3, pp 298–306

Surgical Strategy for Spinal Metastases

Katsuro Tomita, MD, PhD, Norio Kawahara, MD, PhD, Tadayoshi Kobayashi, MD,
Akira Yoshida, MD, Hideki Murakami, MD, and Tomoyuki Akamaru, MD

Scoring System			
Point	Prognostic factors		
	Primary tumor	Visceral mets.*	Bone mets.**
1	slow growth (breast, thyroid, etc.)		solitary or isolated
2	moderate growth (kidney, uterus, etc.)	treatable	multiple
4	rapid growth (lung, stomach, etc.)	un-treatable	

Prognostic Score	Treatment Goal	Surgical Strategy
2, 3	Long-term local control	Wide or Marginal excision
4, 5	Middle-term local control	Marginal or Intralesional excision
6, 7	Short-term palliation	Palliative surgery
8, 9, 10	Terminal care	Supportive care

★ No visceral mets. = 0 point. ★★ Bone mets. including spinal mets.

- Primer tümör histopatalojisi
- Vital organ metastazı
- Kemik metastazı

Total En Bloc Spondylectomy for Spinal Tumors: Surgical Techniques and Related Basic Background

Orthop Clin N Am 40 (2009) 47–63

Norio Kawahara, MD, Katsuro Tomita, MD*, Hideki Murakami, MD, Satoru Demura, MD

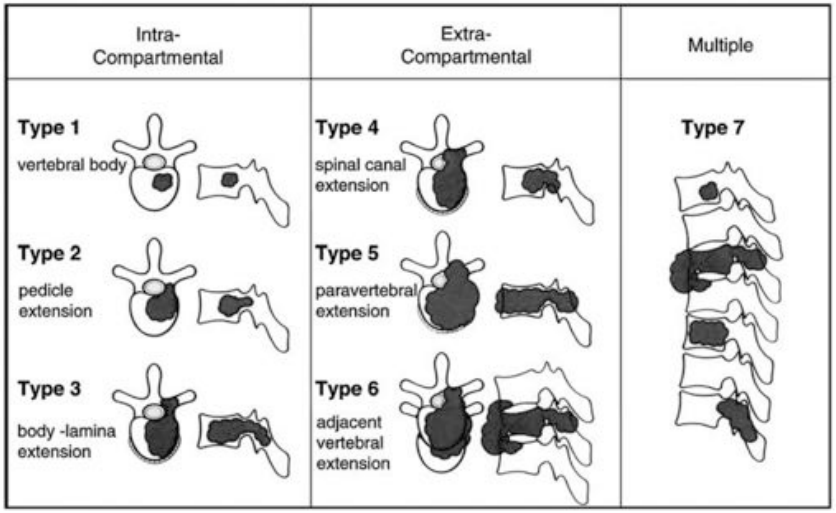


Table 5. Tomita Score (2001)[6, 32].

Prognostic factors	Points
Primary tumor	
Slow growth (breast, thyroid etc.)	1
Moderate growth (Kidney, uterus, etc.)	2
Rapid growth (Lung, stomach, etc.)	4
Visceral metastases	
Treatable	2
Untreatable	4
Bone metastases	
Solitary or isolated	1
Multiple	2

Total points	Predicted prognosis
2-4	>2 year
4-6	1-2 years
6-8	6-12 months
8-10	<3 months

Prognostic Scoring System

Factor / Point	Primary tumor	Mets. to vital organ	Bone mets.
1	slow growth	no met : 0	isolated
2	moderate growth	controllable	multiple
4	rapid growth	un-controllable	

Total P. Score	Life Expectancy	Treatment Aim	Surgery
2, 3, 4	2y <	Long-term local control	En bloc exc.
5, 6	1 - 2y	Middle-term local control	Debulking
7, 8	6 - 12m	Short-term palliation	Palliative decompression
9, 10	< 3m	Terminal care	No surgical treatment

Acta Orthop Scand 1995; 66 (2): 143–146

Survival after surgery for spinal and extremity metastases

Prognostication in 241 patients

Henrik C F Bauer and Rikard Wedin

Table 6. Original Baur Score (1995)[42].

Positive prognostic factors	Score (Points)
No visceral metastases	1
Absence of pathologic fracture	1
Solitary skeletal metastasis	1
No lung cancer	1
Primary tumor=breast, kidney, lymphoma, multiple myeloma	1

Total score (points)	1-year survival rate (%)
0-1	% (<6months survival)
2-3	25%
4-5	50%

Table 8. Modified Baur Score (2008)[44, 45].

Positive prognostic factors	Points
No visceral metastases	1
No lung cancer	1
Primary tumor=breast, kidney, lymphoma, multiple myeloma	1
One solitary skeletal metastasis	1

Total points	Median overall survival
0-1	4.8 months
2	18.2 months
3-4	28.4 months

- 153 ekstremite met.
- 88 spinal met.
- Yaşam süresi

Prediction of Survival in Patients with Metastases in the Spinal Column

Results Based on a Randomized Trial of Radiotherapy

Cancer 2005;103:320–8.

Yvette M. van der Linden, M.D.[1,2]
Sander P. D. S. Dijkstra, M.D., Ph.D.[3]
Ernest J. A. Vonk, M.D.[4]
Corrie A. M. Marijnen, M.D., Ph.D.[1]
Jan Willem H. Leer, M.D., Ph.D.[5]
for The Dutch Bone Metastasis Study Group

Table 7. Linden Score (2005)[43].

Prognostic factors	Points
Karnofsky performance status	
80-100	2
50-70	1
20-40	0
Primary tumor	
Breast	3
Prostate	2
Lung	1
Other	0
Visceral metastases	
No	1
Yes	0

Total points	Mean overall survival
0-3 (n=116)	4.8 months
4-5 (n=164)	13.1 months
6 (n=62)	18.3 months

Karnofsky performance status[13]

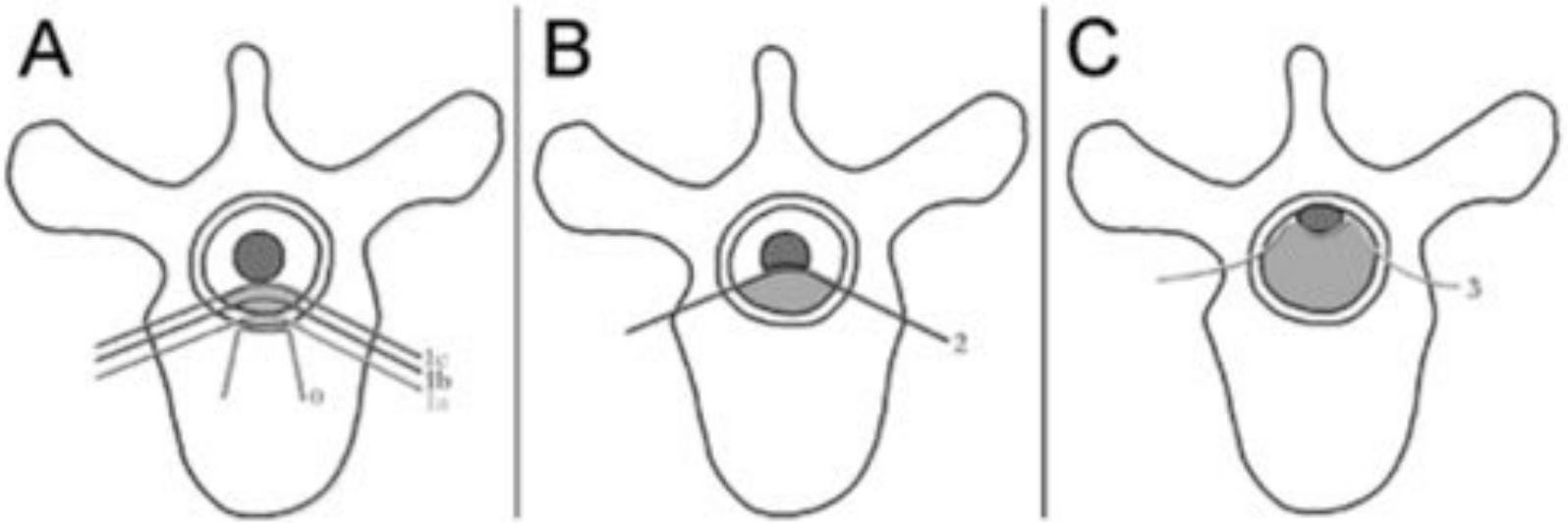
- 342 nörolojik defsitsiz spinal met.
- Radyoterapi ile tedavi
- %73 etkili

J Neurosurg Spine 13:324–328, 2010

Reliability analysis of the epidural spinal cord compression scale

Clinical article

Mark H. Bilsky, M.D.,[1,2] Ilya Laufer, M.D.,[2] Daryl R. Fourney, M.D., F.R.C.S.C.,[3] Michael Groff, M.D.,[4] Meic H. Schmidt, M.D.,[5] Peter Paul Varga, M.D.,[6] Frank D. Vrionis, M.D., M.P.H., Ph.D.,[7] Yoshiya Yamada, M.D.,[8] Peter C. Gerszten, M.D.,[9] and Timothy R. Kuklo, M.D., J.D.[10]



Anatomik Sınıflandırma;
MR'a dayalı 6 tip ESCC
(Epidural spinal cord compression)

[A scoring system for preoperative evaluation of the prognosis of metastatic spine tumor (a preliminary report)].

Tokuhashi Y, **Kawano H**, Ohsaka S, Matsuzaki H, Toriyama S.

Nihon Seikeigeka Gakkai Zasshi. 1989 May;63(5):482-9. Japanese.
PMID: 2794626

Scoring System for the Preoperative Evaluation of Metastatic Spine Tumor Prognosis

SPINE • VOLUME 15 • NUMBER 11 • 1990

YASUAKI TOKUHASHI, MD, HIROMI MATSUZAKI, MD, SADAYOSHI TORIYAMA, MD, HISASHI KAWANO, MD, and SHUNZO OHSAKA, MD

Tokuhashi Y, Matsuzaki H, Sasaki M, et al. Scoring system for the preoperative evaluation of metastatic spine tumor prognosis. *Rinsho Seikei Geka* 1997;32:512–22.

Tokuhashi Y, Matsuzaki H, Okawa A, et al. Indications of operative procedures for metastatic spine tumors: a scoring system for preoperative evaluation of prognosis. *J East Jpn Orthop Traumatol* 1999;11:31–5.

Table 3. Original Tokuhashi Score (1989, 1990)[11, 12].

Predictive Factor	Score (points)
General condition (KPS: Karnofsky's performance status)	
Poor (KPS 10-40%)	0
Moderate (KPS 50-70%)	1
Good (KPS 80-100%)	2
Number of extraspinal bone metastases foci	
≧3	0
1-2	1
0	2
Number of metastases in the vertebral body	
≧3	0
2	1
1	2
Metastases to the major internal organs	
Unremovable	0
Removable	1
No metastases	2
Primary site of the cancer	
Lung, stomach	0
Kidney, liver, uterus, others, unidentified	1
Thyroid, prostate, breast, rectum	2
Spinal cord palsy	
Complete	0
Incomplete	1
None	2

Total points	Mean survival periods
0-5	≧3 months
6-8	<12 months
9-12	≧12 months

KPS: Karnofsky performance status[13]

Prognostik Değerlendirme

SPINE Volume 30, Number 19, pp 2186–2191

A Revised Scoring System for Preoperative Evaluation of Metastatic Spine Tumor Prognosis

Yasuaki Tokuhashi, MD,* Hiromi Matsuzaki, MD,† Hiroshi Oda, MD,* Masashi Oshima, MD,* and Junnosuke Ryu, MD*

Table 4. Revised Tokuhashi Score (2005)[14].

Predictive factor	Score (points)
General condition (KPS: Karnofsky's performance status)	
Poor (KPS 10-40%)	0
Moderate (KPS 50-70%)	1
Good (KPS 80-100%)	2
Number of extraspinal bone metastases foci	
≧3	0
1-2	1
0	2
Number of metastases in the vertebral body	
≧3	0
2	1
1	2
Metastases to the major internal organs	
Unremovable	0
Removable	1
No metastases	2
Primary site of the cancer	
Lung, osteosarcoma, stomach, bladder, esophagus, pancreas	0
Liver, gallbladder, unidentified	1
Others	2
Kidney, uterus	3
Rectum	4
Thyroid, prostate, breast, carcinoid tumor	5
Spinal cord palsy	
Complete (Frankel A, B)	0
Incomplete (Frankel C, D)	1
None (Frankel E)	2

Total points	Predicted prognosis
0-8	<6 months
9-11	≧6 months
12-15	≧1 year

KPS: Karnofsky performance status[13]

Table 3. Original Tokuhashi Score (1989, 1990)[11, 12].

Predictive Factor	Score (points)
General condition (KPS: Karnofsky's performance status)	
Poor (KPS 10-40%)	0
Moderate (KPS 50-70%)	1
Good (KPS 80-100%)	2
Number of extraspinal bone metastases foci	
≧3	0
1-2	1
0	2
Number of metastases in the vertebral body	
≧3	0
2	1
1	2
Metastases to the major internal organs	
Unremovable	0
Removable	1
No metastases	2
Primary site of the cancer	
Lung, stomach	0
Kidney, liver, uterus, others, unidentified	1
Thyroid, prostate, breast, rectum	2
Spinal cord palsy	
Complete	0
Incomplete	1
None	2

Total points	Mean survival periods
0-5	≧3 months
6-8	<12 months
9-12	≧12 months

KPS: Karnofsky performance status[13]

Table 4. Revised Tokuhashi Score (2005)[14].

Predictive factor	Score (points)
General condition (KPS: Karnofsky's performance status)	
Poor (KPS 10-40%)	0
Moderate (KPS 50-70%)	1
Good (KPS 80-100%)	2
Number of extraspinal bone metastases foci	
≧3	0
1-2	1
0	2
Number of metastases in the vertebral body	
≧3	0
2	1
1	2
Metastases to the major internal organs	
Unremovable	0
Removable	1
No metastases	2
Primary site of the cancer	
Lung, osteosarcoma, stomach, bladder, esophagus, pancreas	0
Liver, gallbladder, unidentified	1
Others	2
Kidney, uterus	3
Rectum	4
Thyroid, prostate, breast, carcinoid tumor	5
Spinal cord palsy	
Complete (Frankel A, B)	0
Incomplete (Frankel C, D)	1
None (Frankel E)	2

Total points	Predicted prognosis
0-8	<6 months
9-11	≧6 months
12-15	≧1 year

KPS: Karnofsky performance status[13]

Tokuhashi Skor (Revize), 2005

- Genel durum (KPS)
  - Kötü (KPS %10-40) 0
  - Orta (KPS %50-70) 1
  - İyi (KPS %80-100) 2
- Omurga dışı kemik met. sayısı
  - ≥3 0
  - 1-2 1
  - 0 2
- Omurga kemik met. sayısı
  - ≥3 0
  - 1-2 1
  - 0 2

Tokuhashi Skor (Revize)

- Major iç organ met. durumu
  - Rezeksiyon yapılamaz 0
  - Rezeksiyon yapılabilir 1
  - Metastaz yok 2

- Primer kanser yeri
  - Akciğer, osteosarkom, mide, mesane, özafagus, pankreas 0
  - Karaciger, safra kesesi, belirsiz 1
  - Diğer 2
  - Böbrek, uterus 3
  - Rektum 4
  - Tiroid, prostat, meme, karsinoid tm 5

Tokuhashi Skor (Revize)

- Omurilik basısı
  - Tam (Frankel A, B) 0
  - Kısmi (Frankel C, D) 1
  - Yok (Frankel E) 2

Total puan	Ortalama yaşam süresi
0-8	< 6 ay
9-11	≥ 6 ay
12-15	≥ 12 ay

Spine

SPINE Volume 36, Number 11, pp 910–917

HEALTH SERVICES RESEARCH

A Prospective Analysis of Prognostic Factors in Patients With Spinal Metastases

Use of the Revised Tokuhashi Score

Takayuki Yamashita, MD,* Krzysztof B. Siemionow, MD,* Thomas E. Mroz, MD,†
Vinod Podichetty, MD,‡ and Isador H. Lieberman, MD, MBA, FRCSC‡

- 85 hastanın 67'sinde
- Sonuç prognoz ile uyumlu (%79)

- Primer lezyonu böbrek olan hastaların prognozu daha kötü seyrediyor, puanı yüksek !

Spine

SPINE Volume 36, Number 12, pp 983–989
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HEALTH SERVICES RESEARCH

Actual and Predicted Survival Time of Patients With Spinal Metastases of Lung Cancer

Evaluation of the Robustness of the Tokuhashi Score

Christian Hessler, MD,* Eik Vettorazzi, MSc,† Juergen Madert, MD,‡ Carsten Bokemeyer, MD,§ and Jens Panse, MD†

- 76 hastanın 51'inde
- Sonuç prognoz ile uyumlu (%67.1)

- İleri tedavi yöntemleri ile yaşam süresi uzaması
- 50 yaş altı akciğer ca., lomber met. hastalarında yaşam süresi 1 yıldan fazla olabiliyor

Eur Spine J (2013) 22 (Suppl 1):S21–S26
DOI 10.1007/s00586-012-2649-5

ORIGINAL ARTICLE

Accuracy of the revised Tokuhashi score in predicting survival in patients with metastatic spinal cord compression (MSCC)

N. A. Quraishi · S. R. Manoharan · G. Arealis · A. Khurana · S. Elsayed · K. L. Edwards · B. M. Boszczyk

Tokuhashi skora göre gerçek ve öngörülen yaşam süresi uyumu;

- Grup I (0-8), 84 hasta %64 uyumlu
- Grup II (9-11), 83 hasta %64 uyumlu
- Grup III (12-15), 34 hasta %69 uyumlu

Spine

SPINE Volume 37, Number 7, pp 573–582

CLINICAL CASE SERIES

Predictive Value of Tokuhashi Scoring Systems in Spinal Metastases, Focusing on Various Primary Tumor Groups

Evaluation of 448 Patients in the Aarhus Spinal Metastases Database

Miao Wang, MD,* Cody Eric Bünger, MD, DMSc,* Haisheng Li, MD,* Chunsen Wu, MD,† Kristian Høy, MD,* Bent Niedermann, MD,* Peter Helmig, MD,* Yu Wang, MD,* Anders Bonde Jensen, MD,‡ Katrin Schättiger, MD,* and Ebbe Stender Hansen, MD, DMSc*

- 448 hastada
- T12 ve T15 karşılaştırıldığında sonuç prognoz uyumu istatistiksel olarak yüksek, (T15>T12)

Tahmin oranı;

- T12 ve T15 prostat ve meme ca. YÜKSEK
- T12 kolon ca. YÜKSEK
- T12 ve T15 akciğer ve böbrek ca. DÜŞÜK

Eur Spine J (2008) 17:1488–1495
DOI 10.1007/s00586-008-0763-1

ORIGINAL ARTICLE

Predictive value of seven preoperative prognostic scoring systems for spinal metastases

Andreas Leithner · Roman Radl · Gerald Gruber · Markus Hochegger · Katharina Leithner · Heike Welkerling · Peter Rehak · Reinhard Windhager

Spine

SPINE Volume 36, Number 23, pp 1977–1986

HEALTH SERVICES RESEARCH

Survival Analysis of 254 Patients After Manifestation of Spinal Metastases

Evaluation of Seven Preoperative Scoring Systems

Christine Wibmer, MD,* Andreas Leithner, MD,* Günter Hofmann, MD,† Heimo Clar, MD,* Magdalena Kapitan, MSc,‡ Andrea Berghold, PhD,‡ and Reinhard Windhager, MD§

- Bauer, modifiye Bauer, Takuhashi, Takuhashi revize, Tomita, van der Linden, Sioutos
- Bauer, modifiye Bauer yaşam süresini tahminde etkin

SPINE Volume 35, Number 23, pp E1339–E1346

Preoperative Scoring Systems and Prognostic Factors for Patients With Spinal Metastases From Hepatocellular Carcinoma

Huajiang Chen, MD, Jianru Xiao, MD, Xinghai Yang, MD, Feng Zhang, MD, and Wen Yuan, MD

- Bauer,Tomita, Takuhashi, Takuhashi revize, Tomita, van der Linden,
- Takuhashi revize yaşam süresini tahminde etkin

Validation and Simplification of a Score Predicting Survival in Patients Irradiated for Metastatic Spinal Cord Compression

Cancer August 1, 2010

Dirk Rades, MD[1]; Sarah Douglas, MD[1]; Theo Veninga, MD[2]; Lukas J.A. Stalpers, MD[3]; Peter J. Hoskin, MD[4]; Amira Bajrovic, MD[5]; Irenaeus A. Adamietz, MD[6]; Hiba Basic, MD[7]; Juergen Dunst, MD[1]; and Steven E. Schild, MD[8]

Table 9. Rades Score (2008)[48] and Outcome (2010)[49].

Prognostic factor	Score (points)
Type of primary tumor	
Breast cancer	8
Prostate cancer	7
Myeloma/lymphoma	9
Lung cancer	3
Other tumors	4
Other bone metastases at the time of RT	
Yes	5
No	7
Visceral metastases at the time of RT	
Yes	2
No	8
Interval from tumor diagnosis to MSCC	
≤15 months	4
>15 months	7
Ambulatory status before RT	
Ambulatory	7
Nonambulatory	3
Time of developing motor deficits before RT	
1-7 days	3
8-14 days	6
>14 days	8

Total score	6-month survival
20-30 (n=237)	16%
31-35 (n=162)	48%
36-46 (n=253)	81%

RT, Radiation therapy; MSCC, Metastatic spinal cord compression

Radyoterapi tedavisi yapılan spinal kord basısı olan spinal met.'li hastaların

- 1852 retrospektif
- 439 prospektif

Cancer Medicine

Open Access

ORIGINAL RESEARCH

Cancer Medicine, 2014; 3(5): 1359–1367

New prognostic factors and scoring system for patients with skeletal metastasis

Hirohisa Katagiri[1], Rieko Okada[2], Tatsuya Takagi[1], Mitsuru Takahashi[1], Hideki Murata[1], Hideyuki Harada[3], Tetsuo Nishimura[3], Hirofumi Asakura[3] & Hirofumi Ogawa[3]

Table 10. Katagiri New Score (2014)[54].

Prognostic factor	Score
Primary lesion	
Slow growth (Hormone-dependent breast and prostate cancer, thyroid cancer, multiple myeloma, and malignant lymphoma)	0
Moderate growth (Lung cancer treated with molecularly targeted drugs, hormone-independent breast and prostate cancer, renal cell carcinoma, endometrial and ovarian cancer, sarcoma, and others)	2
Rapid growth (Lung cancer treated without molecularly targeted drugs, colorectal cancer, gastric cancer, pancreatic cancer, head and neck cancer, esophageal cancer, other urological cancers, melanoma, hepatocellular carcinoma, gallbladder cancer, cervical cancer and cancers of unknown origin)	3
Visceral metastases	
Nodular visceral or cerebral metastasis	1
Disseminated metastases*	2
Laboratory data	
Abnormal**	1
Critical***	2
ECOG PS 3 or 4	1
Previous chemotherapy	1
Multiple skeletal metastases	1

EOG: Eastern Cooperative Oncology Group

* Disseminated metastasis: Pleural, peritoneal, or leptomeningeal dissemination

** Abnormal: CRP ≥0.4 mg/dL, LDH ≥250 IU/L, or serum albumin <3.7 g/dL

*** Critical: platelet <100,000/μL, serum calcium ≥10.3 mg/dL, or total bilirubin ≥1.4 mg/dL

- Hormon bağımlı/bağımsız
- Moleküler işaretlenmiş ilaç duyarlı/duyarsız
- Laboratuvar bulguları

Eur Spine J
DOI 10.1007/s00586-015-4290-6

ORIGINAL ARTICLE

A validated preoperative score predicting survival and functional outcome in lung cancer patients operated with posterior decompression and stabilization for metastatic spinal cord compression

Mingxing Lei[1] · Yaosheng Liu[1] · Liang Yan[2] · Chuanghao Tang[3] · Shaoxing Yang[3] · Shubin Liu[1]

Table 13. Lei Score for Patients with MSCC after Surgical Decompression and Spine Stabilization and Outcomes (2016)[64].

Prognostic Factor	Scores (points)
Primary site	
Slow growth	2
Moderate growth	1
Rapid growth	0
Preoperative ambulatory status	
Ambulatory	2
Not Ambulatory	0
Visceral metastases	
No	3
Yes	0
Preoperative chemotherapy	
No	0
Yes	2
Bone metastasis at cancer diagnosis	
No	1
Yes	0

Total points	6 months survival
0-2 (n=42)	8.2%
3-5 (n=90)	56.5%
6-10 (n=74)	91.5%

MSCC: Metastatic spinal cord compression

Slow growth: Hormone-dependent breast and prostate cancer, thyroid cancer, multiple myeloma, and malignant lymphoma

Moderate growth: Lung cancer treated with molecularly targeted drugs, hormone-independent breast and prostate cancer, renal cell carcinoma, endometrial and ovarian cancer, sarcoma, and others

Rapid growth: Lung cancer treated without molecularly targeted drugs, colorectal cancer, gastric cancer, pancreatic cancer, head and neck cancer, esophageal cancer, other urological cancers, melanoma, hepatocellular carcinoma, gallbladder cancer, cervical cancer, and cancers of unknown origin

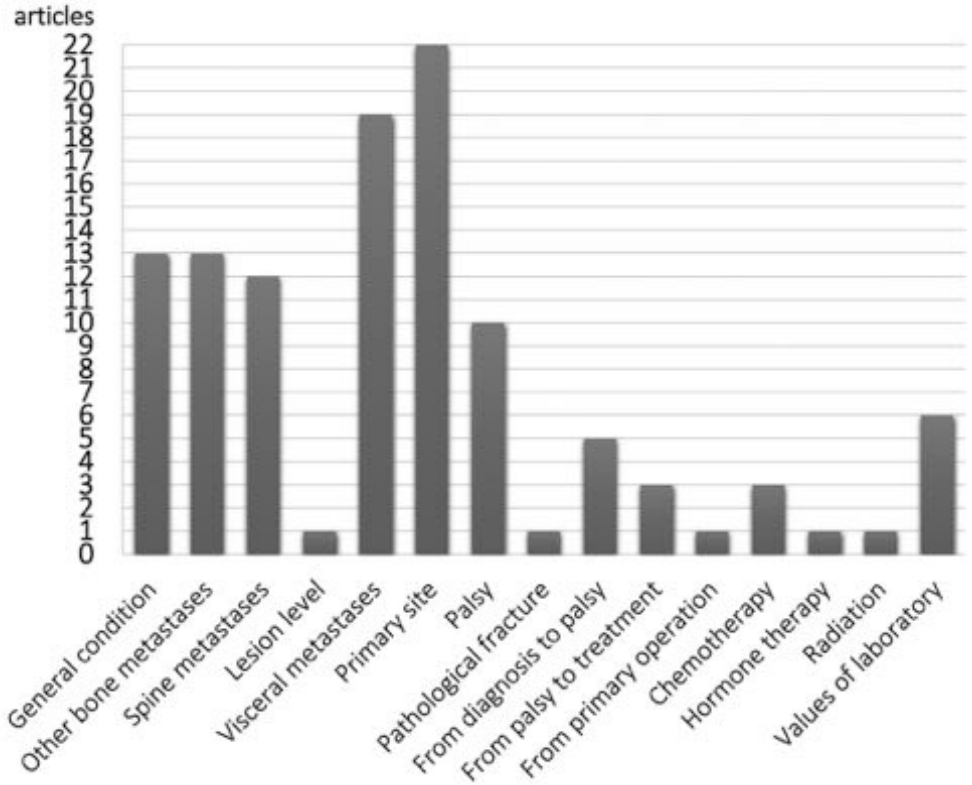
REVIEW ARTICLE — SPINE SURGERY AND RELATED RESEARCH

Classification and scoring systems for metastatic spine tumors: a literature review

Spine Surg Relat Res 2017; 1(2): 44-55

Yasuaki Tokuhashi, Hiroshi Uei and Masashi Oshima

Department of Orthopedic Surgery, Nihon University School of Medicine, Japan



22 skorlama karılaştırıldığında;

1. Primer odak
2. Major organ met.
3. Genel durum (KPS)
4. Kemik met. sayısı

Son Söz

- Tomita sınıflandırması ve Takuhashi skorlaması halen en sık kullanılanlar
- Hiçbir sınıflandırmanın hassasiyeti %90 ve üzerinde değil
- Yeni tedavi seçeneklerinin sınıflandırma/skora eklenmesi
  - Bifosfonatlar
  - Anti-reseptör aktivatör kappa-B ligand (RANKL)
  - Kemik modifikasyon ajanları (BMA)
  - Anti-vaskuler endotelyal growth faktör (VEGF)
- Primer organ'a yönelik sınıflandırma ?
  - Akciğer (moleküler işaretlenmiş ilaç duyarlı/ duyarsız)
  - Meme (Hormon bağımlı/bağımsız)
  - Prostat (Hormon bağımlı/bağımsız)
  - …….

Konuşmanın slaytları

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