

Metastatik Kemik Tümörleri

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Metastatik Kemik Tümörleri

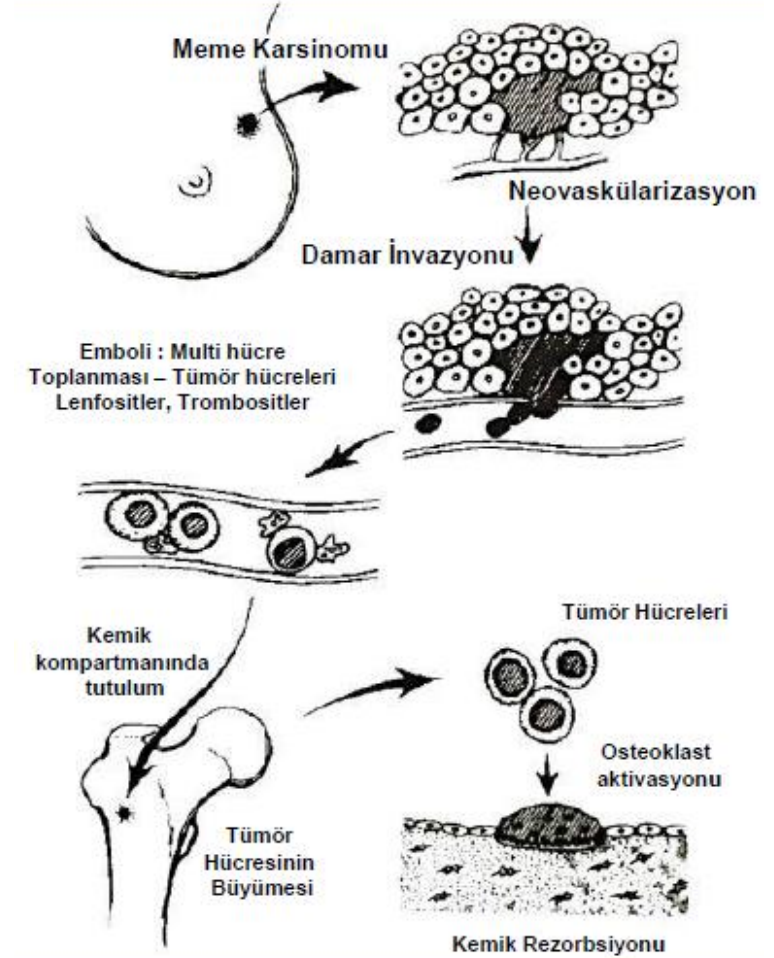
- >40yaş
- Ac ve Kc'den sonra 3.bölge
- Kanser hikayesi olanların yaklaşık yarısında
- En sık: Meme, Prostat, Ac, Böbrek ve Tiroid

Metastatik Kemik Tümörleri

- İki ana hipotez
 - Paget'in **"seed and soil"**
 - Ewing'in **"circulation theory"** (Batson plexus)

Kemik rezorpsiyonu

- Mediatörler (TNF, TGF-B IL2/6/, PTHrP,)
- RANKL sekresyonu
- Osteoklast aktivasyonu



>40 yaş olan hastada destrüktif kemik lezyonu

- **Metastatik kemik tümörü**
- **Multipl Myelom**
- Lenfoma
- Primer kemik tümörü (kondrosarkom, osteosarkom, indferansiye pleomorfik sarkom, kordoma)
- Postradyasyon/Paget sarkomu
- Dev hücreli tümör
- Hiperparatroidizm
- Osteomiyelit

>40 yaş olan hastada destrüktif kemik lezyonu

- **Anamnez:** Kanser hikayesi, GİS kanama, sigara öyküsü, kilo kaybı sorgulanmalı
- **Fizik muayene:** Meme, Ac, Prostat, Tiroid ve Lenf nodları üzerine yoğunlaşılmalı
- **Laboratuvar:** Ca, ALP, Tm spesifik marker (PSA,CEA,CA 125/19-9/15-3,AFP), Serum/İdrar elektroforez, TİT, TFT, Tam kan, Sed, CRP, PTH

>40 yaş olan hastada destrüktif kemik lezyonu

- Tutulan kemiğin tamamını içerecek iki yönlü grafi
- Ac, abdomen ve pelvis BT
- Tüm vucüt kemik sintigrafisi (MM ve RCC'de negatif olabilir)

Metastatik Kemik Tümörleri-Radyoloji

- **Görünüm**

- Osteolitik: Ac, Tiroid, RCC, GİS

- Osteoblastik: Prostat

- Miks: Meme

Metastatik Kemik Tümörleri-Radyoloji

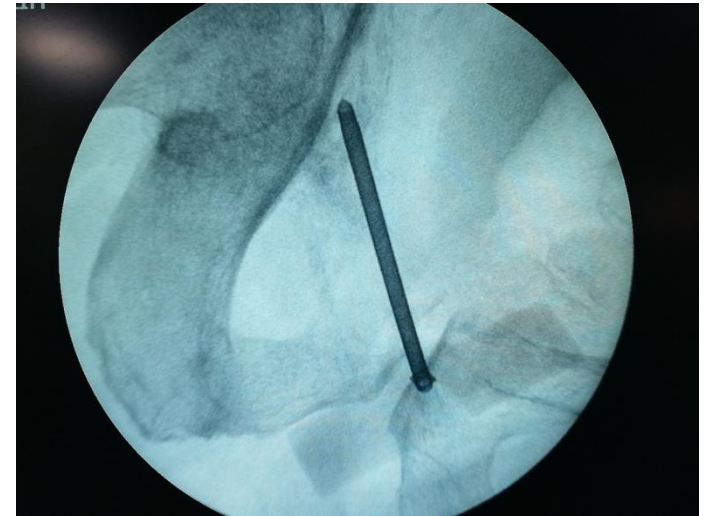
- **En sık lokalizasyon**

- Omurga (disk korunur, pedikül destrüksiyonu olabilir):
“Winking owl”
- Pelvis
- Proksimal femur
- ✓ Diz/Dirsek distali (Akral metastaz): Ac?

Metastatik Kemik Tümörleri

- **Bilinen kanser hikayesi olan hastada:**
 - Ekstremitte ağrısı var fakat direk grafi normal ise MRI ve Sintigrafi iste
 - Tek kemik lezyonu varsa biyopsi yap
 - Multipl kemik lezyonları varsa biyopsiye gerek yok

Primeri Bilinmeyen Metastaz-Biyopsi



Metastatik Kemik Tümörleri

- **Konservatif Tedavi**

- Brace

- Bifosfonat/Denosumab

- RT (30Gy, 10 fraksiyonda)

Metastatik Kemik Tümörleri

- **Cerrahi:** Nadiren gerekir
- Minimal invaziv (RFA)
- Kifoplasti/Vertebroplasti
- Açık cerrahi
- Amaç
- Ağrıyı hafifletmek
- Stabilitiyi sağlamak
- Fonksiyonu yeniden kazanmak

Metastatik Kemik Tümörleri

- Cerrahi tedavinin tek mutlak endikasyonu ambule durumdaki bir hastada oluşmuş **deplase patolojik kırıktır.**
- Profilaktik cerrahi: Beklenen yaşam süresi
 - Alt extremité lezyonlarında **6 hafta,**
 - Üst ekstremité lezyonlarında **3 aydan** fazla ise yapılmalıdır

Metastatik Kemik Tümörleri

Primer Hastalık	Tanı konduktan sonra sintigrafide spinal met. ortaya çıkma süresi	6 ay sağkalım	1 yıl sağkalım	3 yıl sağkalım
Meme Ca.	29.4 ay (+/- 33.5)	%89	%78	%48
Prostat Ca.	12.8 ay (+/- 19.8)	%98	%83	%57
Akciğer Ca.	3.6 ay (+/- 6/1)	%50	%22	%3
Böbrek Ca.	13.9 ay (+/- 21.5)	%51	%51	%40
Mide Ca.	6.9 ay (+/- 1.1)	%15.3	0	0

Metastatik Kemik Tümörleri

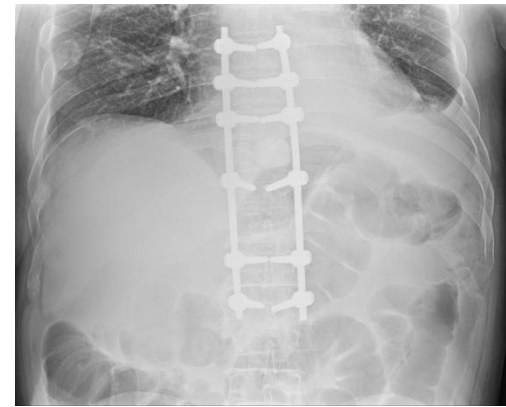
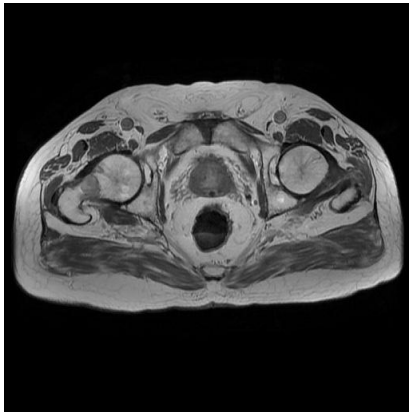
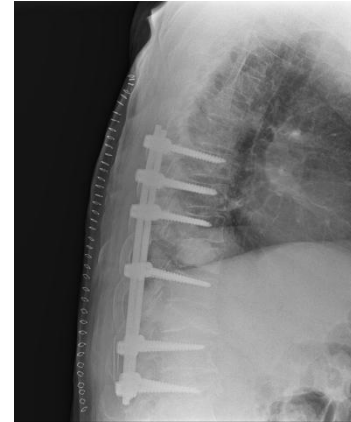
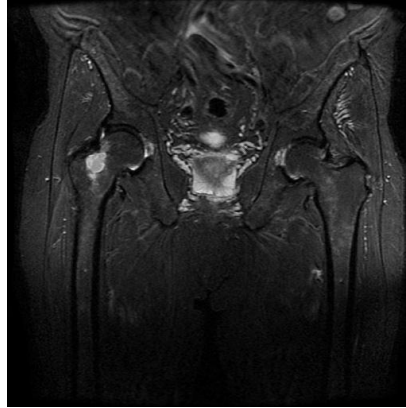
- Patolojik kırık:
 - Mirels ≥ 9 ise %33 kırık riski

Mirel's criteria score > 8 suggests prophylactic fixation			
Score	1	2	3
Site	upper limb	lower limb	peritrochanteric
Pain	mild	moderate	functional
Lesion	blastic	mixed	lytic
Size	< 1/3	1/3 to 2/3	> 2/3

Metastatik Kemik Tümörleri-Tedavi

- **Epifiz:** Protez
- **Metafiz:** İntralezyonel küretaj+ Sementaj+ Fiksasyon (Plak/Çivi), Protez
- **Diafiz:** İm çivi/İnterkalar Protez

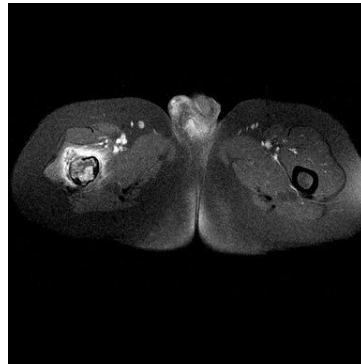
Ac Ca Multipl Metastaz



Ac Ca Metastaz

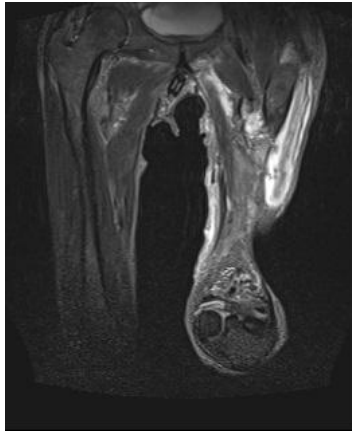


Ac Ca Proksimal Femur Metastazı

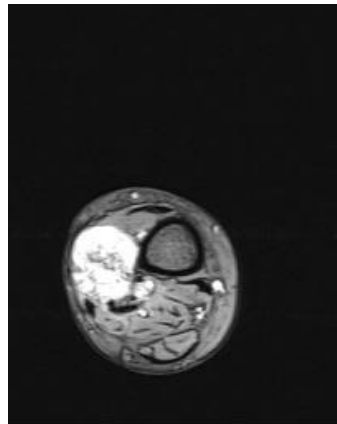
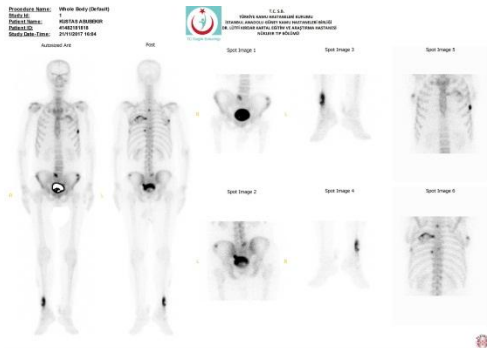


Akc (Adenokarsinom) Metastazı

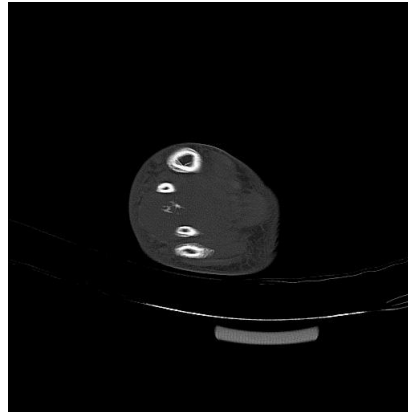
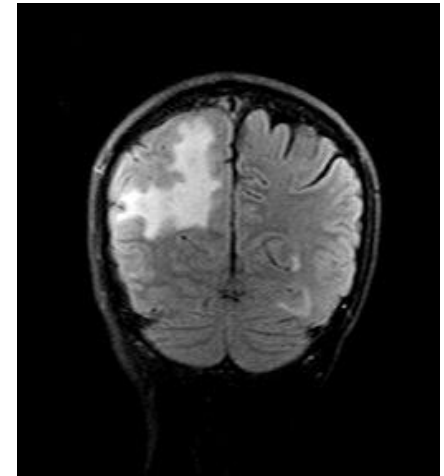
Patolojik Distal Femur+ Proksimal Tibia Fraktürü



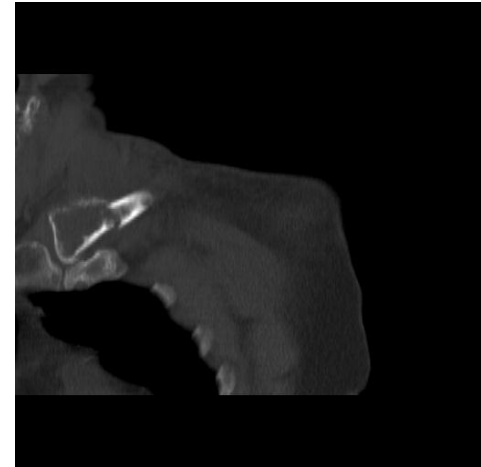
Ac Ca Metastazı



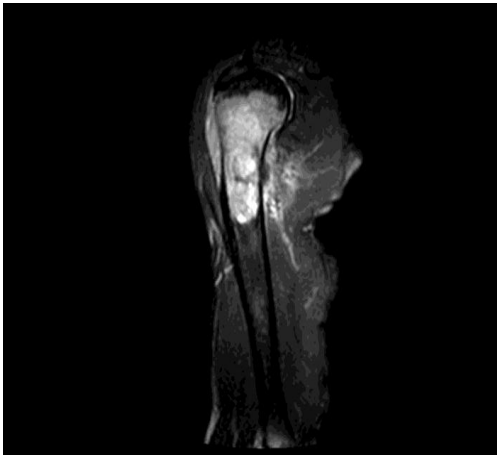
Ac Ca Multipl Metastaz



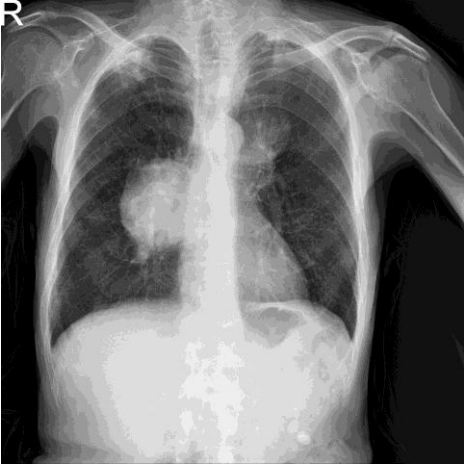
Klavikula Patolojik Fraktür (Ac Ca Metastazı)



Ac Ca Proksimal Humerus Metastazı

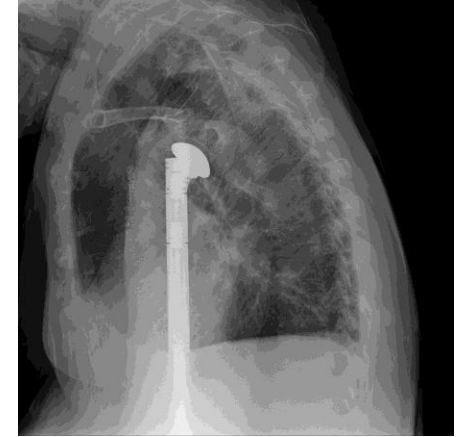
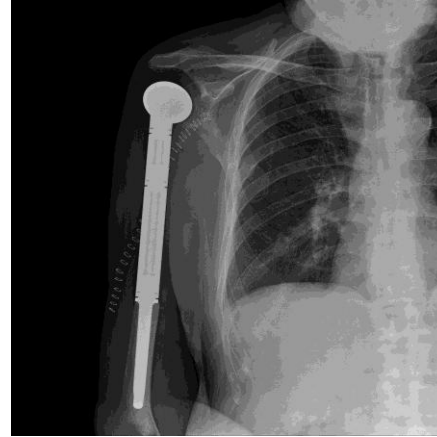
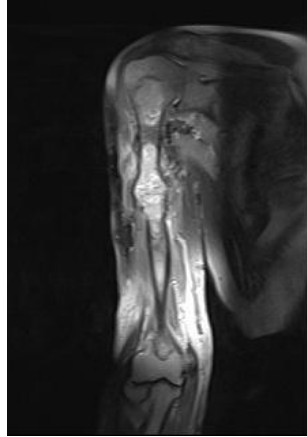


Ac Ca Distal Humerus Metastazı

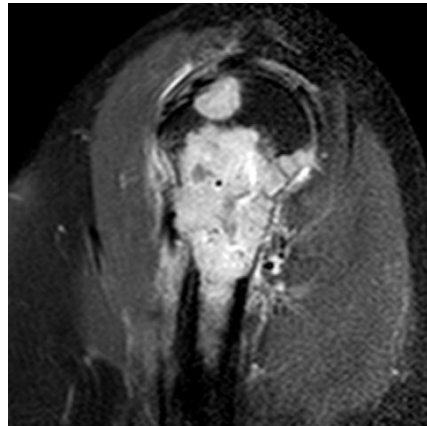
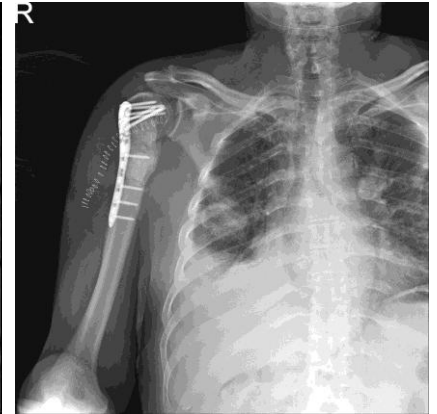
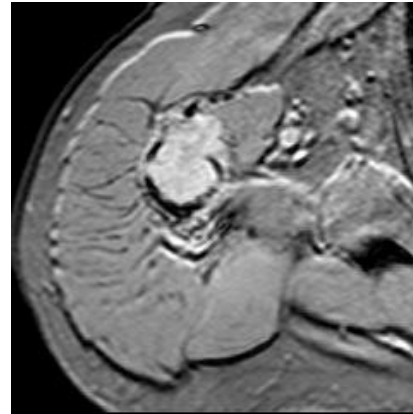
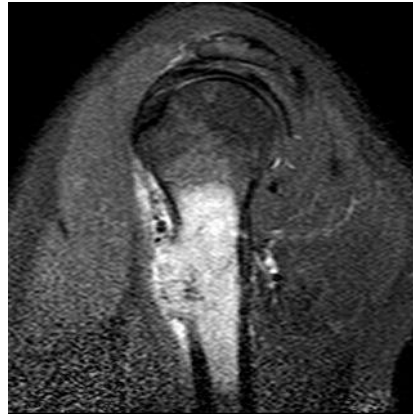


RCC Proksimal Humerus Metastazi

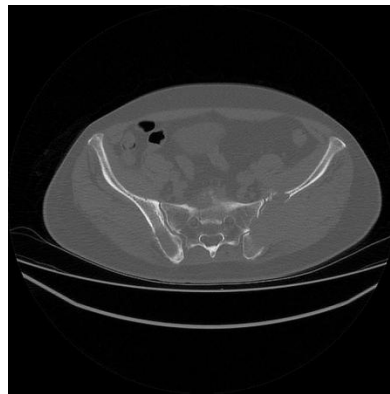
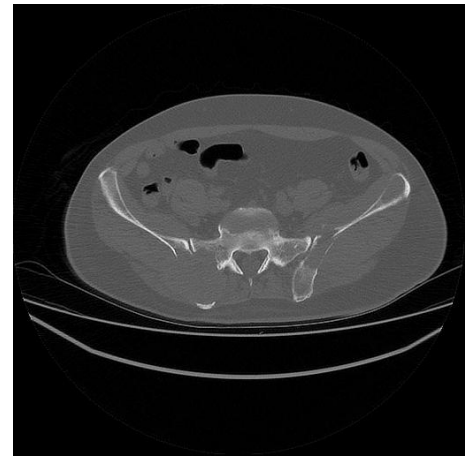
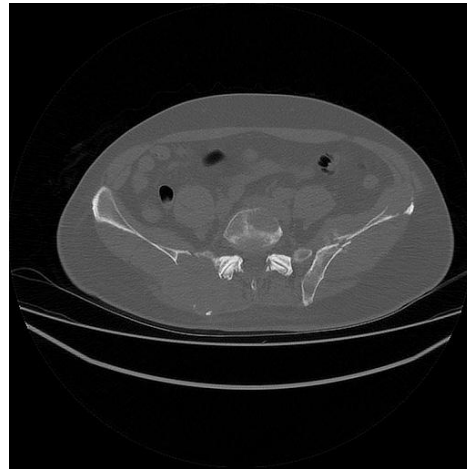
Patolojik Fraktür



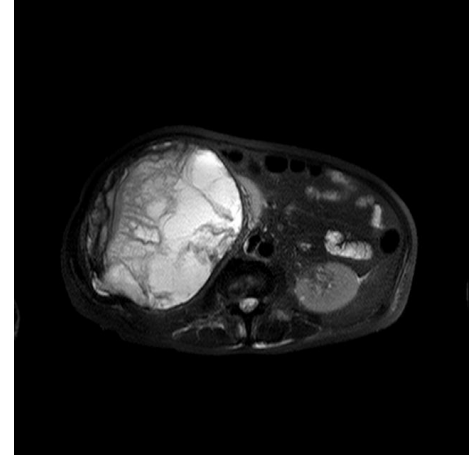
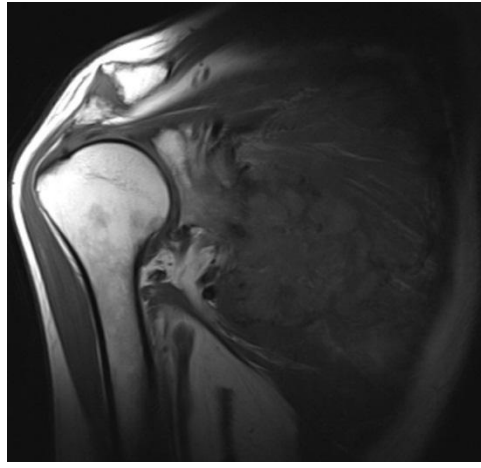
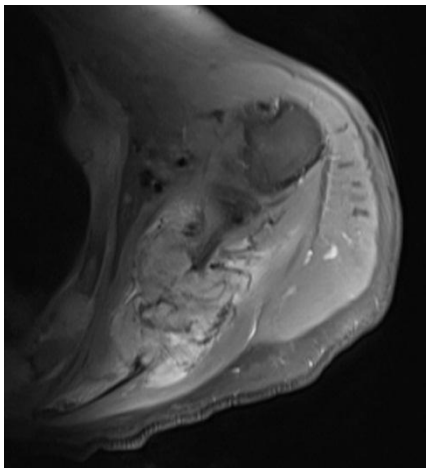
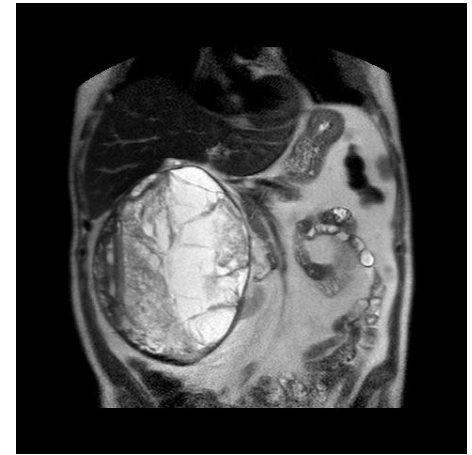
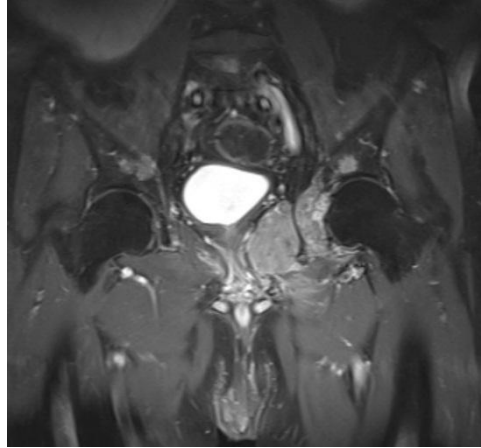
RCC Multipl Metastaz (1)



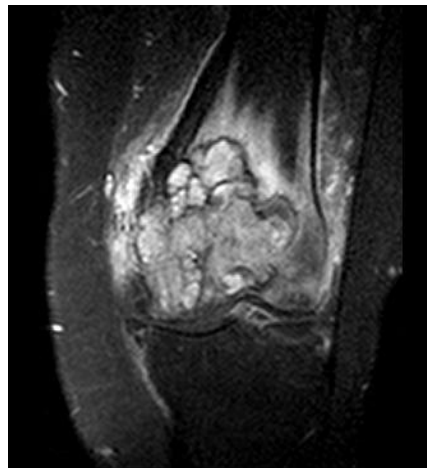
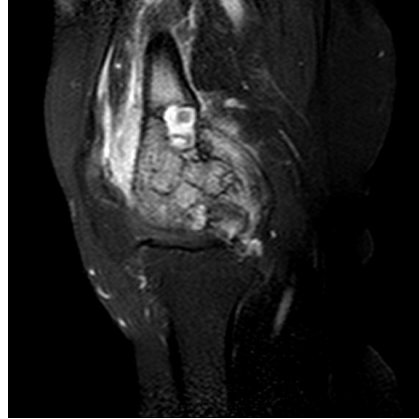
RCC Multipl Metastaz (2)



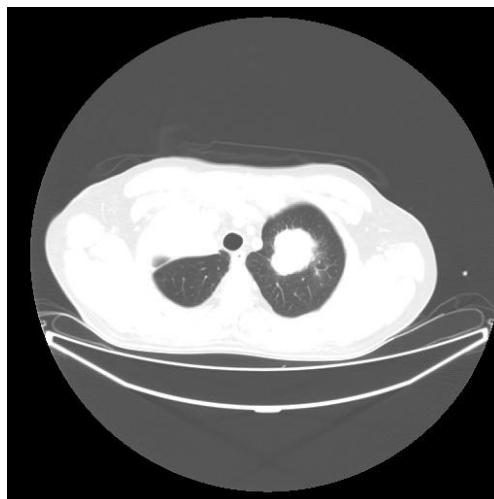
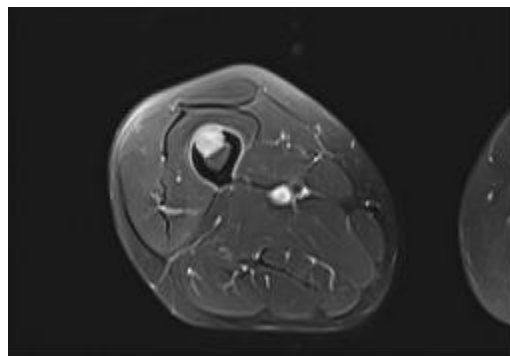
RCC Multipl Metastaz



RCC Metastazi

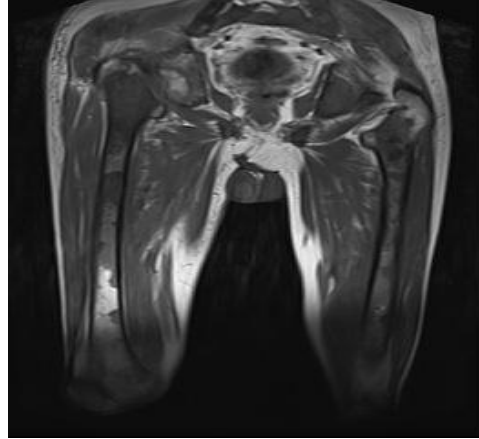
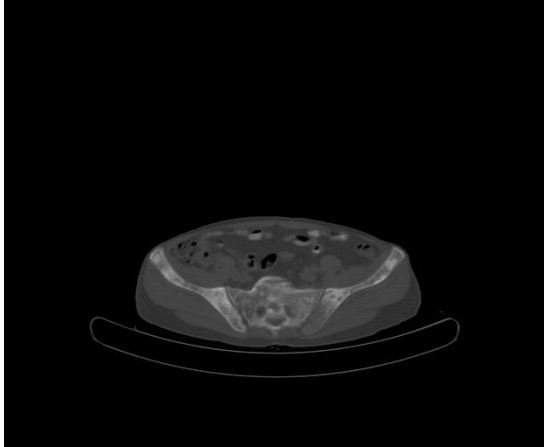
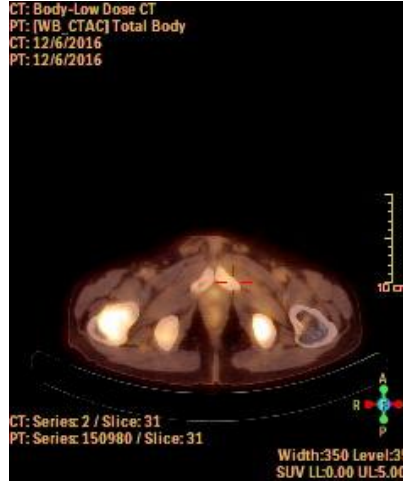


RCC Femur Diafiz Metastazı

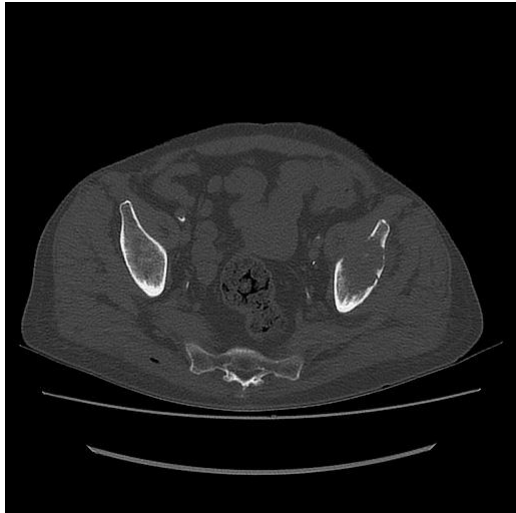


Prosta Ca Metastazı

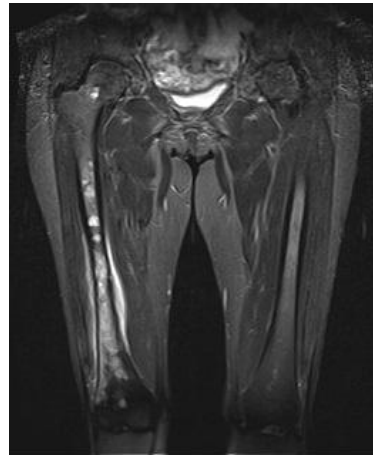
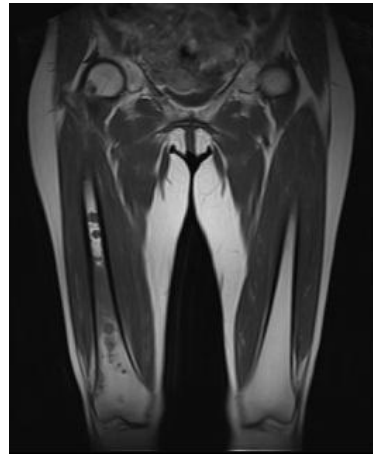
Patolojik Femur Boyun Fraktürü



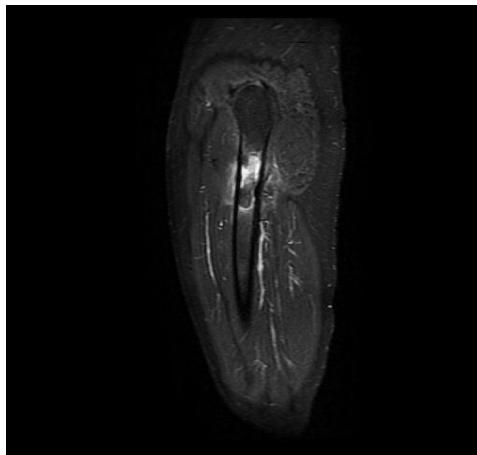
Prostat (Adenokarsinom) Asetabulum Metastaz



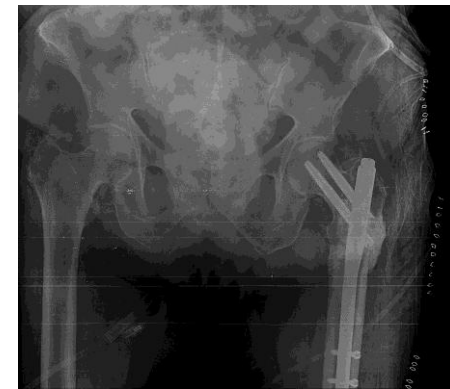
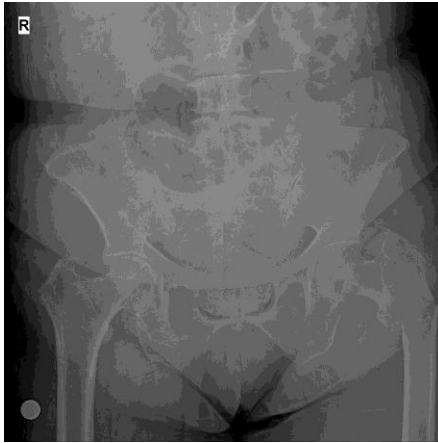
Meme Ca Femur Metastazi



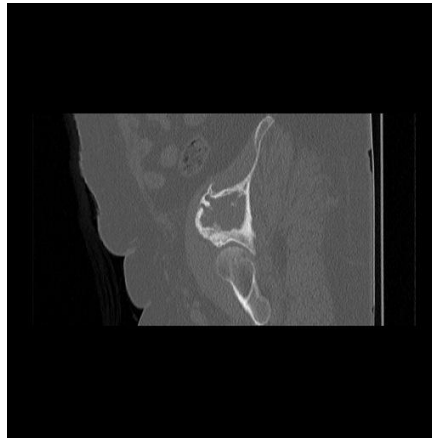
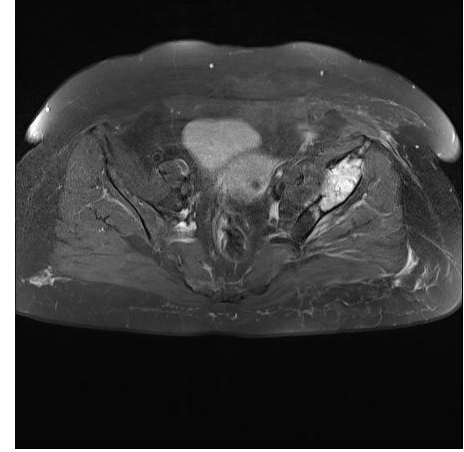
Meme Ca Proksimal Femur Patolojik Fraktür



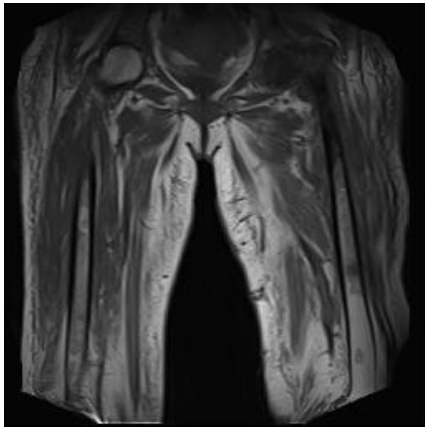
Meme Ca Proksimal Femur Patolojik Fraktürü



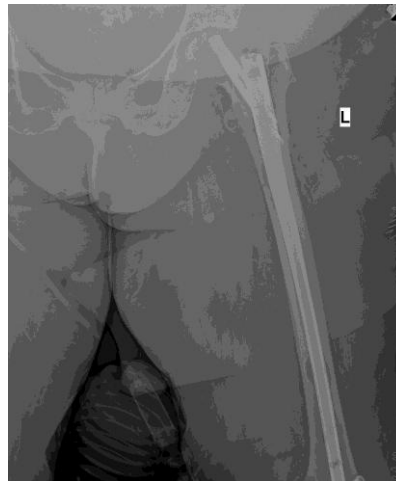
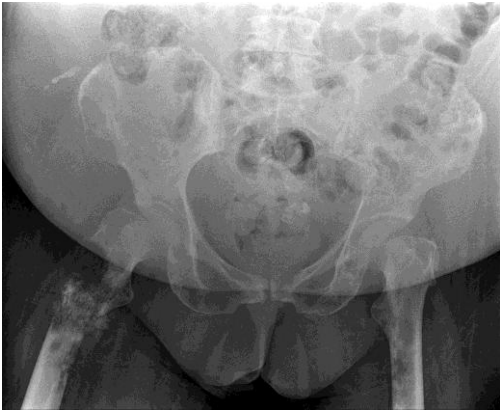
Meme Ca İliak Kanat Metastazı



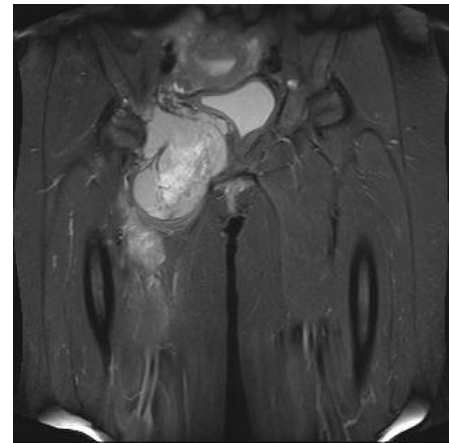
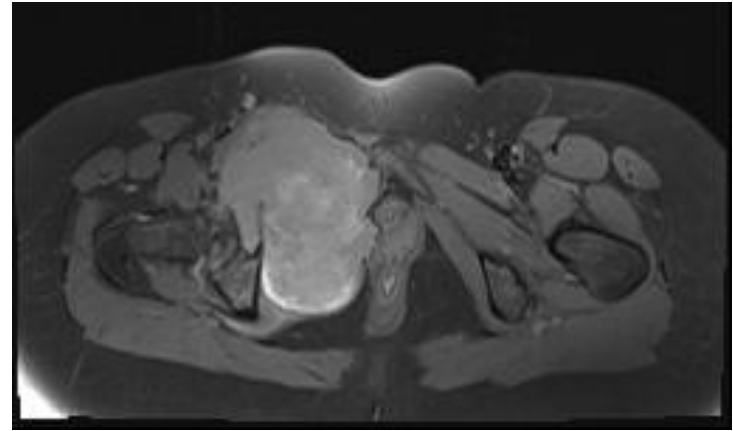
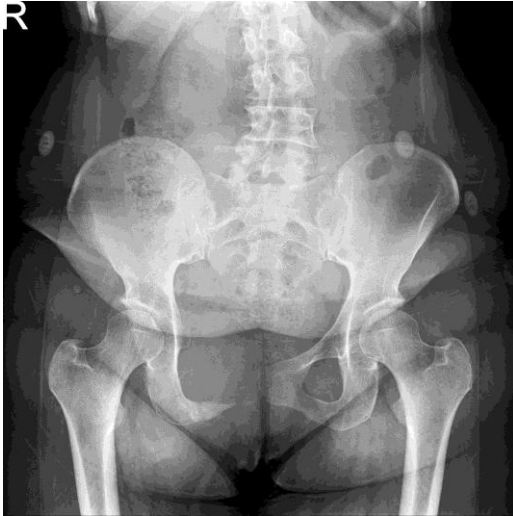
Meme Ca Multipl Metastaz



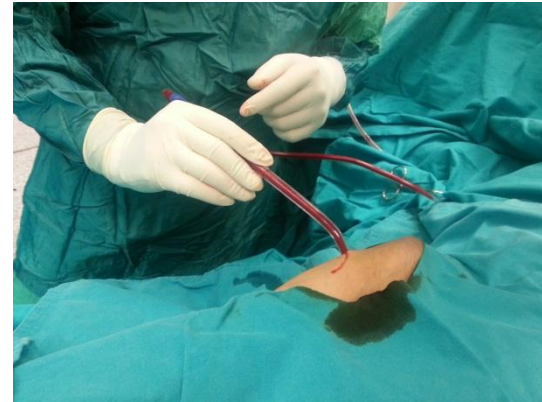
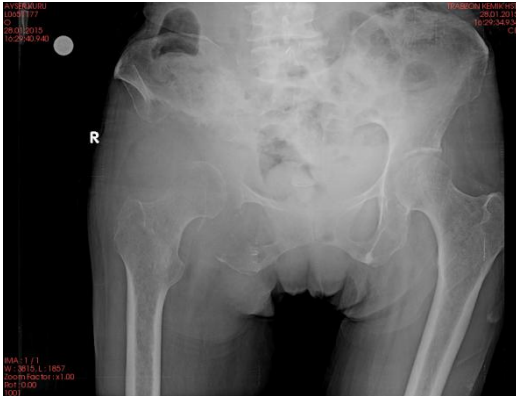
Meme Ca Multipl Metastaz



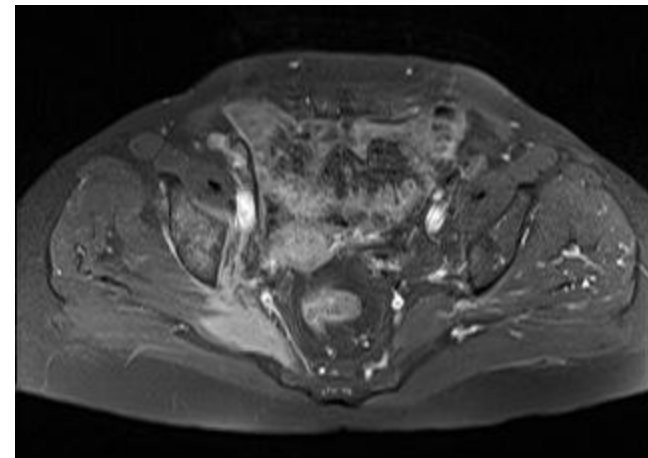
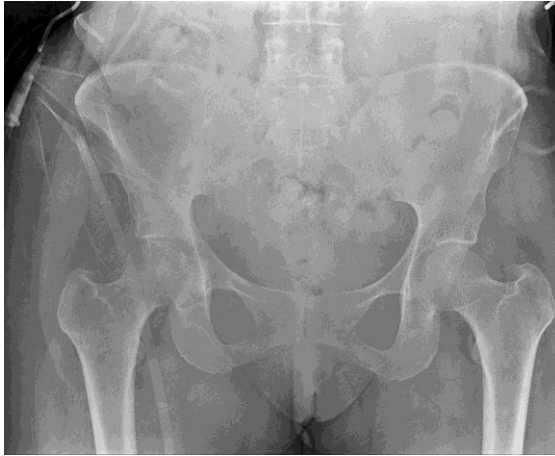
High Grade Ürogenital Sarkom Metastazı



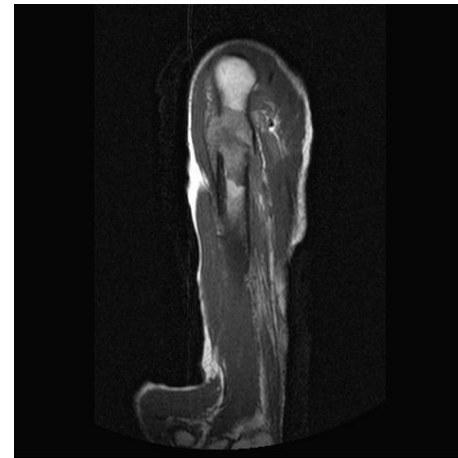
High Grade Karsinom Metastazı



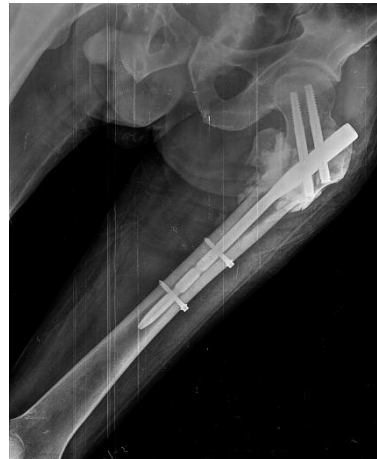
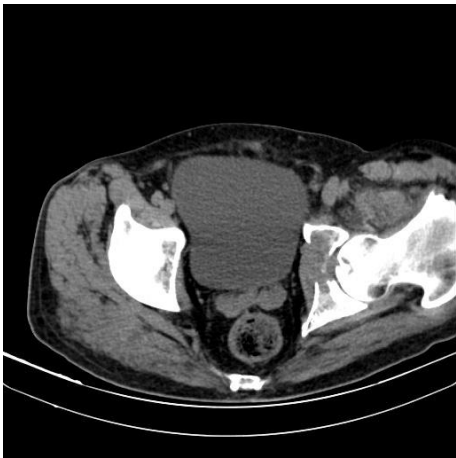
Serviks Ca (Squamöz) Metastazı



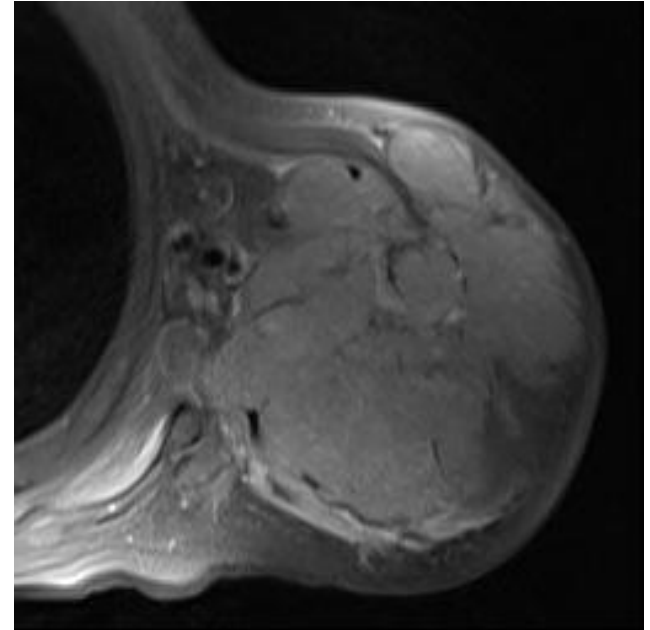
HCC Metastazı Proksimal Humerus Patolojik Fraktürü



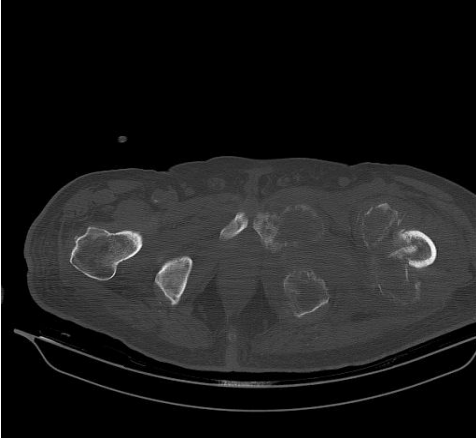
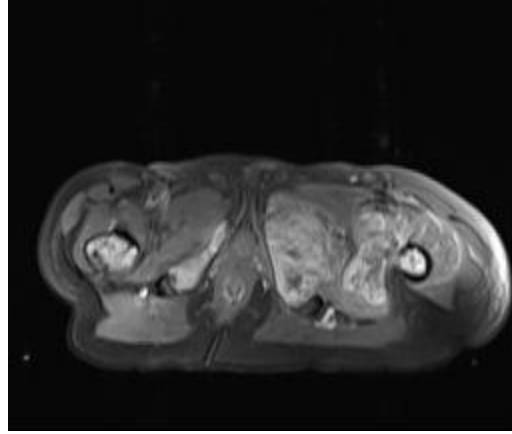
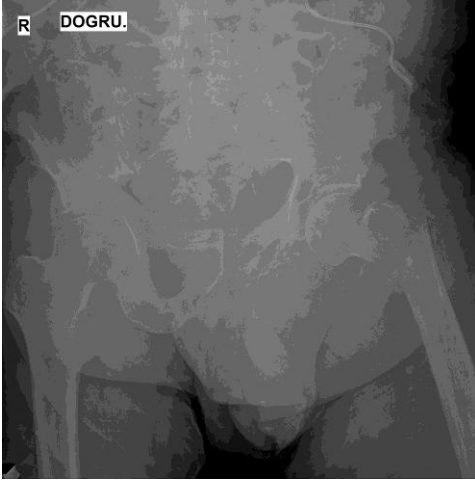
HCC Metastazi



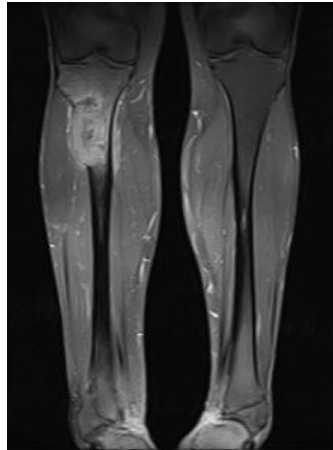
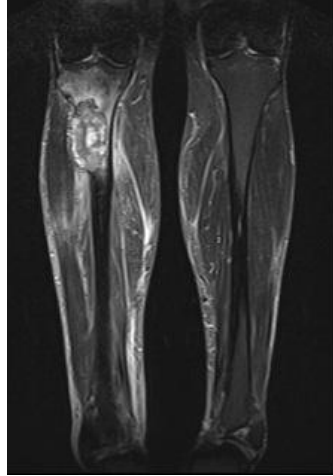
Sol Proksimal Humerus Patolojik Fraktür HCC Metastazı



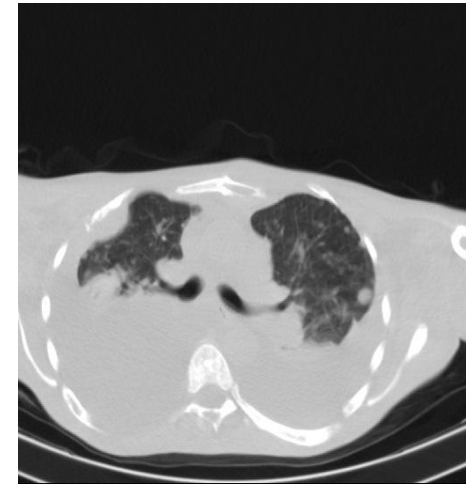
Mesane (Ürotelyal Karsinom) Metastazı Patolojik Proksimal Femur Fraktürü



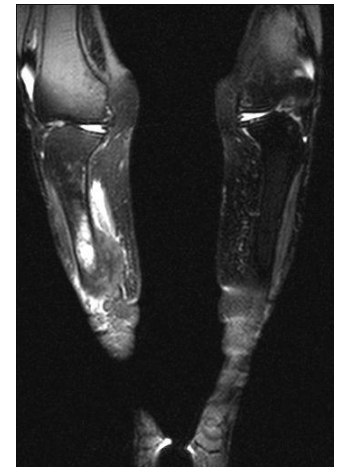
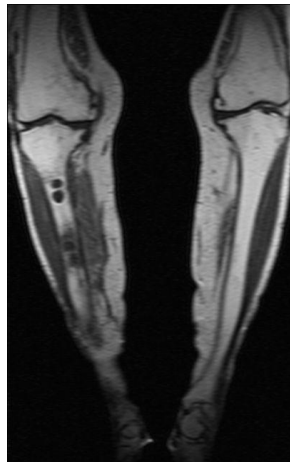
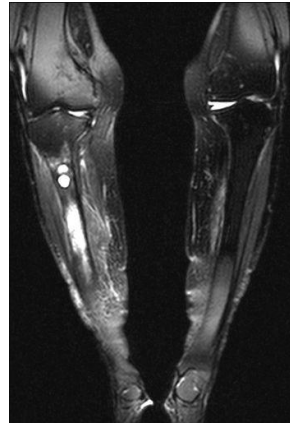
Özefagus (Adenokarsinom) Metastazı



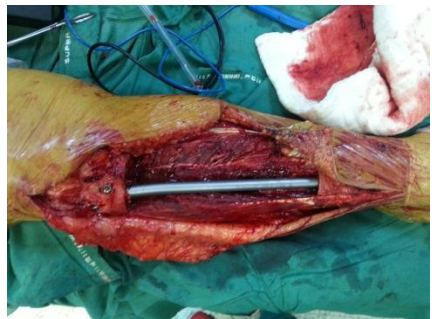
Malign Melanom Metastazı Proksimal Femur Patolojik Fraktür



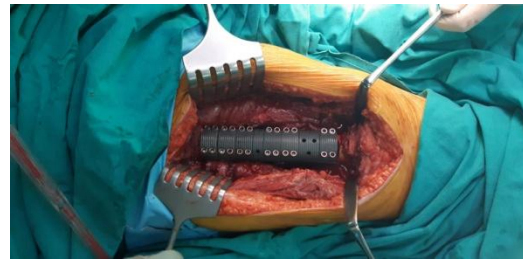
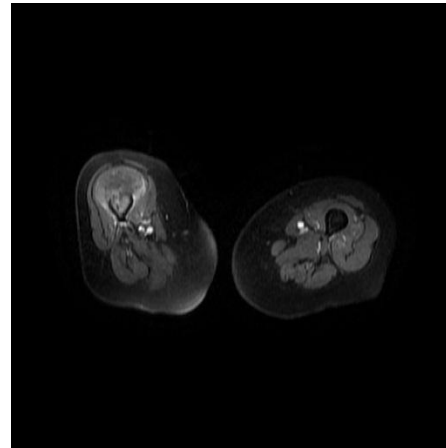
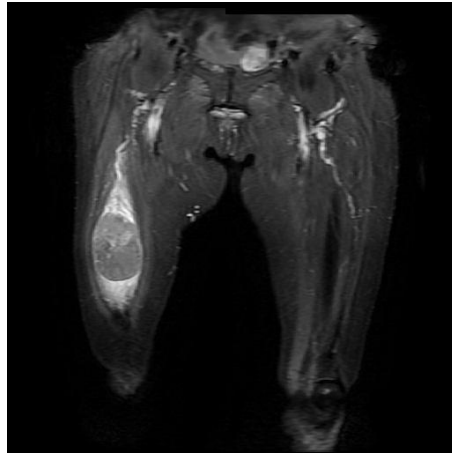
Malign Melanom Metastazı



Rezeksiyon+IMN+Çimento



Kolon (Adenokarsinom) Femur Diafiz Metastazi



Malign Hemanjioperiosteoma Metastazı

Patella Patolojik Fraktür



Metastatik Omurga Tümörleri

- Nadiren (İnstabilite, Nörolojik defisit, Israrcı ağrı) cerrahi uygulanır
- Hastanın **genel durumu** ve **beklenen yaşam süresi** cerrahi tedavi tipine karar vermede belirleyicidir
- Yüksek komplikasyon oranına (%30-40) sahiptir

Metastatik Omurga Tümörleri

Decision framework

Neurologic
Oncologic
Mechanical
Systematic



Metastatik Omurga Tümörleri

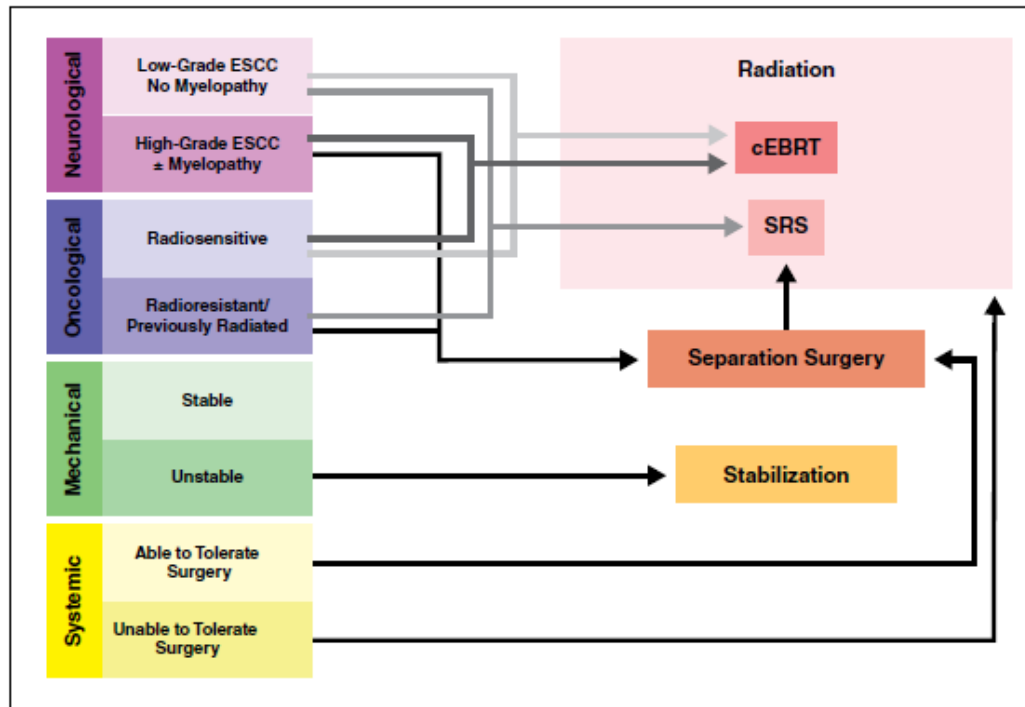


Fig 2. — The NOMS (neurological, oncological, mechanical, and systemic) algorithm for the treatment of spinal metastases. Radiosensitive malignancies are referred to conventional radiotherapy regardless of degree of cord compression. Radioreistant disease requires IMRT either upfront (in the absence of high-grade cord compression) or following decompressive separation surgery. Generally, IMRT is the chosen modality of adjuvant radiation for previously radiated tumors. Mechanical instability provides an independent surgical indication. cEBRT = conventional external-beam radiation, ESCC = epidural spinal cord compression, IMRT = intensity-modulated radiation therapy, SRS = stereotactic radiosurgery. Republished with permission of AlphaMed Press, from Laufer I, Rubin DG, Lis E, et al. The NOMS framework: approach to the treatment of spinal metastatic tumors. *Oncologist*. 2013;18(6):744-751; permission conveyed through Copyright Clearance Center, Inc.

Separation Surgery for Spinal Metastases: Effect of Spinal Radiosurgery on Surgical Treatment Goals

Nelson Moussazadeh, MD, Ilya Laufer, MD, Yoshiya Yamada, MD, and Mark H. Bilsky, MD

Nörolojik

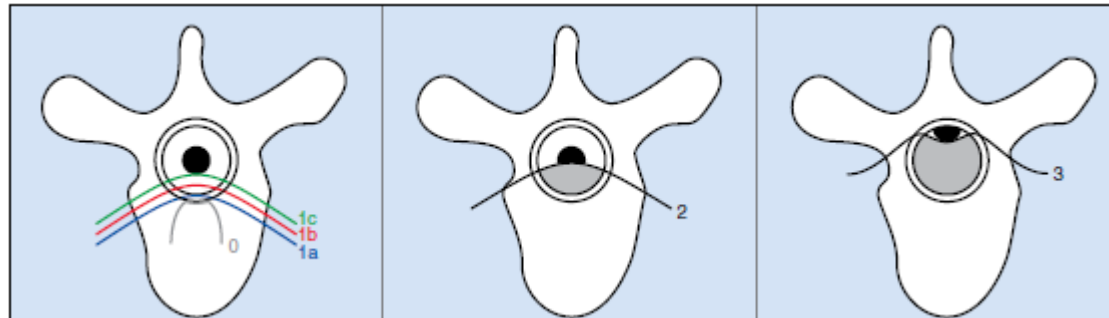


Table 1: Epidural Spinal Cord Compression Scale³

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Separation Surgery for Spinal Metastases: A Review on Surgical Treatment Goals

Onkolojik

Table 3. Classification of Radiosensitive and Radioresistant Histologies

Study	Lymphoma, Seminoma, Myeloma	Breast	Prostate	Sarcoma	Melanoma	Gastrointestinal	NSCLC	Renal
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Maranzano <i>et al</i> ⁷⁹	F	F	F	U	U	U	U	U
Rades <i>et al</i> ^{20,43}	F	I	I	I	U	I	U	I
Rades <i>et al</i> ⁵⁸	F	F	F	U	U	U	U	U
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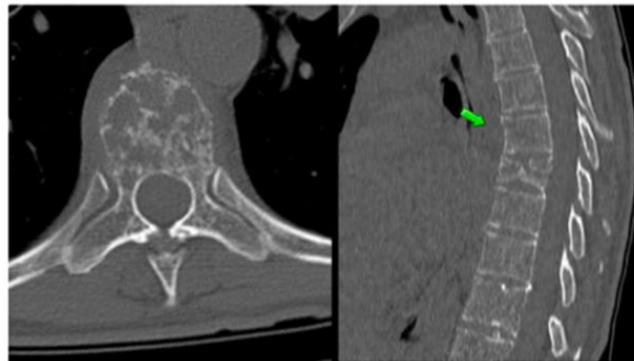
Radiotherapy and Radiosurgery for Metastatic Spine Disease

What Are the Options, Indications, and Outcomes?

Peter C. Gerszten, MD, MPH,*† Ehud Mendel, MD,‡ and Yoshiya Yamada, MD§

Mekanik

MIS Case



SINS score 10

SINS	
Location within the spine	
Junctional (occiput-C2, C7-T2, T11-L1, L5-S1)	3
Mobile spine (C3-C6, L2-L4)	2
Semi-rigid (T3-T10)	1
Rigid (S2-S5)	0
Pain relief with recumbence and pain with movement or loading of the spine	
Yes	3
No (occasional pain but not mechanical)	1
Pain-free lesion	0
Bone lesion quality	
Lytic	2
Mixed lytic or blastic	1
Blastic	0
Radiographic spinal alignment	
Subluxation or translation present	4
De-novo deformity (kyphosis or scoliosis)	2
Normal alignment	0
Vertebral body collapse	
>50% collapse	3
<50% collapse	2
No collapse with >50% body involved	1
None of the above	0
Posterolateral involvement of spinal elements (facet, pedicle, or costovertebral joint fracture or replacement with tumour)	
Bilateral	3
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None of the above	0

The SINS score is generated by adding all of the scores from the six individual components. A score of 0-6 is classified as a stable spine, and no action is needed. A score of 7-12 receives a classification of Indeterminate, and indicates potential instability, which warrants surgical consultation. A score of 13-18 indicates spinal instability that warrants surgical consultation. Adapted from Fisher et al.,² with permission from Wolter Kluwer Health. SINS=Spine Instability Neoplastic Score.

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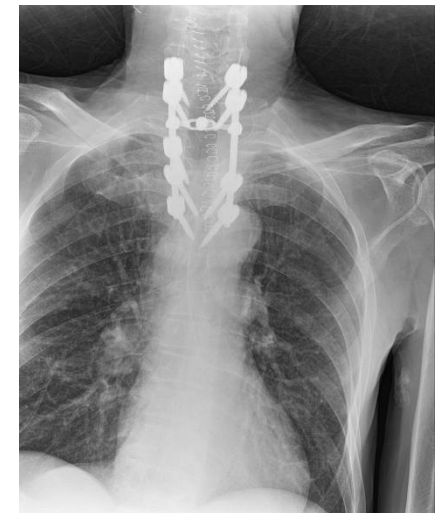
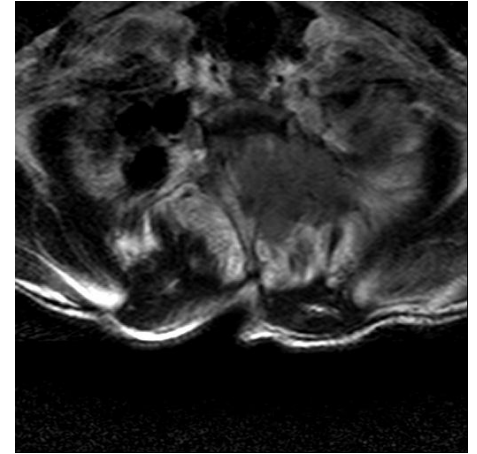
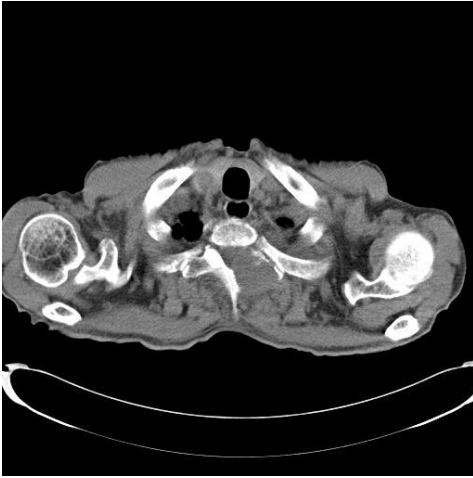
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Sistemik

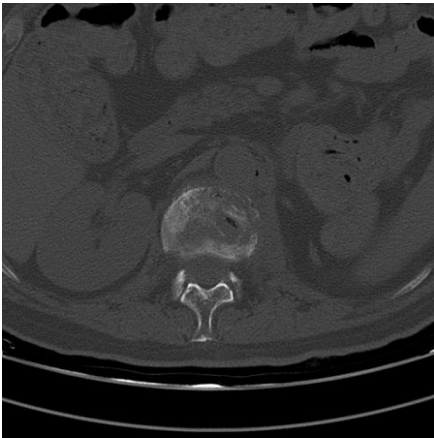
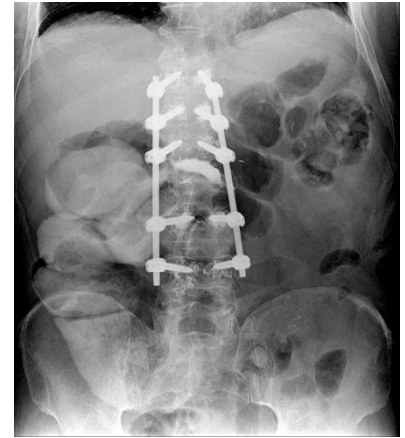
ECOG PERFORMANCE STATUS*

Grade	ECOG
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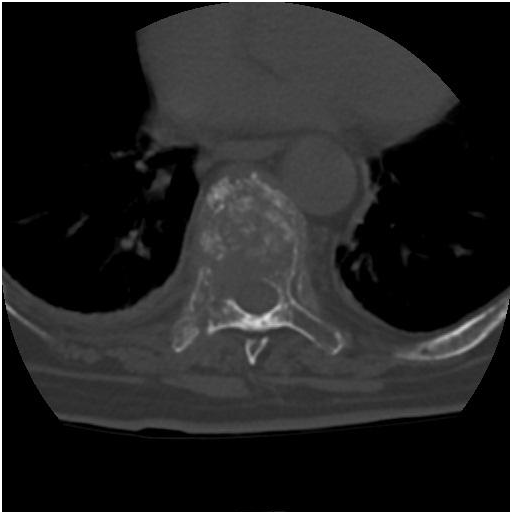
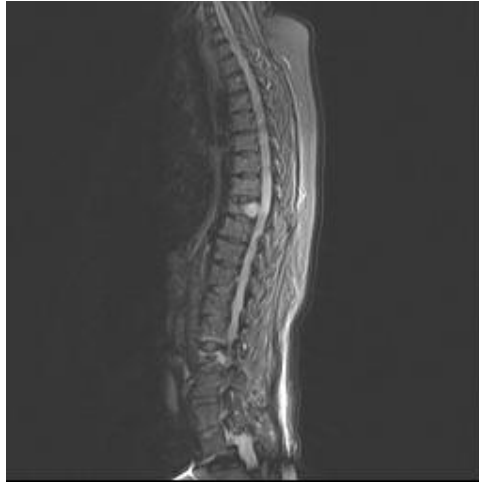
T2 Adenokarsinom Metastazı



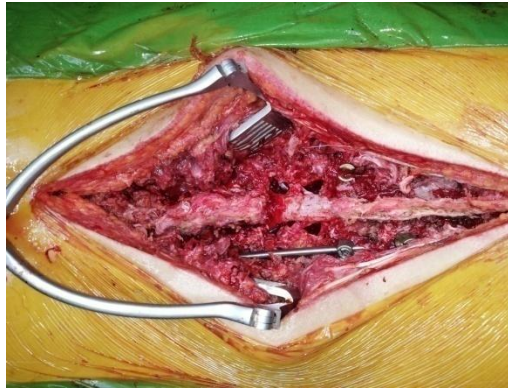
RCC L1 VERTEBRA METASTAZI



Multipl Myelom T8 Patolojik Fraktür



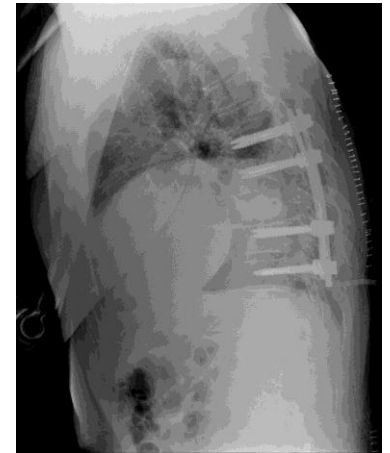
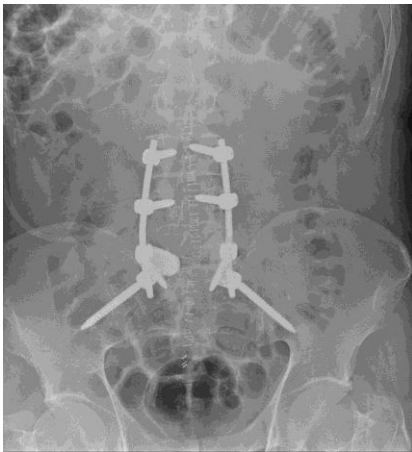
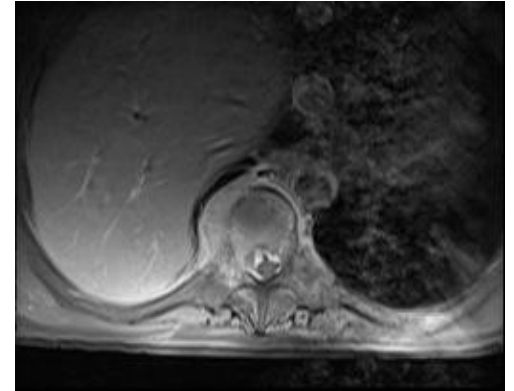
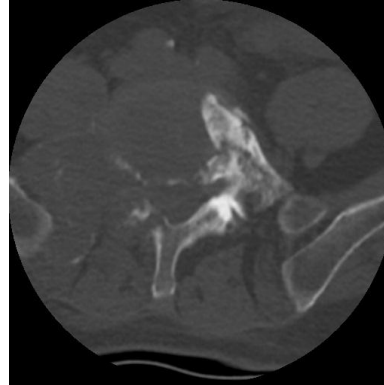
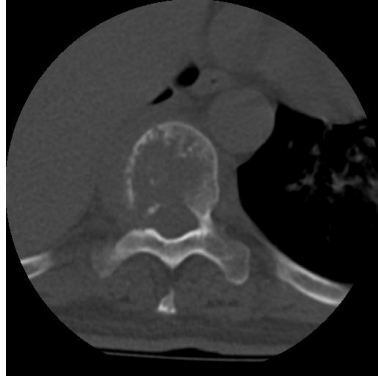
Üroepitelyal Karsinom Metastazı



MEME CA T8-9 METASTAZ



Ac (Adenokarsinom) Multipl Metastaz



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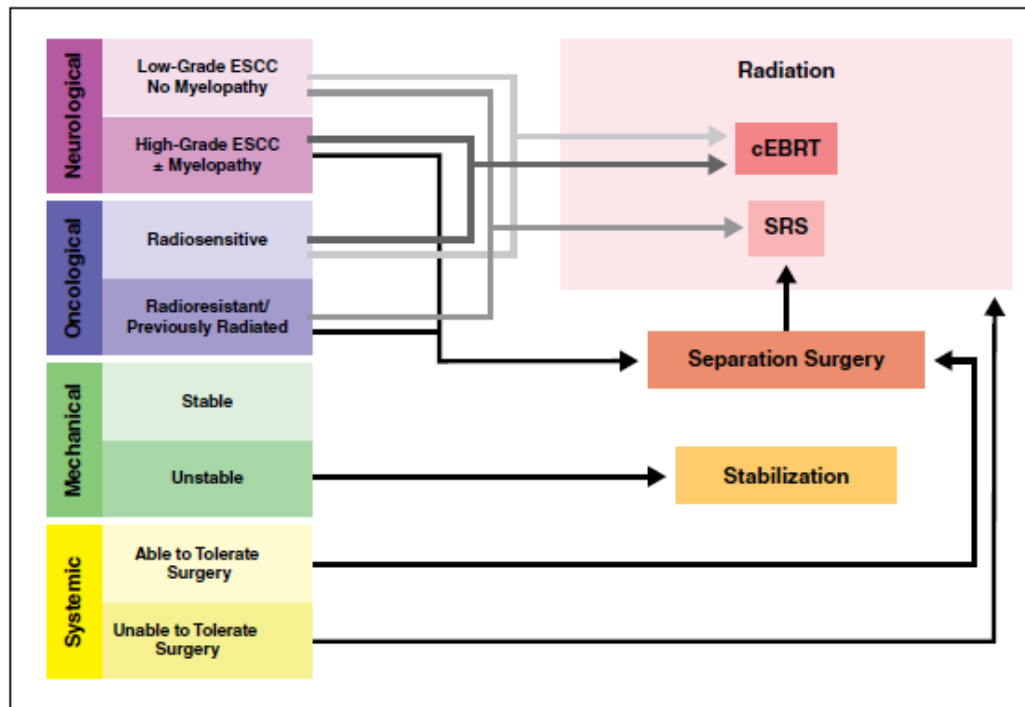


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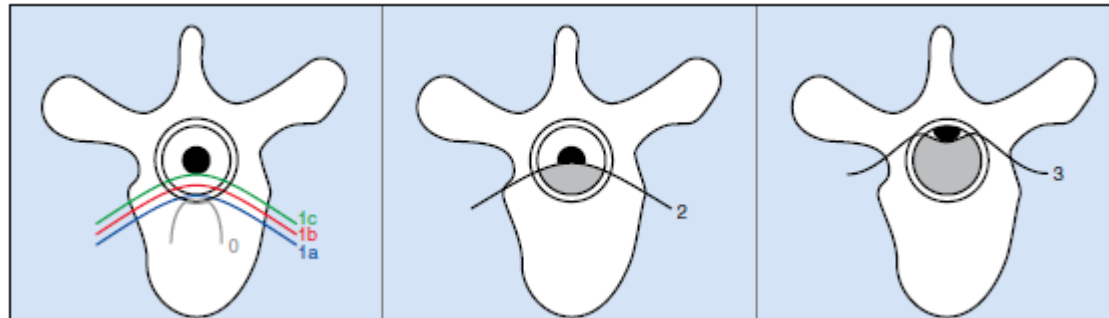


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Onkolojik

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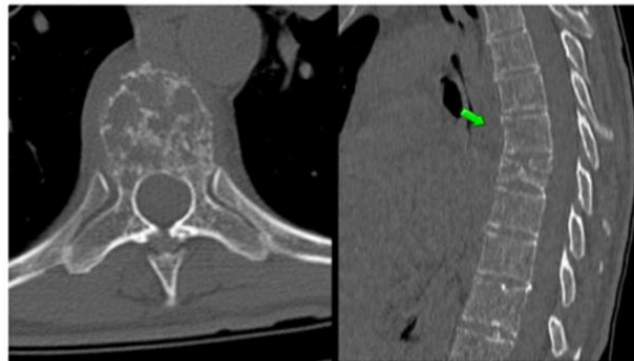
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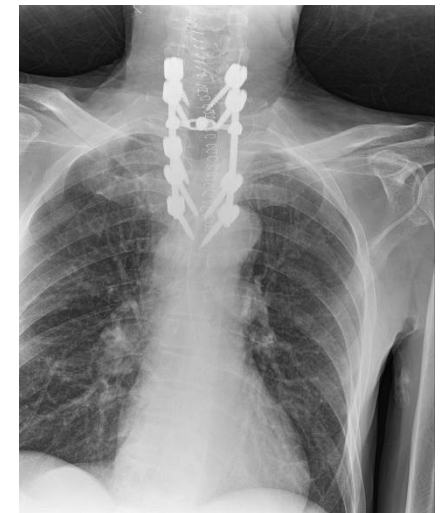
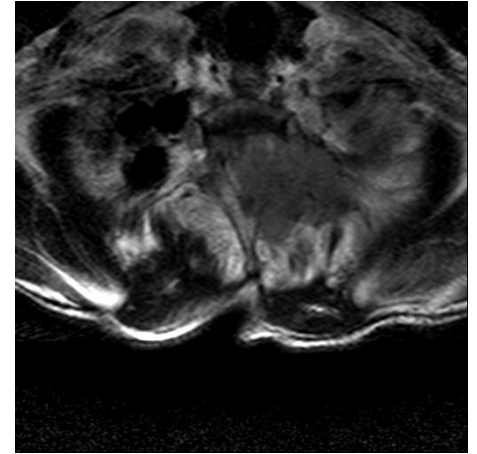
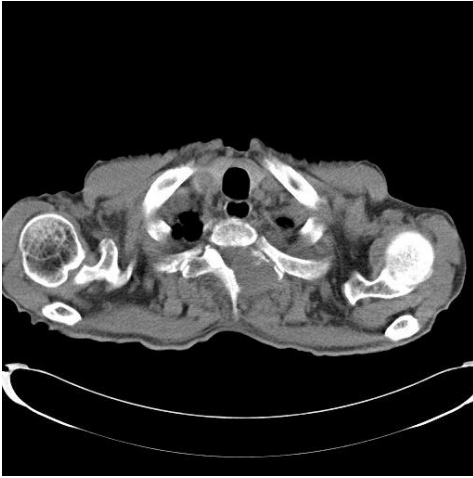
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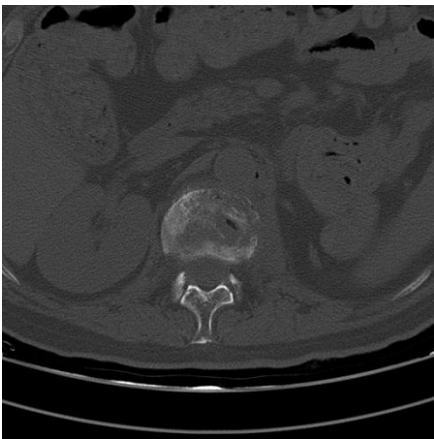
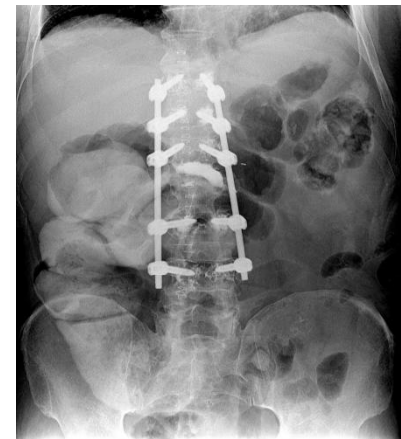
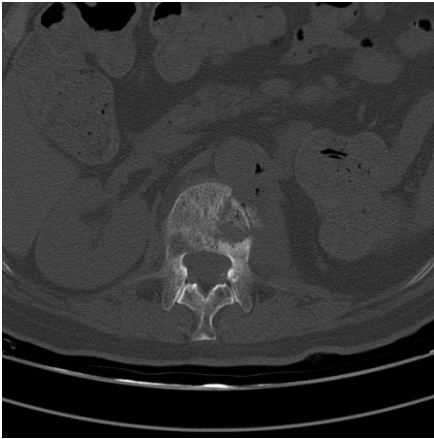
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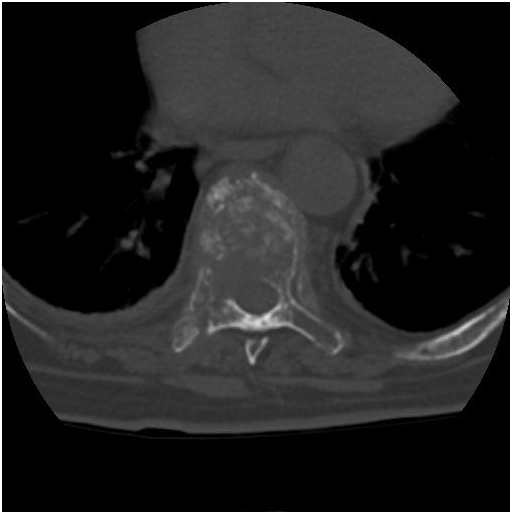
T2 Adenokarsinom Metastazı



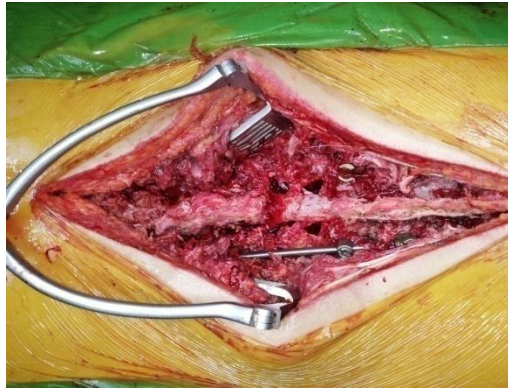
RCC L1 VERTEBRA METASTAZI



Multipl Myelom T8 Patolojik Fraktür



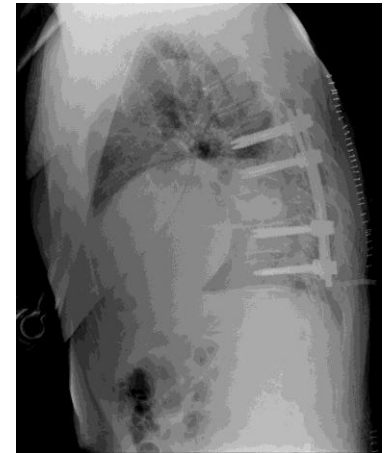
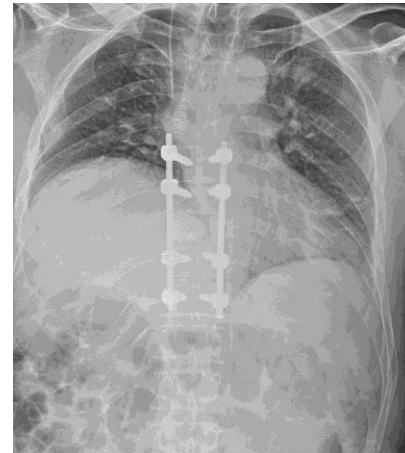
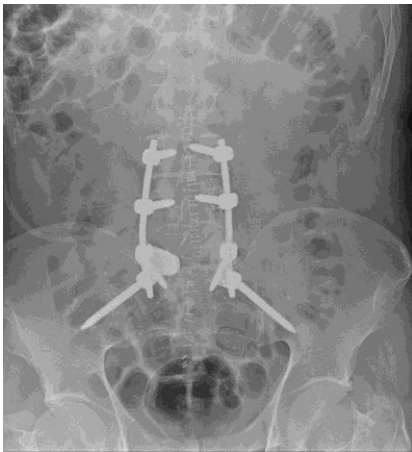
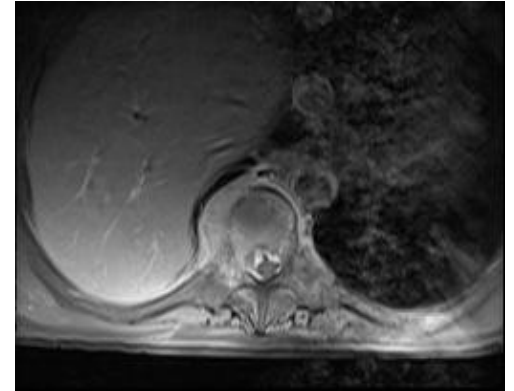
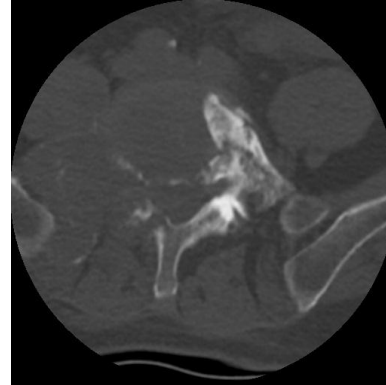
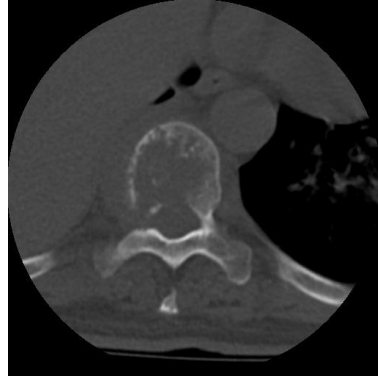
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MEME CA T8-9 METASTAZ



Ac (Adenokarsinom) Multipl Metastaz



Metastatik Kemik Tümörleri

drseyitaligumustas@gmail.com

Dr. Lütfi Kırdar Kartal E.A.H

Teşekkür Ederim