

# Our experience of neoadjuvant treatment of metastatic osteosarcoma at presentation

Gennady Machak  
N.N. Blokhin Cancer Research Center  
Moscow, Russian Federation



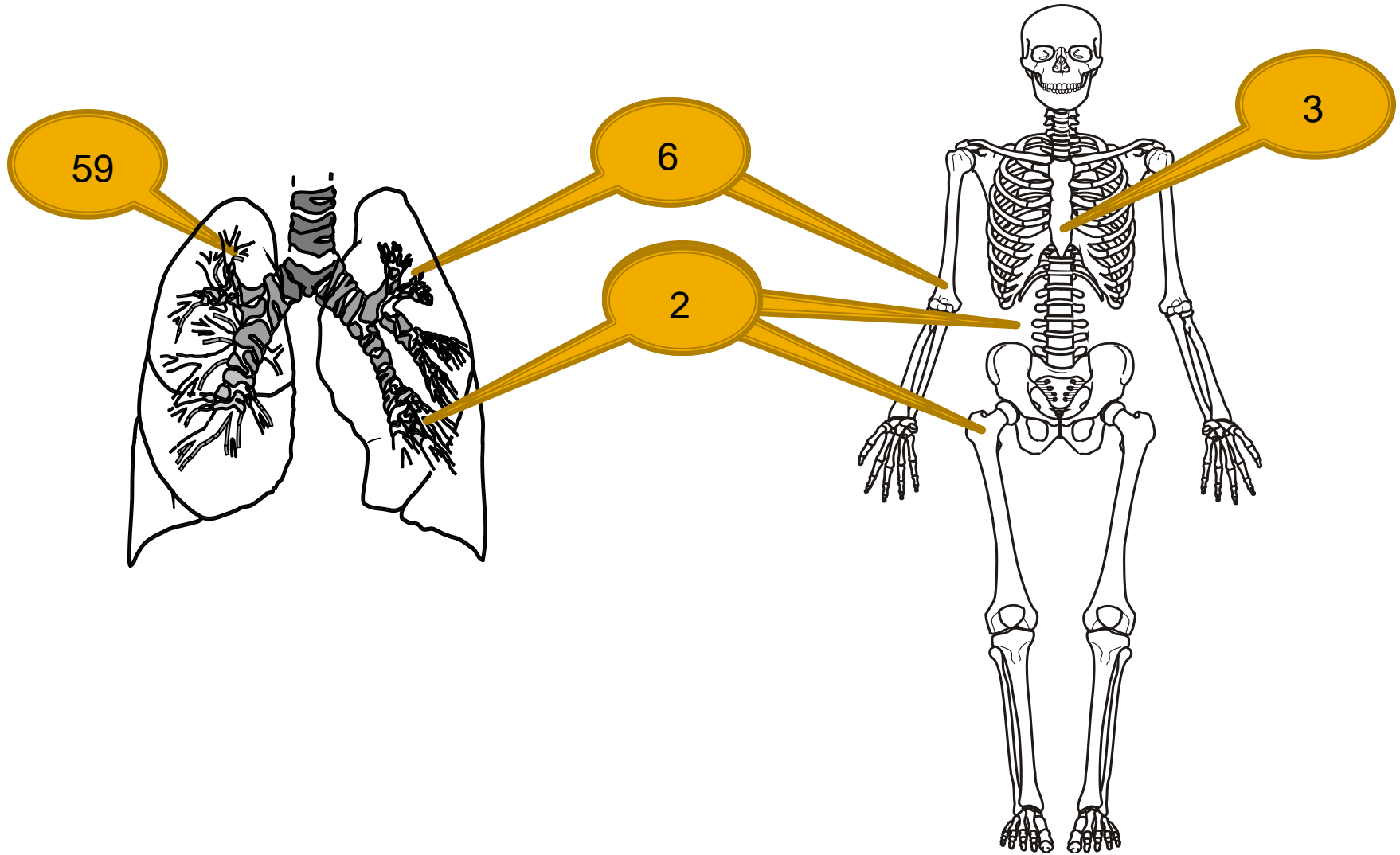
23rd Annual Meeting of the  
European Musculo-Skeletal Oncology Society

5th-7th May  
Birmingham  
United Kingdom

# Purpose

To compare two consecutive treatment programs in metastatic osteosarcoma at presentation

# Location of primary and metastatic tumors



# Demographic data

Male/female

**48/22**

Mean age – **18** yrs

# Treatment

1987-1999 (n=39)

DOX 90 mg/m<sup>2</sup> x 3

CDDP 120-150 mg/m<sup>2</sup> x 3-5



Surgery



DOX, CDDP, CTX, HDMTX

2000-2010 (n=31)

DOX 90 mg/m<sup>2</sup>+CDDP 120 mg/m<sup>2</sup> IFO 6g/m<sup>2</sup> x 4



Surgery



DOX, CDDP, CTX, IFO, VP-16



Surgery for residual mets

# Local treatment

1987-1999

n=39

Surgery for primary tumor  
9/39 (23%)

Limb-salvage procedures  
1/9 (11%)

Chemotherapy only  
20/39 (51%)

Chemotherapy + Radiotherapy  
10/39 (25%)

2000-2010

n=31

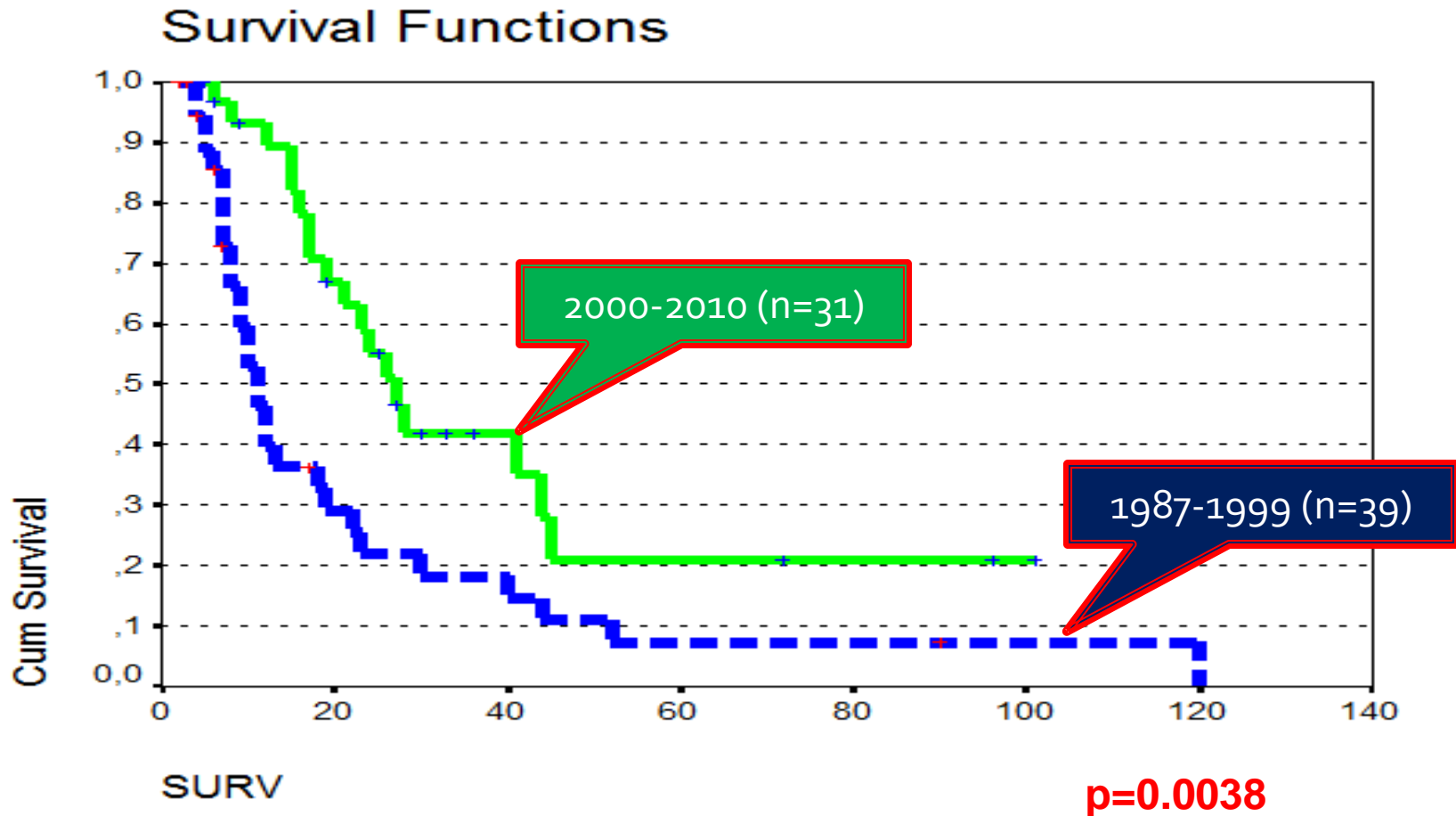
Surgery for primary tumor  
19/31 (61%)

Limb-salvage procedures  
14/19 (74%)

Chemotherapy only  
5/31 (16%)

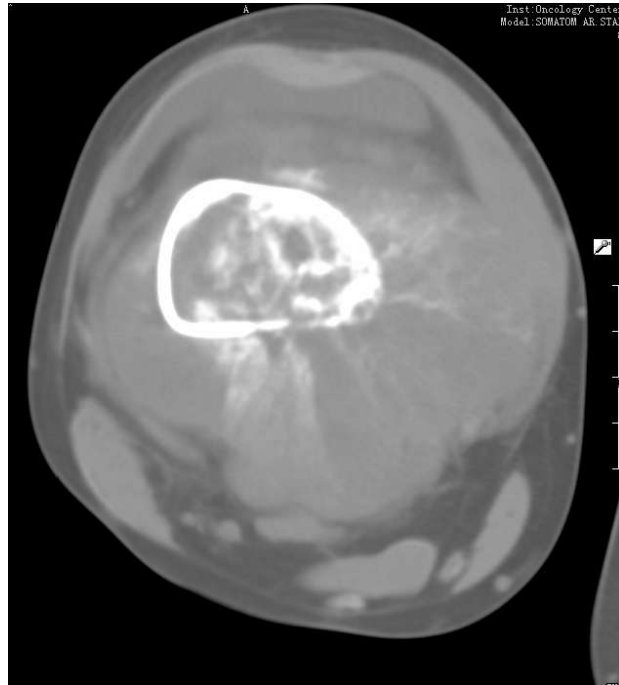
Chemotherapy + Radiotherapy  
7/31 (23%)

# Overall survival according to treatment time

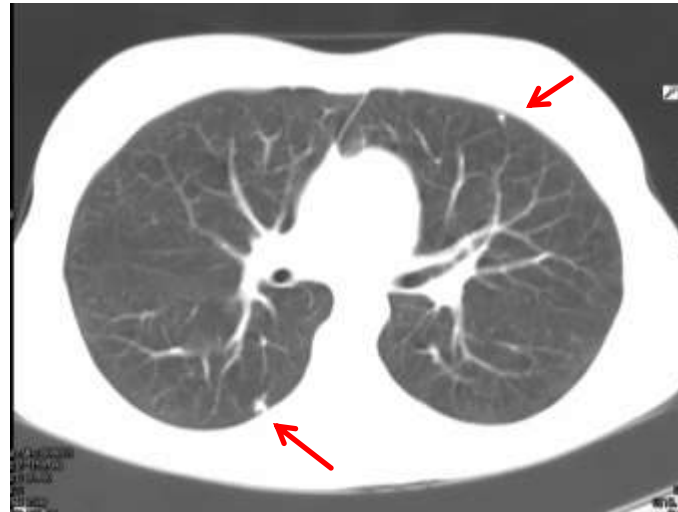


# Metastatic osteosarcoma at presentation

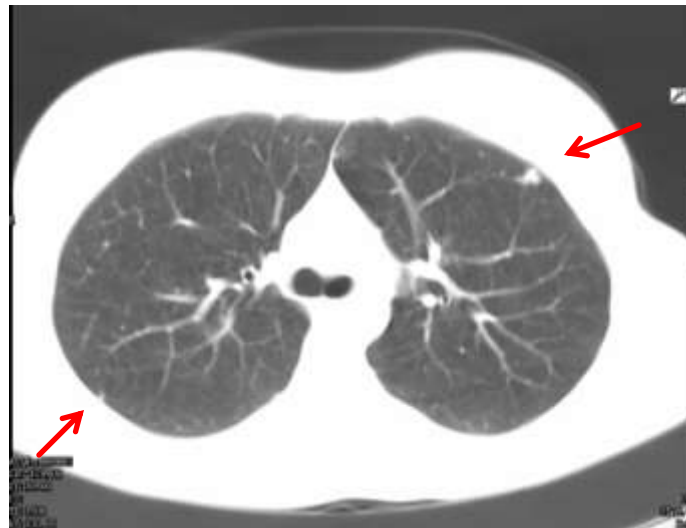
## Distal femur. Lung metastases. Stage III B



CT before treatment

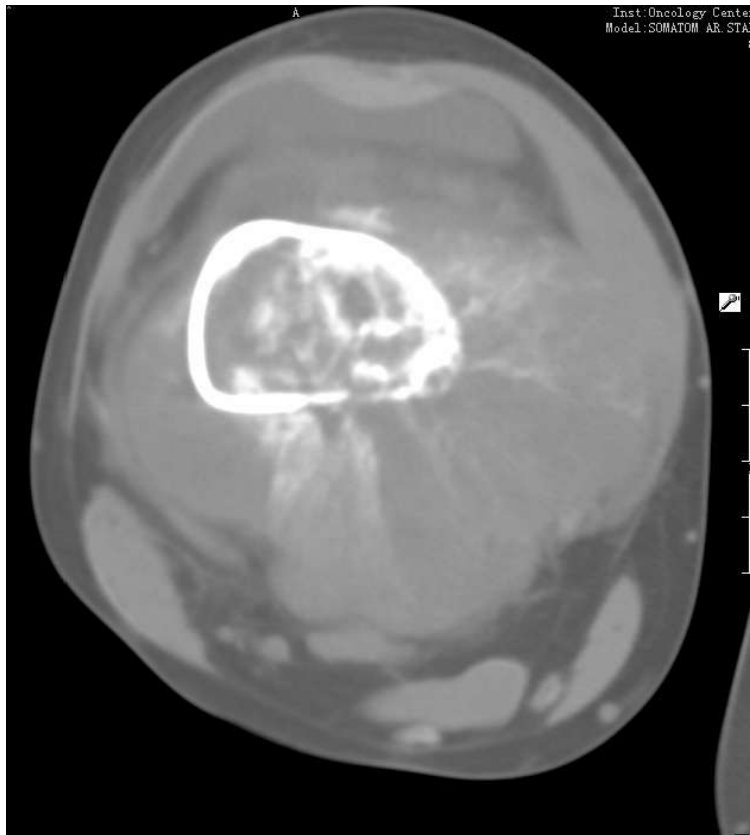


Chest CT  
before treatment



# Metastatic osteosarcoma at presentation

## Distal femur. Lung metastases. Stage IIIB



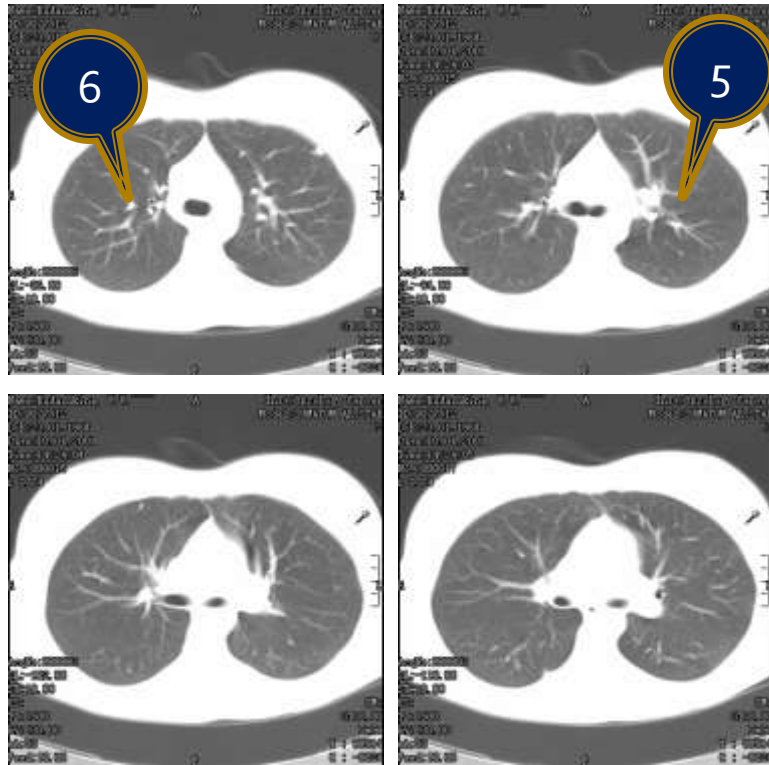
CT before treatment



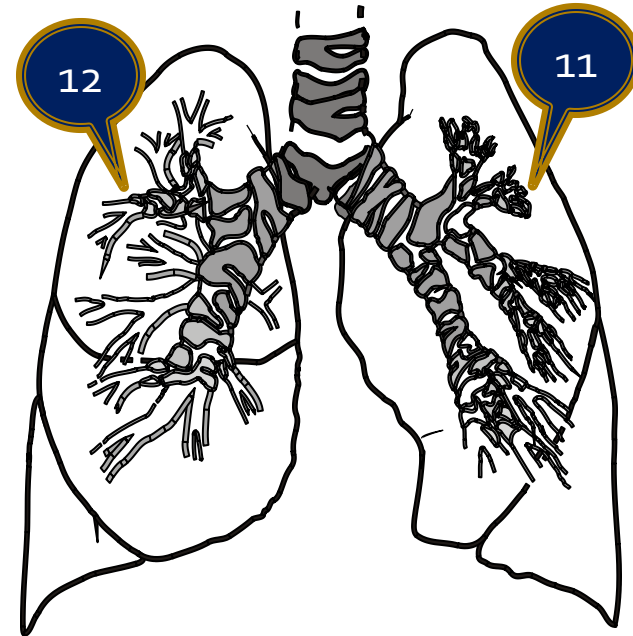
CT after 5 cycles of DOX-CDDP.  
Limb-salvage surgery for primary tumor.  
>90% tumor necrosis

# Metastatic osteosarcoma at presentation

## Distal femur. Lung metastases. Stage IIIB



Chest CT before surgery for lung mets

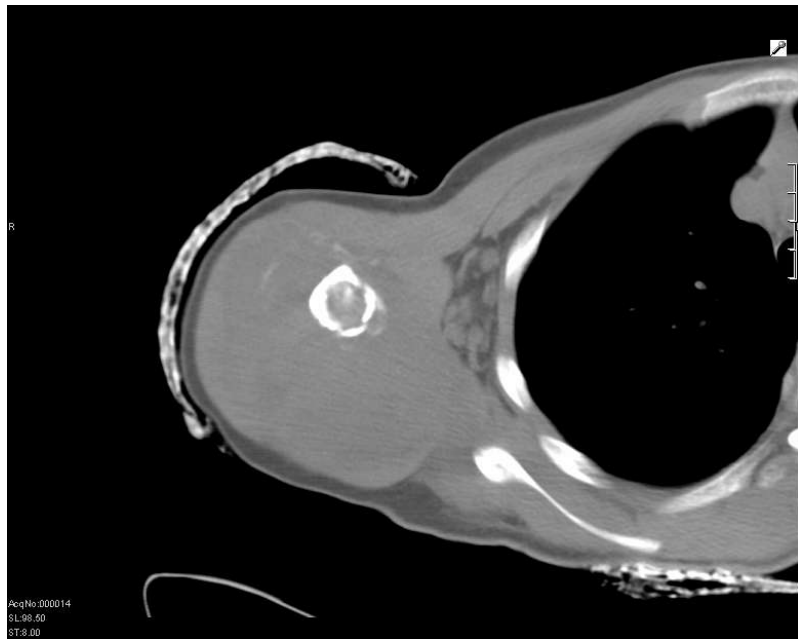


Removal of all CT positive and palpable nodules by bilateral thoracotomy. Surgical remission was achieved.

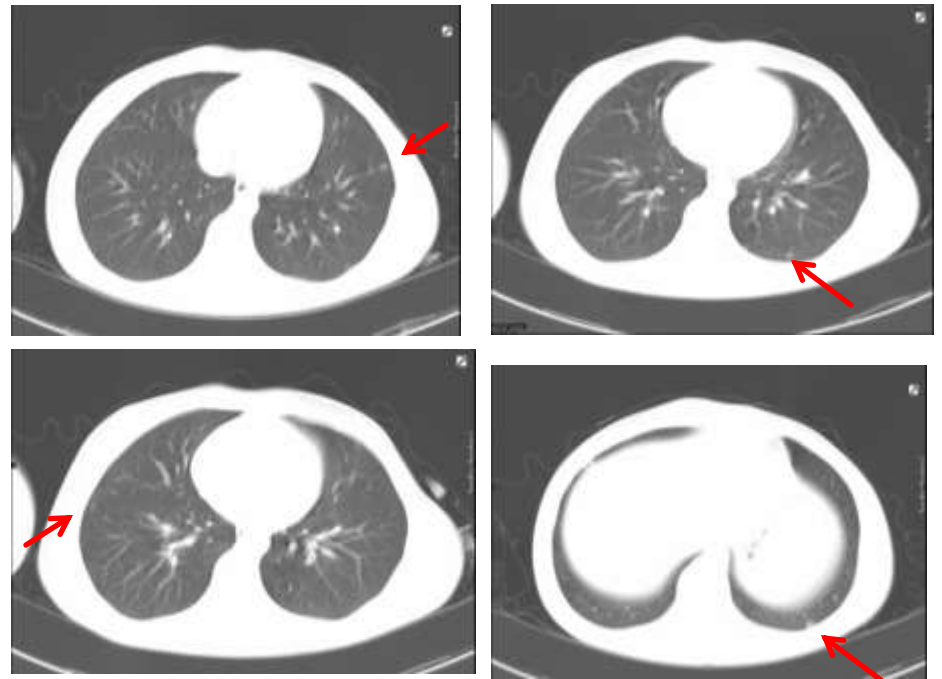
Outcome: DOD=41 months

# Metastatic osteosarcoma at presentation

Proximal humerus. Lung metastases. Stage IIIB



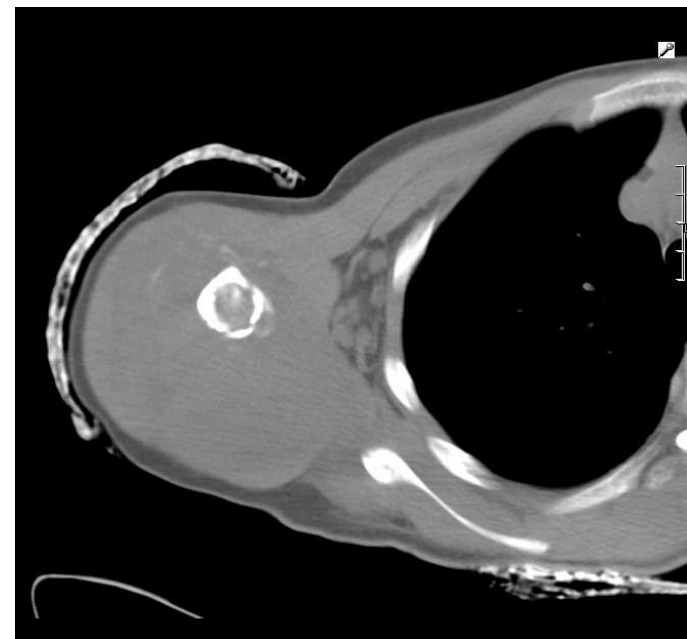
CT before treatment



Chest CT before treatment

# Первично-метастатическая остеосаркома

Клиническое наблюдение: остеосаркома проксимального отдела плечевой кости. Метастазы в легких. IVa стадия



CT before treatment



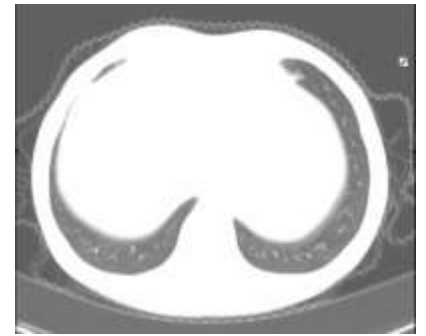
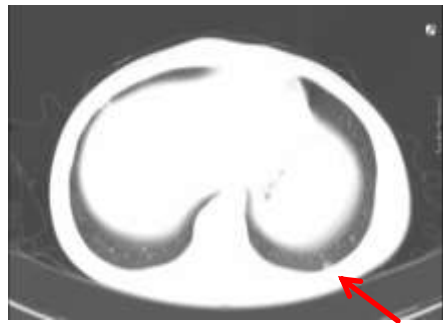
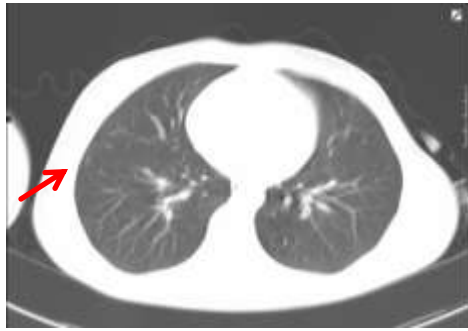
CT after induction



Limb-salvage surgery.  
100% tumor necrosis  
NED = 96 months

# Metastatic osteosarcoma at presentation

## Proximal humerus. Lung metastases. Stage IIIB



CT before treatment

Chest CT after induction

# Metastatic osteosarcoma at presentation

## Proximal humerus. Recurrent solitary lung metastasis.



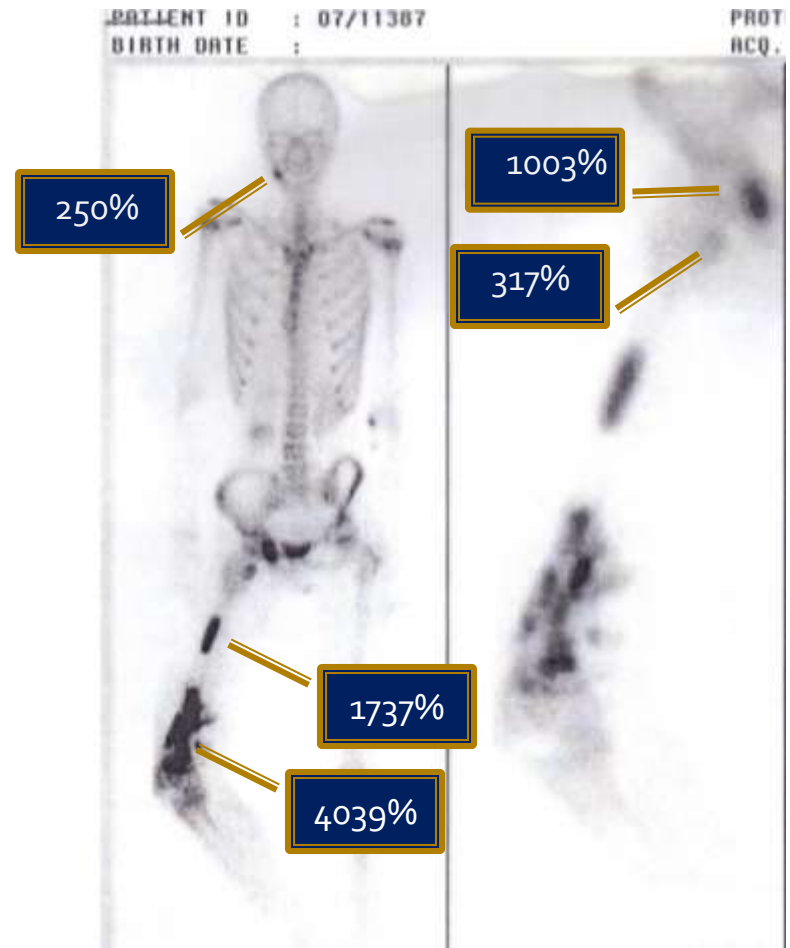
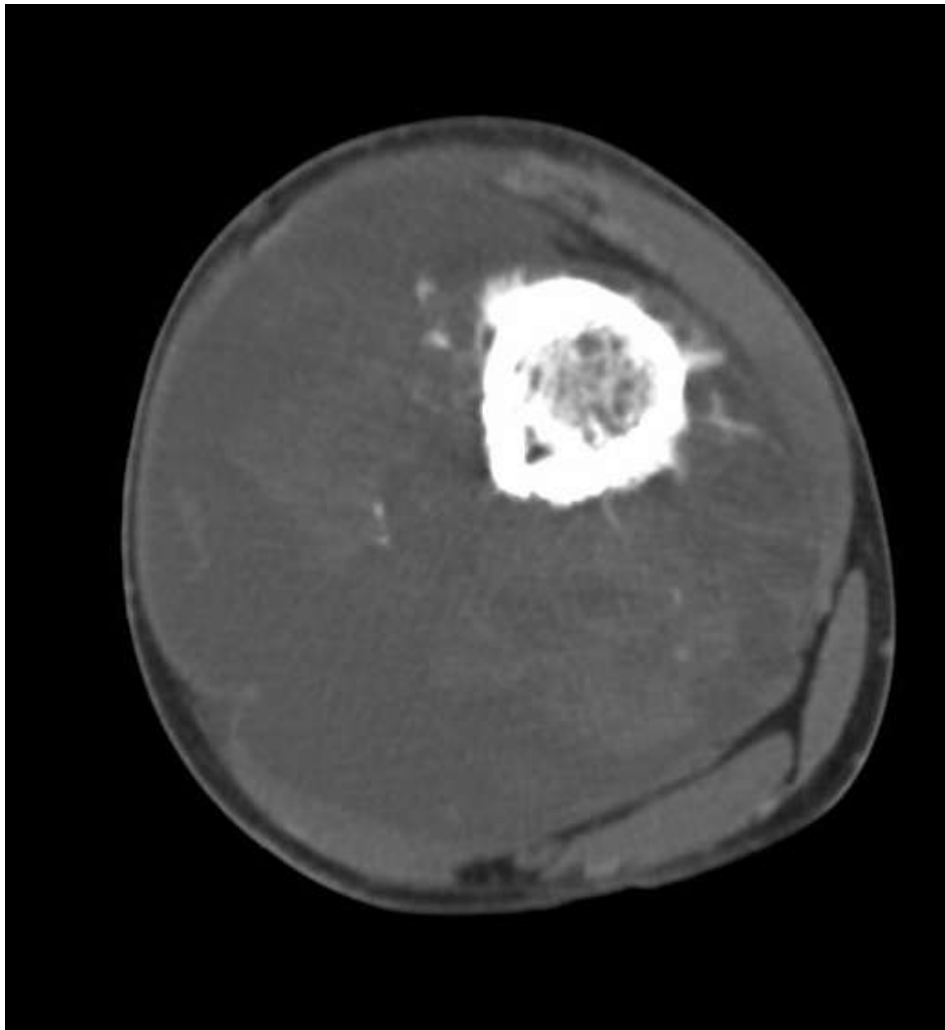
Solitary lung nodule 4.5 years after treatment



NED 96 months after the start of treatment

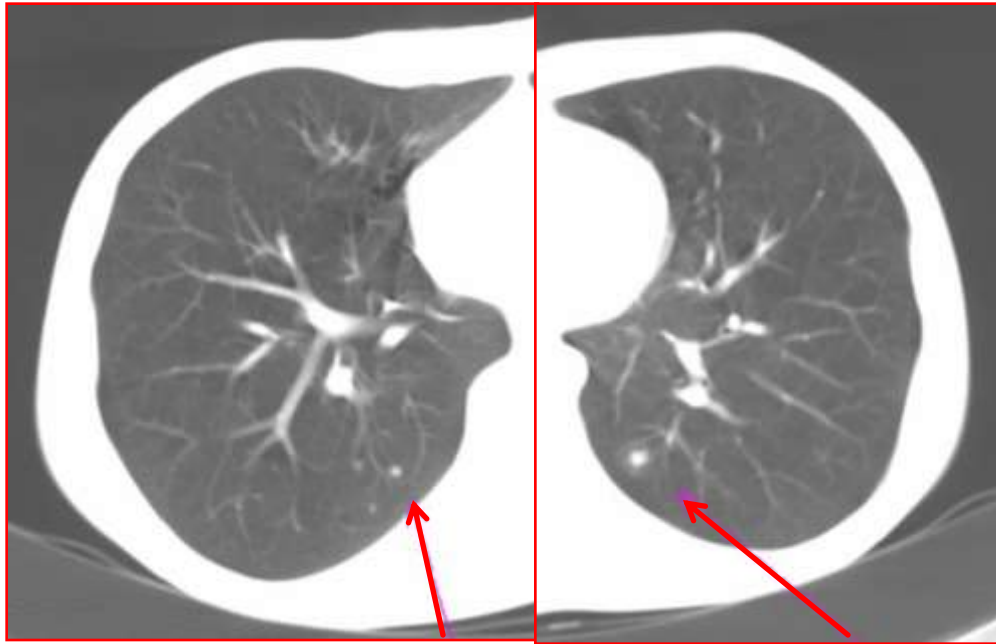
# Metastatic osteosarcoma at presentation

Distal femur. Lung metastases. Skeletal metastases. Adrenal metastases  
Stage IIIB



# Metastatic osteosarcoma at presentation

Distal femur. Lung metastases. Skeletal metastases. Adrenal metastases  
Stage IIIB



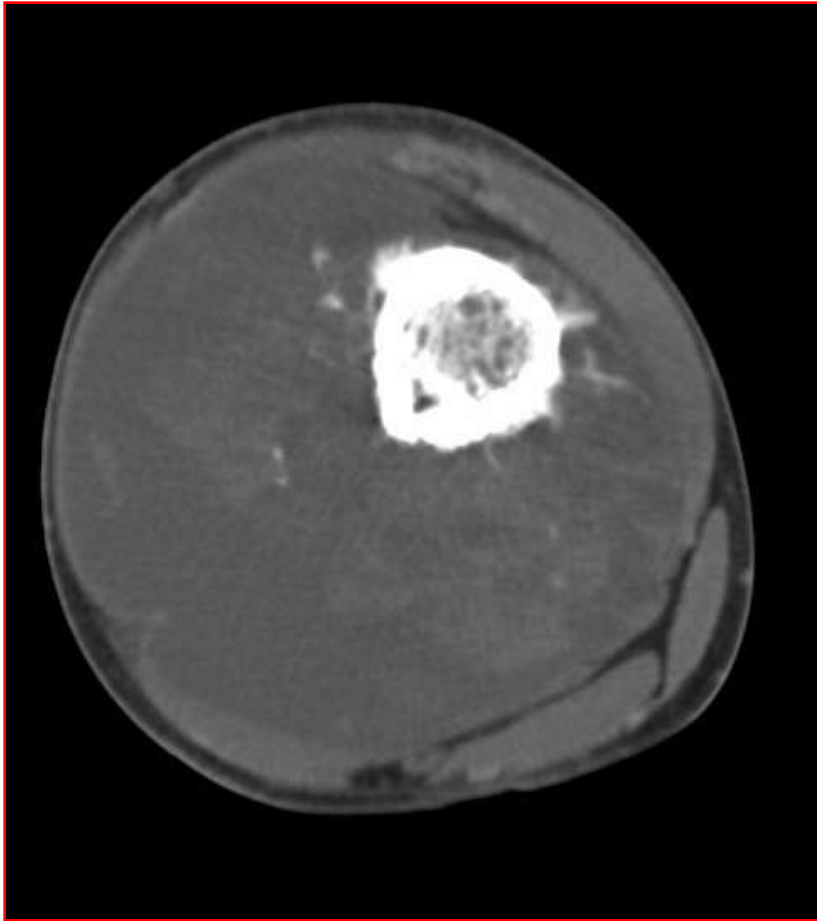
Chest CT before treatment



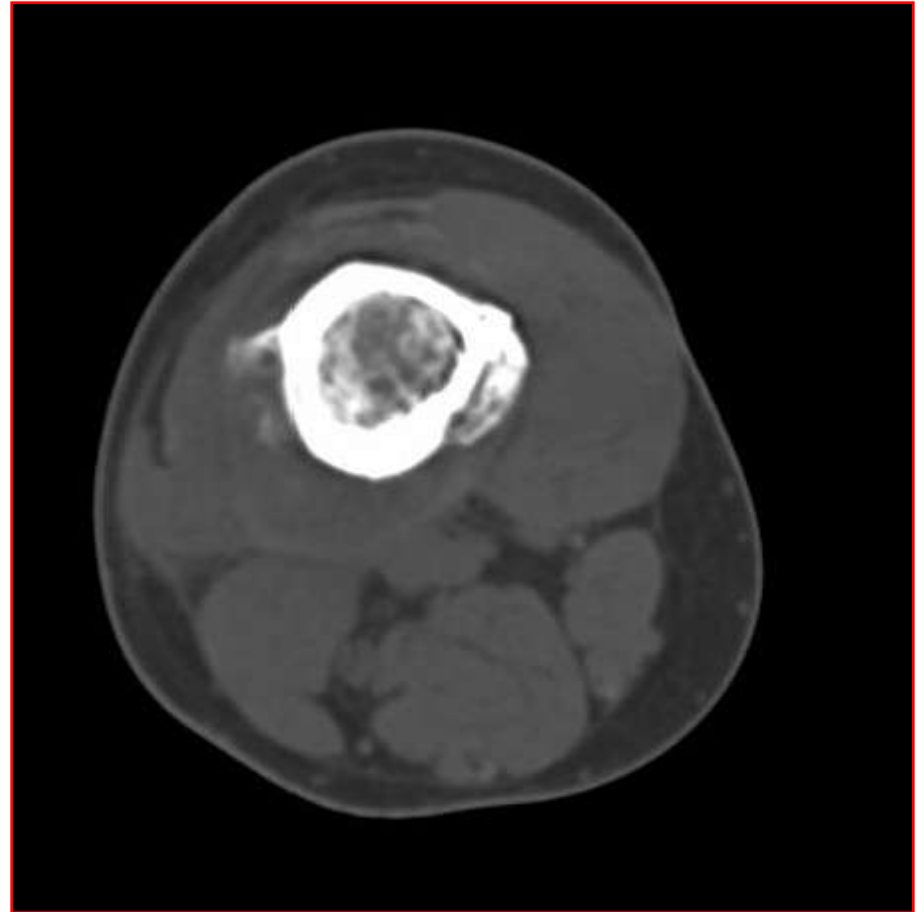
Abdominal CT before treatment

# Metastatic osteosarcoma at presentation

Distal femur. Lung metastases. Skeletal metastases. Adrenal metastases  
Stage IIIB



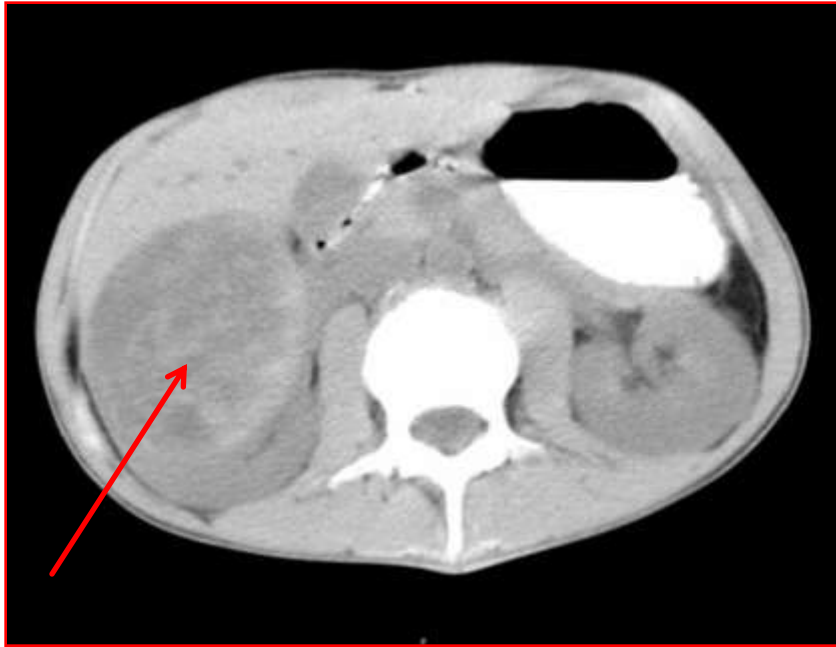
CT before treatment



CT after induction chemotherapy

# Metastatic osteosarcoma at presentation

Distal femur. Lung metastases. Skeletal metastases. Adrenal metastases  
Stage IIIB



CT before treatment



CT after induction chemotherapy

Alive without progression 36 months

# Metastatic osteosarcoma at presentation

Distal femur. Lung metastases. Skeletal metastases. Adrenal metastases  
Stage IIIB



Bone scan before treatment



Bone scan after  
induction chemotherapy



Limb function after treatment  
Alive without progression 36 mos.

# Conclusion

More aggressive multimodal treatment of metastatic osteosarcoma significantly increased the rate of limb-salvage procedures and improved survival.



Thank you