

Bone Tumors

*May Parisien, M.D.
Columbia University, New York*

CPMC

Classification

*Secondary (metastases) (95%)
Primary (5%)*

Secondary tumors

Malignancies originating from distant (primary) organs

- *most frequent: carcinomas/ malignant epithelial tumors of viscera*
- *rare: sarcomas /malignant mesenchymal tumors)*

Secondary Tumors of Bone Most frequent primaries

<i>Lung</i>	<i>Gastro-intestinal</i>
<i>Breast</i>	<i>Kidney</i>
<i>Prostate</i>	<i>Thyroid</i>

Secondary Tumors of Bone Mechanism of transport

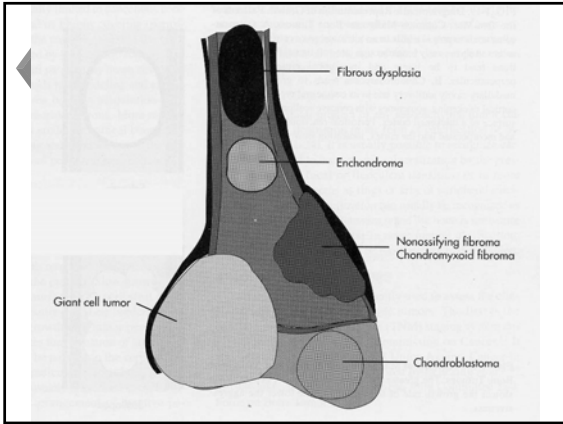
Paravertebral venous plexuses

- *retrograde access of tumor cells to bone*
- *bypass of porto-caval venous drainage*

Primary neoplasms of bone

Definition: tumors of mesenchymal origin arising in bone

Routes of spread: hematogenous (lung, liver, bone)



Primary neoplasms of bone

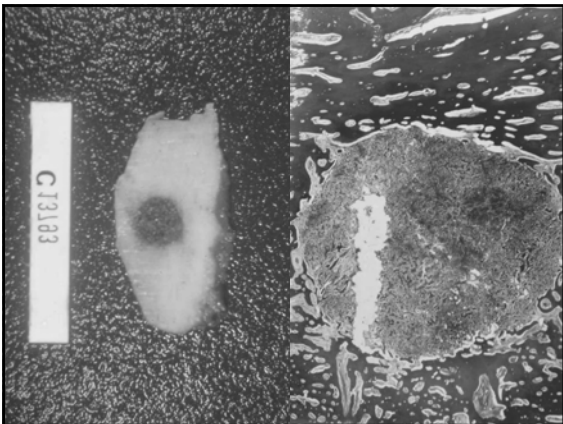
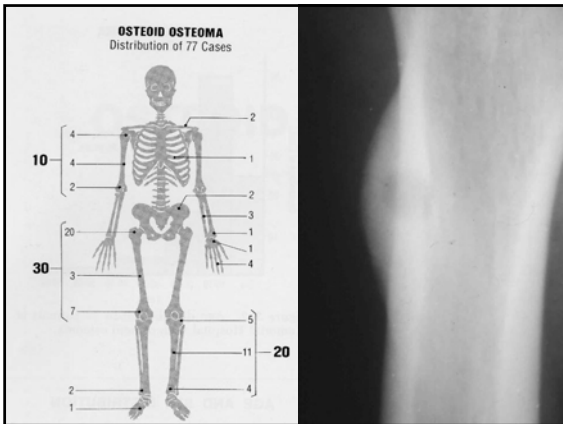
Means of identification
Matrix morphology
Immunophenotypical markers
Clin/ radiologic correlation: a must!

Primary Tumors of Bone Classification

- *Bone-forming*
- *Cartilage-forming*
- *Fibrous tumors*
- *Tumors of unknown origin*

Bone-forming tumors

<i>Benign</i>	<i>Osteoid osteoma</i>
	<i>Osteoblastoma</i>
<i>Malignant</i>	<i>Osteosarcoma</i>



Malignant Tumors of Bone Osteosarcomas

Central
Low Grade
High Grade

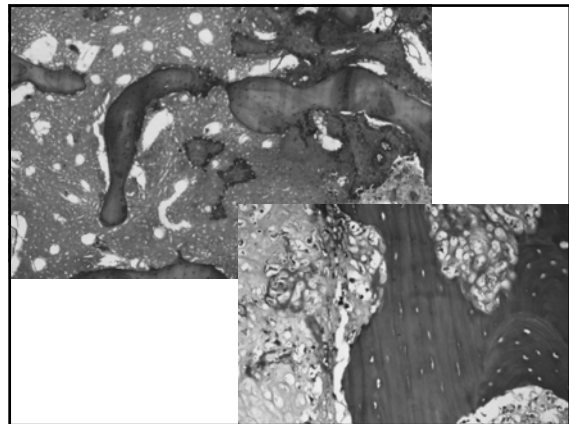
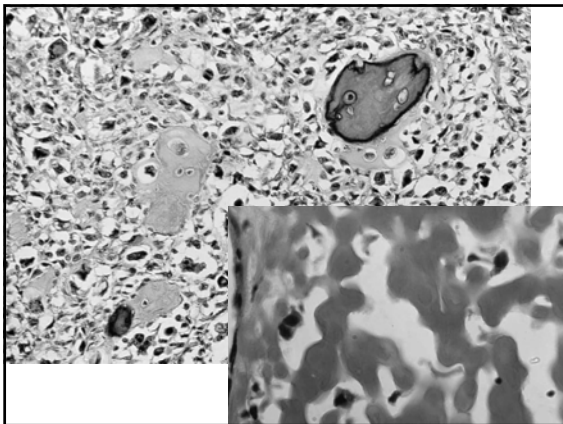
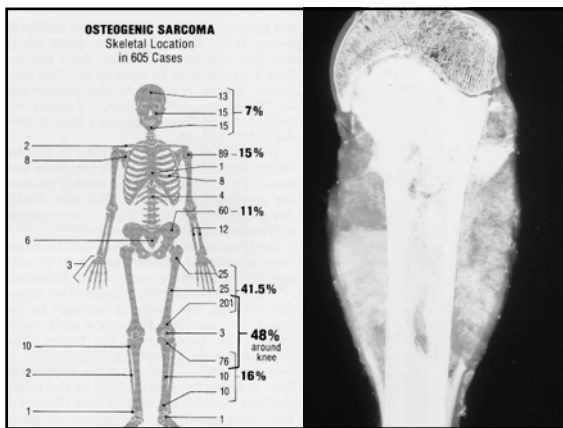
Surface
Low Grade
High Grade

Osteosarcomas

Definition

Malignant neoplasm of bone

- *malignant mesenchymal cell*
- *malignant bone matrix*



Osteosarcomas

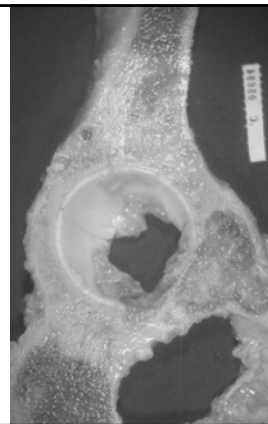
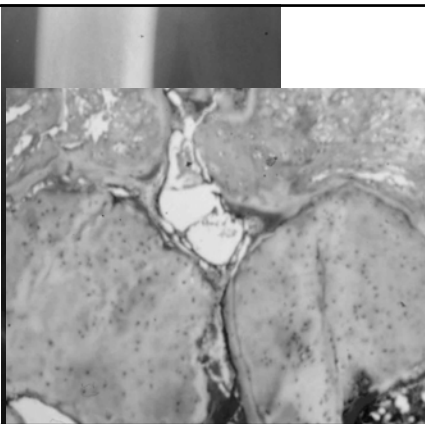
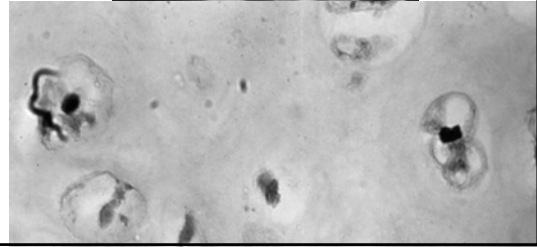
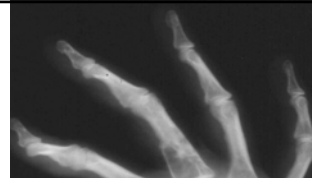
Mesenchymal cell is multipotential
Malignant osteoid essential for recognition

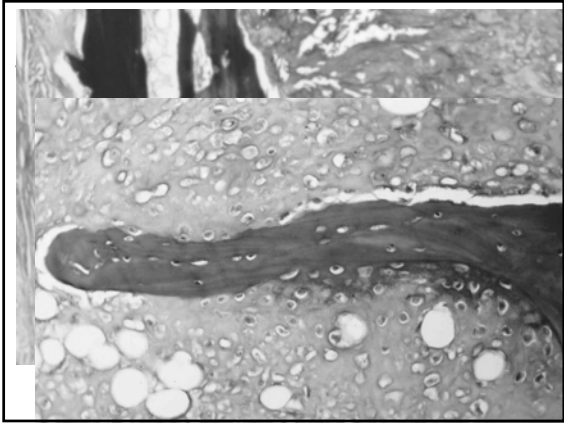
Osteosarcoma *Histologic types*

<i>Osteoblastic</i>	<i>Small cell type</i>
<i>Chondroblastic</i>	<i>Giant cell rich</i>
<i>Fibroblastic</i>	<i>Osteoblastoma-like</i>
<i>Telangiectatic</i>	

Cartilage-forming Tumors

<i>Benign</i>	<i>Chondroma</i>
<i>Malignant</i>	<i>Chondrosarcoma</i>





Tumors of fibroblastic origin

- *Benign* *Non-ossifying fibroma*
- *Malignant* *.Fibrosarcoma*
 .Malignant fibrous
 histiocyoma

Tumors of unknown origin

- ◆ *Giant cell tumor of bone*
- ◆ *Ewing Sarcoma*

