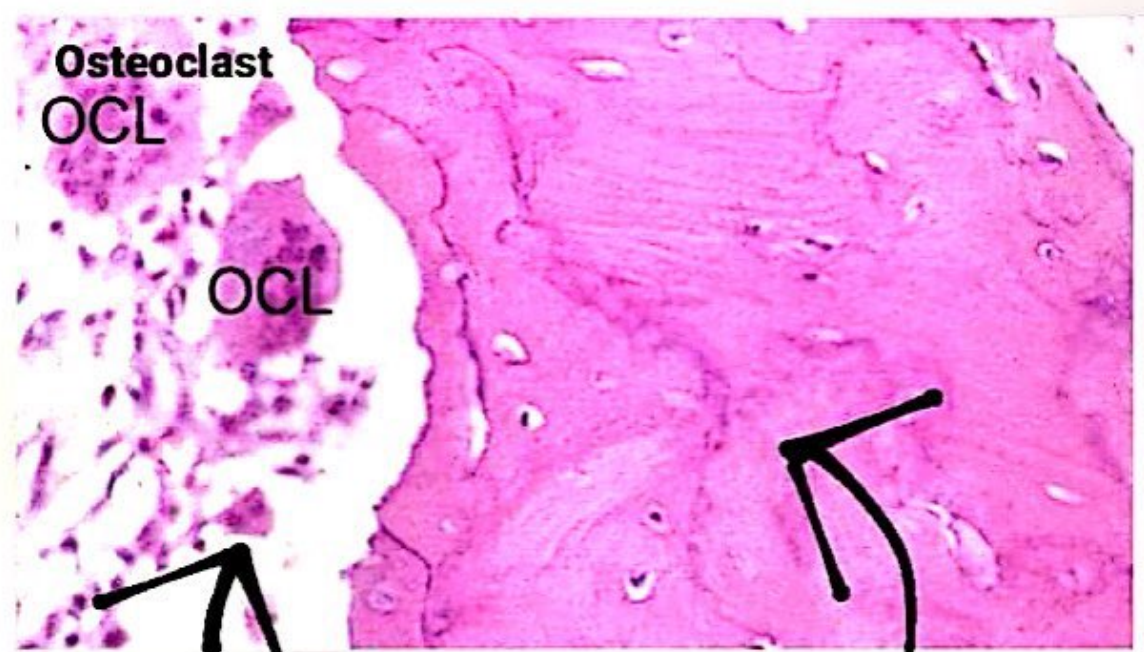


Read Only - You can't save changes to this ...



# Mixed phase of paget disease (Second phase)



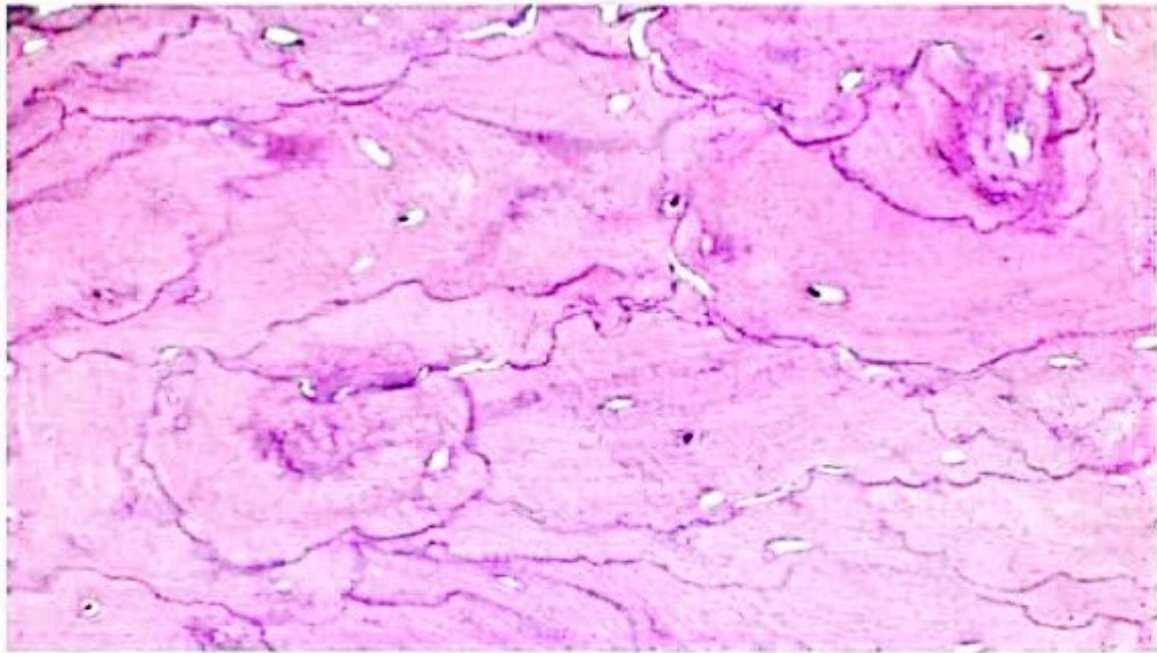
Osteoclast  
OCL

OCL

Osteoblast

خطوط بين ال  
Tubercular bone  
تسمى  
Simmental lines

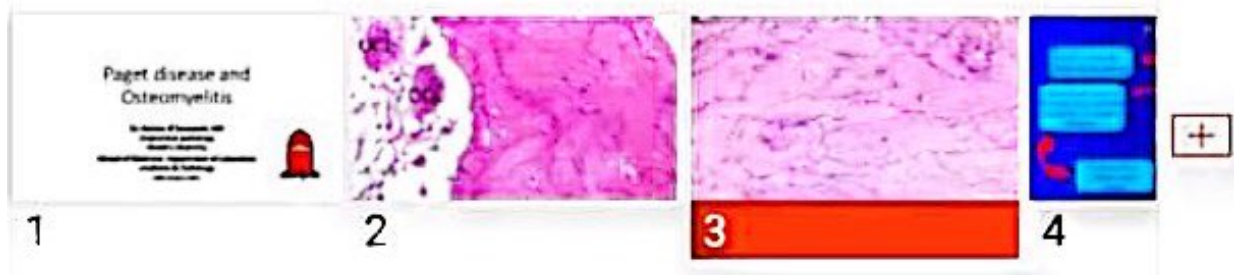
# 3rd phase of paget disease (secloritic phase)



بس فيها  
**Simmental lines**  
فقط

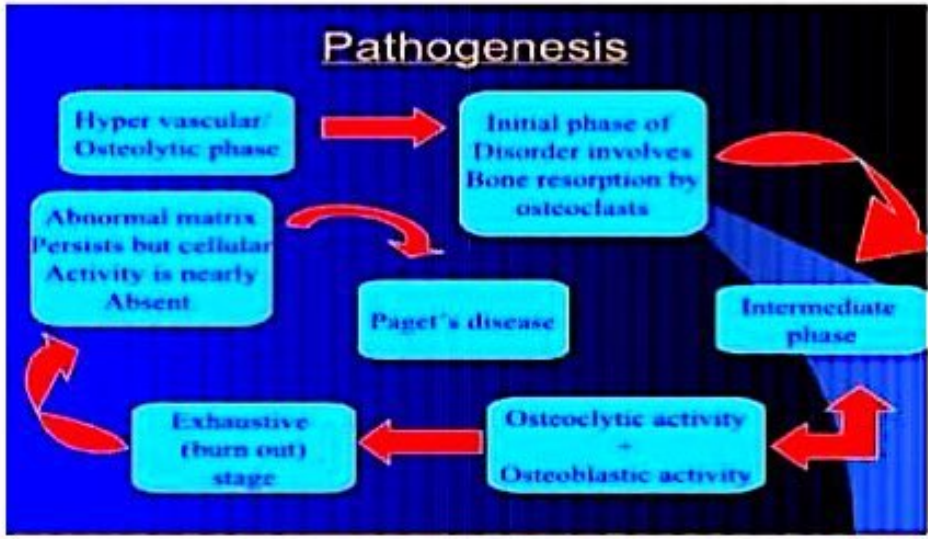
ما فيها  
**Cellular activity**

☰ Notes    💬 Comments

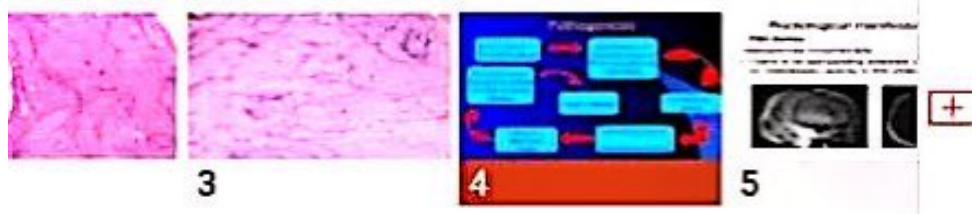




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Notes Comments

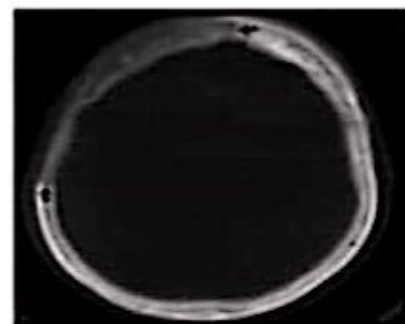
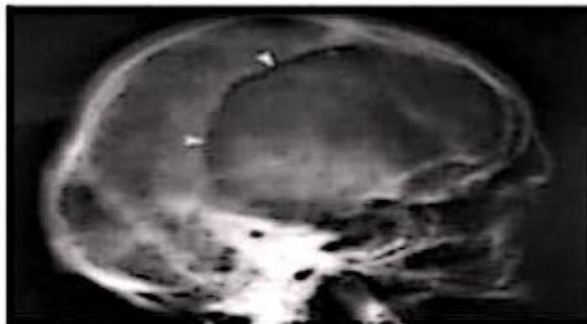




# Secloritic phase of paget

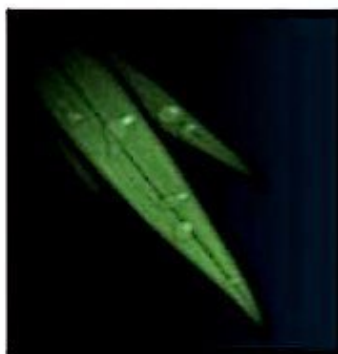
## Radiological manifestations

- **Flat bones:**  
osteoporosis circumscripta.
- There is no surrounding sclerosis (as there is no osteoblastic activity in this phase)



## Paget disease on long bone

- **Long bone:**
- candle flame or blade of grass appearance.



## Paget disease on vertbrae

مش شائع كثير فيها  
لكن ممكن نلاقيه

### • Vertebrae:

**Picture frame appearance**

Cortical thickening.



**Cystic spongiosa**

Coarse trabecular pattern.



Notes



Comments

**Radiological manifestations**  
• **Plain films**  
• **Picture frame appearance**  
• **There is no surrounding sclerosis as there is no osteolytic activity in this phase**

• **Long bones**  
• **vertebral bodies at base of gross appearance**



• **Vertebrae**  
• **Picture frame appearance**    • **Cystic spongiosa**  
• **Cortical thickening**                • **Coarse trabecular pattern**

See  
next slide

و يسمى  
**Lion face**

On skull  
**Bowing bone**  
ف بصير  
إنغلاق لل  
**Foraminae**  
و قطع لل  
**Cranial nerves**

- Spine:
- Ivory vertebra



**Most bone affect by pagets  
disease  
Is  
Pelvic**

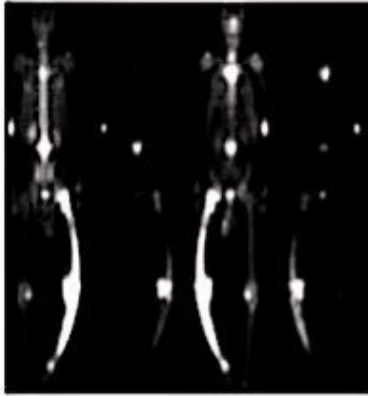
☰ Notes

💬 Comments

نحدد اذا كان  
في ال  
**Active**  
Or

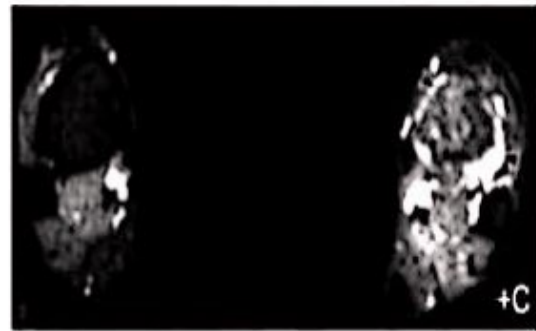
**End stage**  
Bone scan

- Typically demonstrates marked increased uptake of radiotracer in all phases



Contrast enhanced MRI

- Intracortical and speckled intramedullary enhancement due to increased blood flow.



بتميز ال paget disease  
انو ممكن تشوف اكثر من  
**Phase in same patient**

Notes Comment





Find...



# Osteomyelitis

ممکن یطلع للخارج و يعمل

## Sinus



## Fluid discharge

Discharging sinus





Read Only - You can't save changes to this ...

Find...    

## On osteomyelitis

بكون فيه

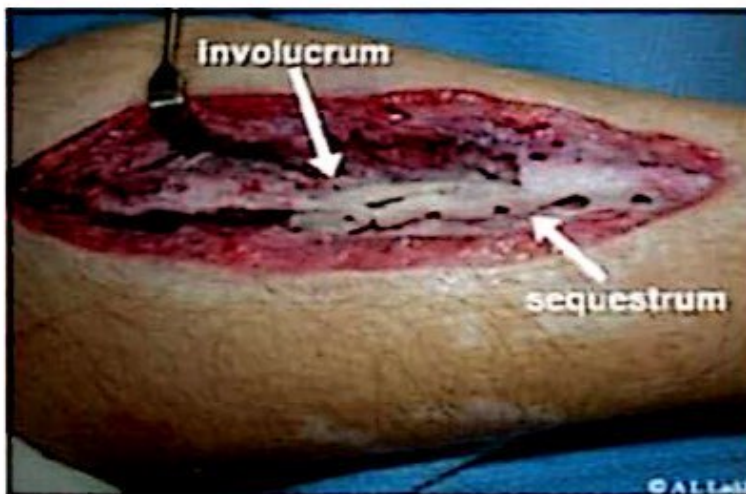
**Scloretic rim surroud the  
inflammation**

**So prevent any antibiotic to  
reach the area**

عشان هيك لازم يتدخل الجراح

و يشيل ال Dead bone

يلي هو ال Sequestrum





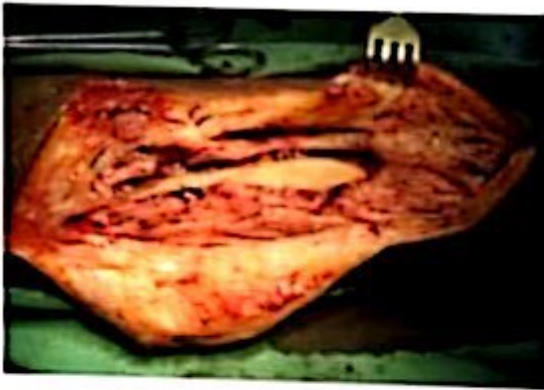
Find...



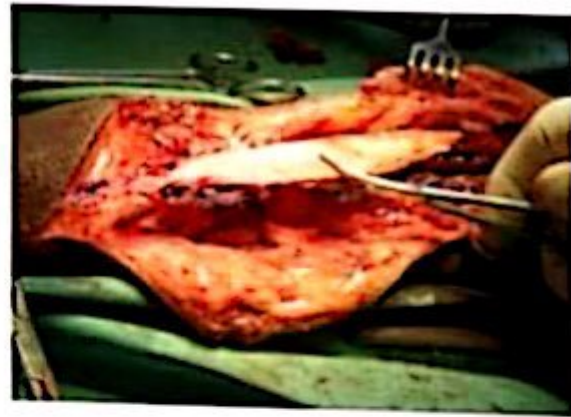
# osteomyelitis

نشيل ال Sequestrum  
و بعدها نعطي للمريض  
Antibiotic

Sequestrum Exposed



Sequestrum Removed



## On osteomyelitis

ال

**Sequestrum**

يلي لازم تنشال

مبين كمية ال

**Hemorrhage**

**And**

**Necrosis**

يلي فيها

Sequestrum



Notes



Comments



Sequestrum Exposed

Sequestrum Removed

Sequestrum

Sequestrum



كل هاي النقط الصغيره عباره عن

**Neutrophils**

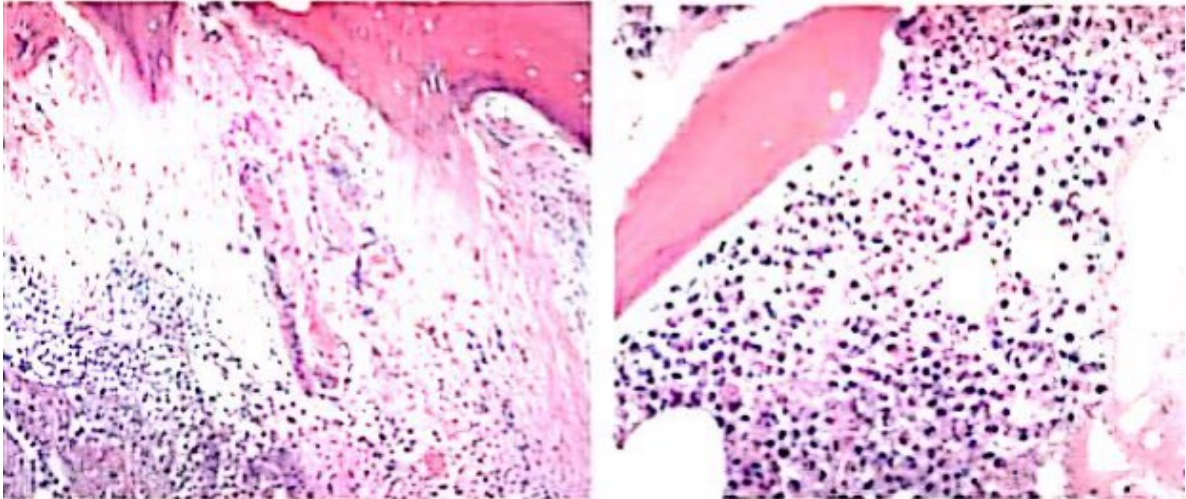
بتظلمها

**Up to weeks**

نتيجه لبقاء ال

**Sequestrum inside bone**

Microscopic (histologic) description



**Osteomyelitis**

Notes  Comm

A small, walled-off intra-cortical abscess is called a Brodie abscess.

Typical appearance of Brodie abscess is:  
Lucency within the distal metaphysis with reactive surrounding sclerosis.



**On metaphysis**



**Skeletal Tuberculosis (Pott's Disease)**

- Painful bones
- The infected bone will begin to weaken and become curved
- Absence of feeling and movement in the diseased bone
- Due to the bone being weakened, it has a high risk of being fractured

**TB**

**In vertbrae**

**يسمى**

**Pott's disease**

**عشان نتأكد اذا معو TB**

**ناخذ عينه**

**+**

**Chest x-ray**

**بكون فيها**

**Lung lesion**

Tubercular osteomyelitis	Pyogenic osteomyelitis
Longstanding history of months to years	History of days to months
Presence of active pulmonary tuberculosis	Not present
Most common location: Thoracic spine	Lumbar spine
> 3 contiguous vertebral bodies involved	Two vertebrae and intervening disc
Vertebral collapse : Common (67%)	Less common (21%)

☰ Notes

💬 Comments



Read Only - You can't save changes to this ...



Find...



# Diseases of skeletal muscle

Dr. Bushra Altarawneh, MD

Anatomical pathology  
Mutah University

School of Medicine- Department of Laboratory medicine & Patho  
MSS lectures 2021



Notes

Comments



17



18



19





**Variation in size of muscle fiber along regeneration or degeneration it is not feature for spinal muscle atrophy**

لكن الاختلاف بالحجم  
لوحده بس من ال

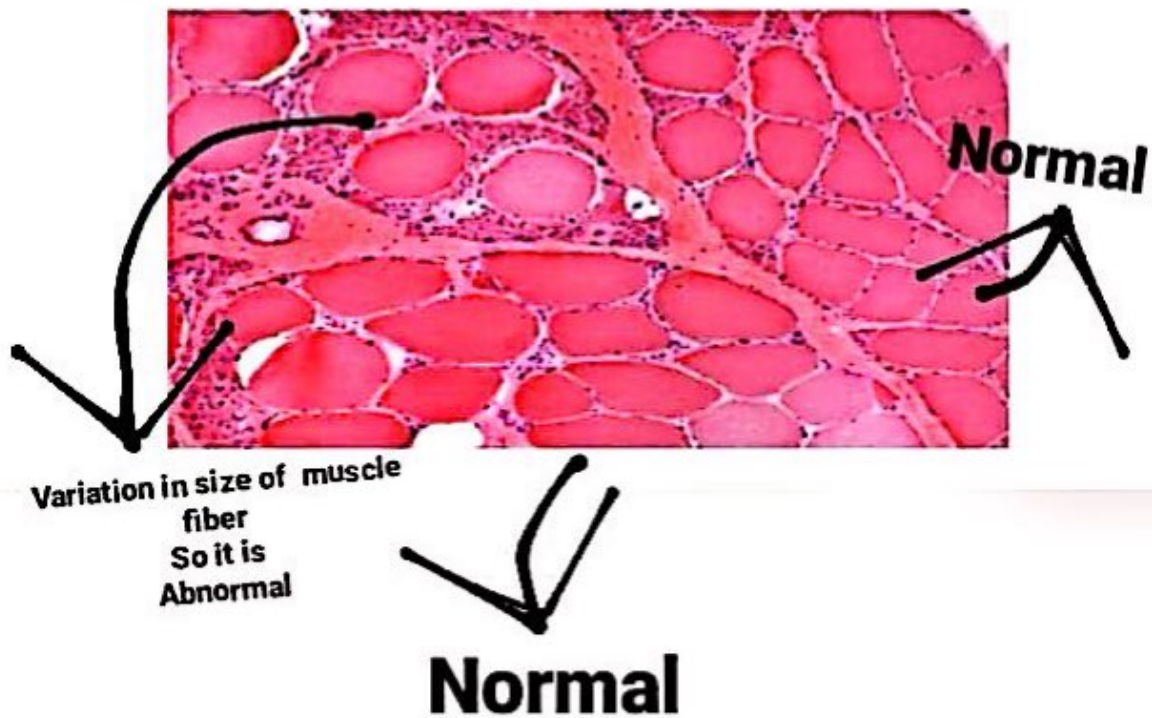
**internal fascicle of muscle**

بهاي الحاله يكون

**Spinal muscle atrophy**

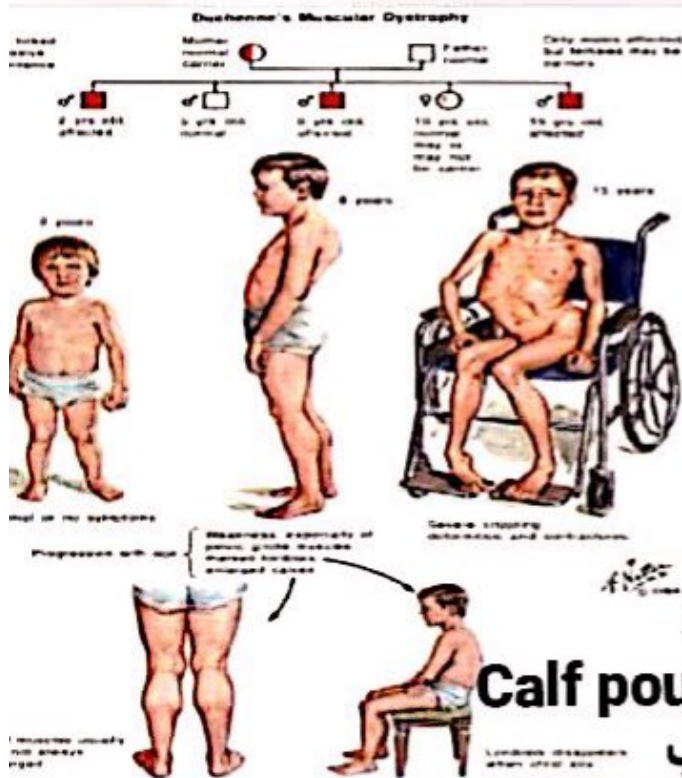
## Spinal Muscular Atrophy (Infantile Motor Neuron Disease)

- Histology typically exhibits large numbers of extremely atrophic muscle fibers, often involving an entire fascicle of a muscle.



# DMD

بكون الطفل طبيعي لحد ال 5 سنوات  
بعد هيك بصير عنده  
Muscle weakens



## Etiology

- single gene defect
- Xp21.2 region
- absent dystrophin

بكون عنده

**Calf pseudohypertrophy**

انتفاخ كاذب

لانو ما يكون عنده

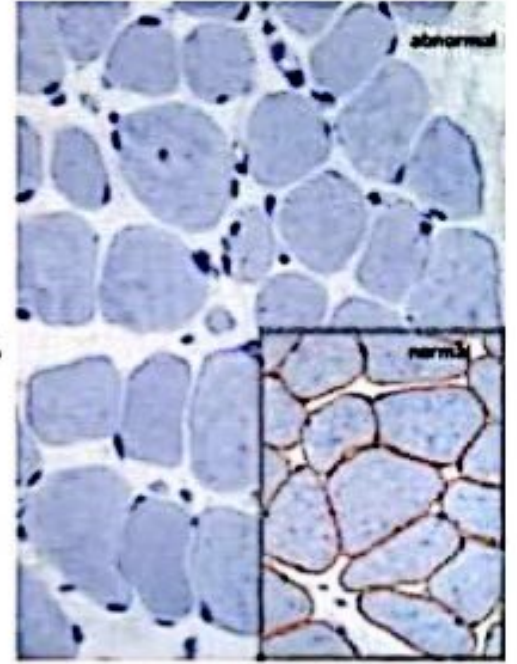
**Hypertrophy**

لكن عنده

**Replacment of muscle fiber  
by conective tissue + fat**

# Morphology

- DMD cases can exhibit enlarged, rounded, hyaline fibers lacking normal cross striations. Both DMD and BMD muscles show:
- Variation in myofiber diameter, with both small and giant fibers, sometimes with fiber splitting
- Increased numbers of internalized nuclei degeneration, necrosis, and phagocytosis of muscle fibers
- Regeneration of muscle fibers
- Proliferation of endomysial connective tissue
- In late stages, muscles are entirely replaced by fat and connective tissue
- Both type 1 and type 2 fibers are involved, without change in relative distribution.



بال DMD ما يكون عندو  
dystrofin ابدأ  
لكن بال BMD يكون عندو  
Dystrofin  
بكميه قليله



Notes



Comments

Spinal Muscular Atrophy

(Infantile Motor Neuron Disease)

Genetically transmitted, autosomal recessive, neurodegenerative disorder

caused by mutation affecting the survival of motor neurons



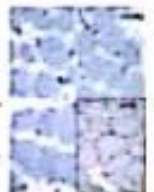
19



20

Morphology

- Both type 1 and type 2 fibers are involved, without change in relative distribution.
- In late stages, muscles are entirely replaced by fat and connective tissue
- Proliferation of endomysial connective tissue
- Regeneration of muscle fibers
- Increased numbers of internalized nuclei degeneration, necrosis, and phagocytosis of muscle fibers
- Variation in myofiber diameter, with both small and giant fibers, sometimes with fiber splitting
- DMD cases can exhibit enlarged, rounded, hyaline fibers lacking normal cross striations.



21

# Dermatomyositis



Gottron's papules. Discrete erythematous papules overlying the metacarpal and interphalangeal joints in a patient with juvenile dermatomyositis

## Specific skin papules Associated with muscles weekens

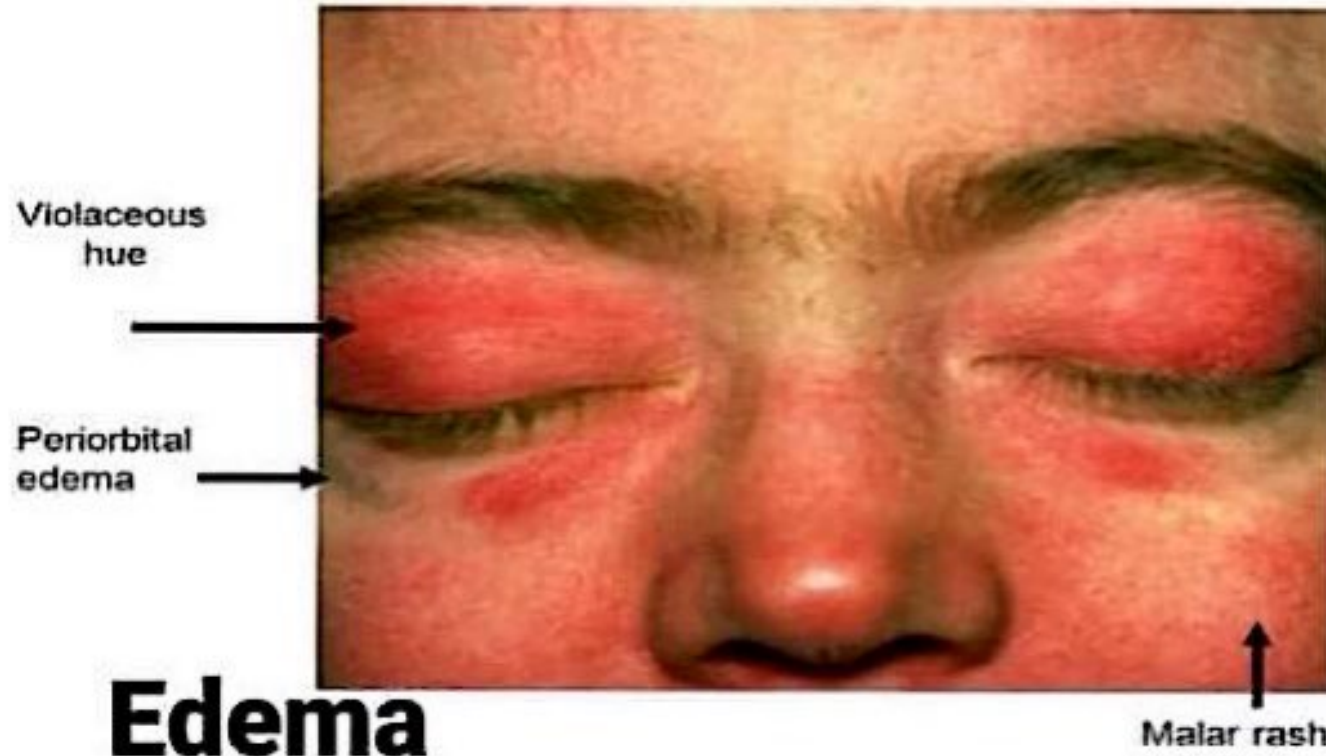


Notes



Comm

## Heliotrope Rash



**Both have  
Variation in muscle fiber  
But not diagnostic for any one  
of them**



عشان هيك لازم نتطلع ع المريض من  
ايش بشكي

**Full history**

**+**

**radiology**

**و**

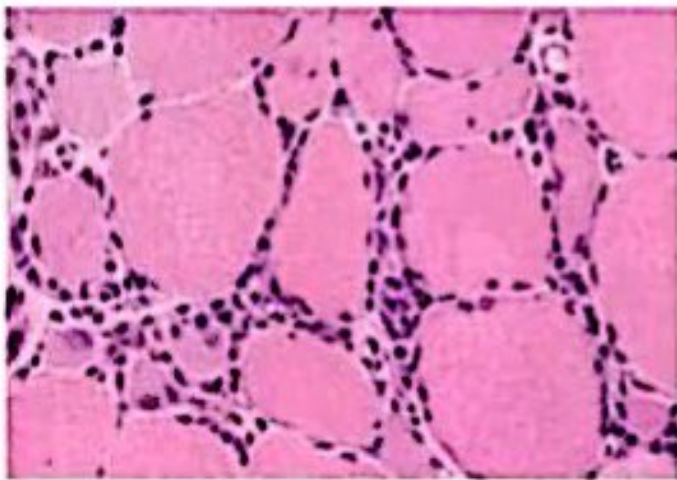
**ال**

**Final Step**

**بتكون ال**

**Muscle biopsy**

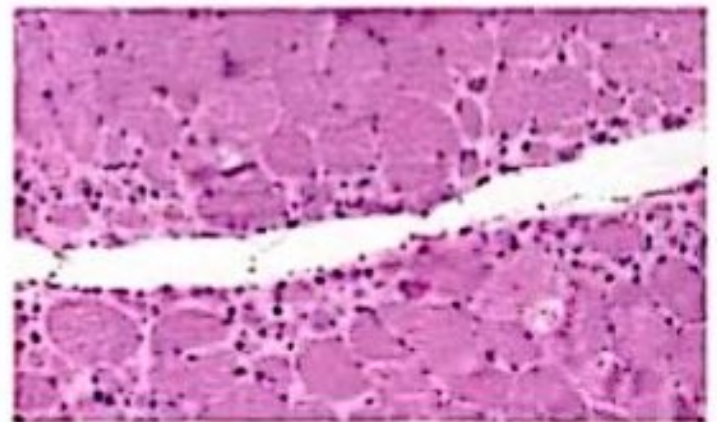
**Polymyositis Histopathology**



<http://medicine.medscape.com/article/325925-workup>

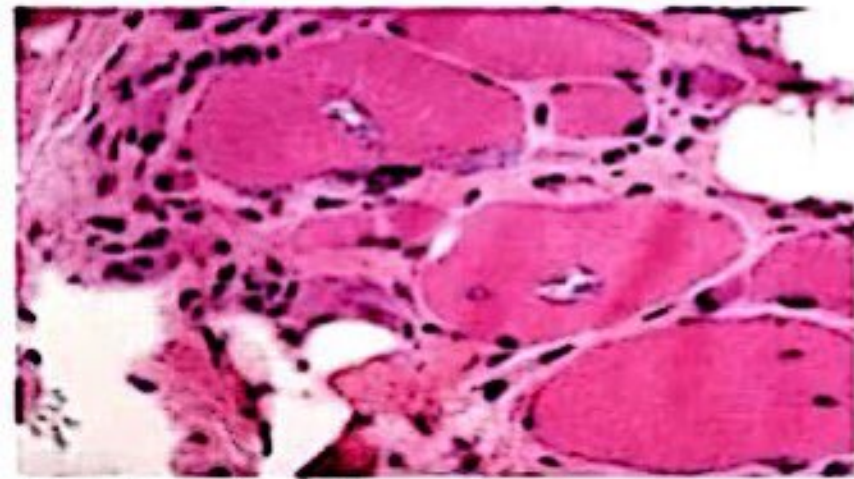
**Dermatomyositis Histopathology**

**Figure 2a**

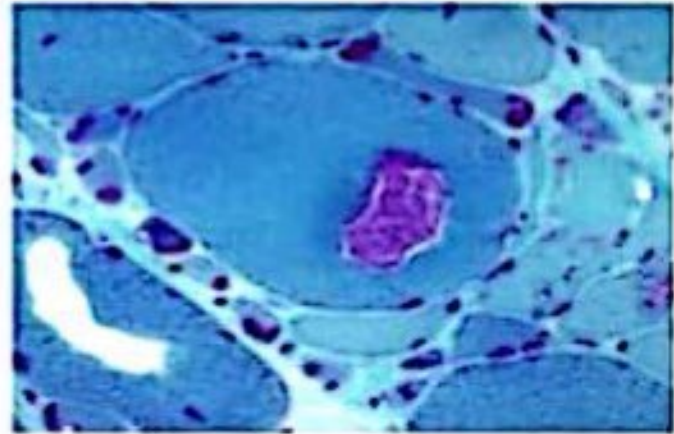


Ornaghi MM, Barohn RJ. Idiopathic inflammatory myopathies. Semin Neurol

# Inclusion body myositis



Basophilic rimmed vacuoles



Vacuole filled with granules

Vacuolated muscle fibres infiltrated with CD8/MHC-1 complexes. Beta-amyloid deposits and cytochrome oxidase negative fibres may be seen.

## Myositis

كلهم الهم علاقه

Immune response

لكن

Inclusion body Myositis

الو علاقه كمان بال

Abnormal protein folding

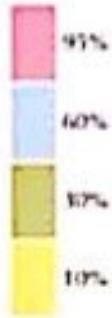
عشان هيك ما يستجيب لل

Immunesuppressent drug

☰ Notes

💬 Comme

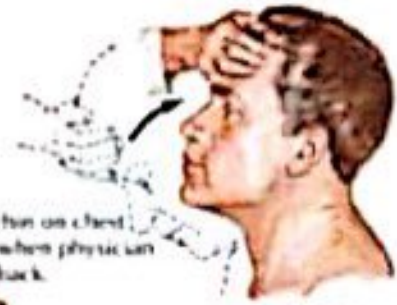
Regional distribution  
of muscle weakness



Flare and weakness of smile  
are common early signs.



Improvement after  
edrophonium chloride



Patient with chin on chest  
cannot resist when physician  
pushes head back.



In early stages, patient may feel  
fine in the morning but develops  
diplopia and speech slurs later in  
the day.

F. Netter  
M.D.

**myasthenia gravis**

اكثر العضلات يلي بتكون متأثره هيه

يلي بتكون

**Around eye and mouth**

بنعطيهم

**AntichE**

**Peridiselone**

**(cortison)**

Myans



---

# Soft Tissue and Bone Tumors

**Dr. Bushra Altarawneh, MD**

**Anatomical pathology  
Mutah University**

**School of Medicine- Department of Laboratory medicine & Pathology  
M55 lectures 2021**



أغلبها من

# Plouripotent stem cell



Table 20-4 Soft Tissue Tumors

## Tumors of Adipose Tissue

Lipomas

Liposarcoma

## Tumors and Tumor-Like Lesions of Fibrous Tissue

Nodular fasciitis

Fibromatosis

Superficial fibromatosis

Deep fibromatosis

Fibrosarcoma

## Fibrohistiocytic Tumors

Fibrous histiocytoma

Dermatofibrosarcoma protuberans

Pleomorphic fibroblastic sarcoma/pleomorphic undifferentiated sarcoma (malignant fibrous histiocytoma)

## Tumors of Skeletal Muscle

Rhabdomyoma

Rhabdomyosarcoma

## Tumors of Smooth Muscle

Leiomyoma

Smooth muscle tumors of uncertain malignant potential

Leiomyosarcoma

## Vascular Tumors

Hemangioma

Lymphangioma

Hemangioendothelioma

Angiosarcoma

## Peripheral Nerve Tumors

Neurofibroma

Schwannoma

Granular cell tumor

Malignant peripheral nerve sheath tumors

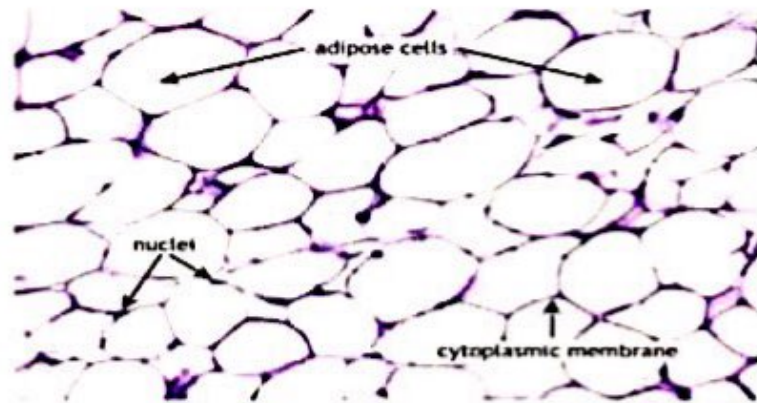
## Tumors of Uncertain Histogenesis

Synovial sarcoma

Alveolar soft part sarcoma

Epithelioid sarcoma

Normal adipose tissue



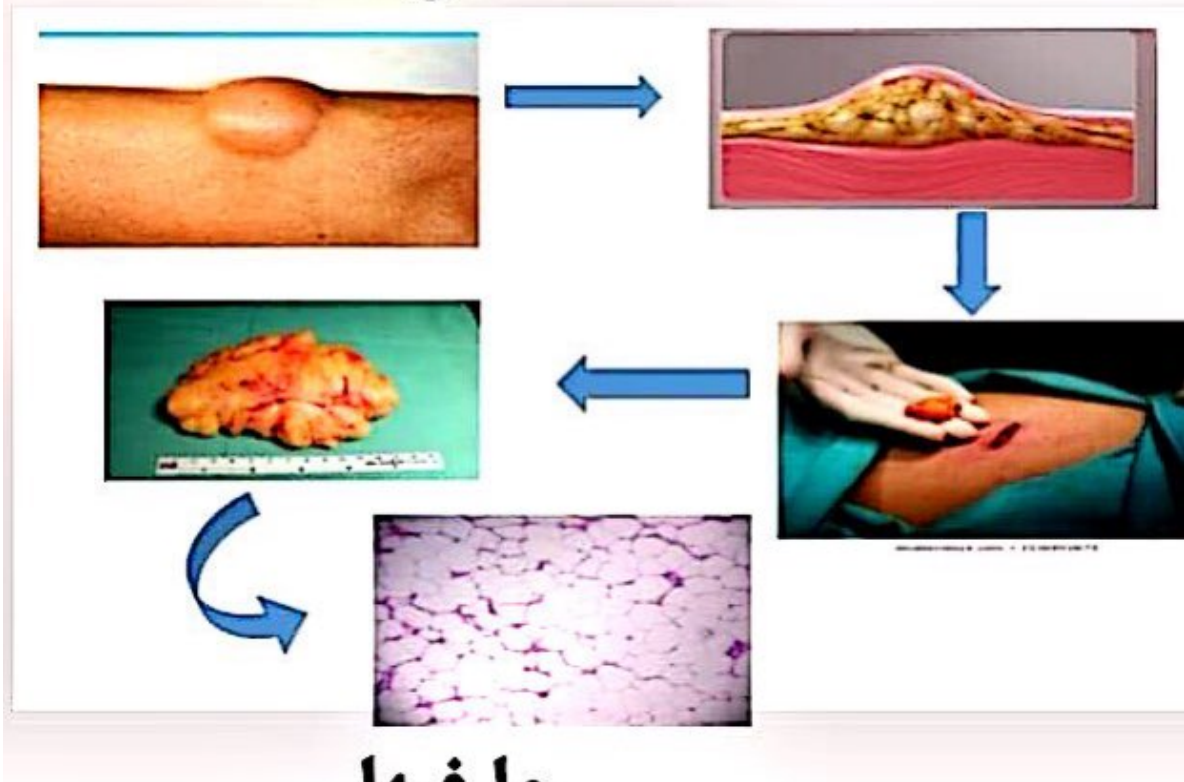
**Vacuolated cells  
That have  
Peripheral small nuclei**

Notes



# Lipoma

Common site  
Thigh



ما فيها

Lipoblast

لو فيها فيها بتكون  
Liposarcoma

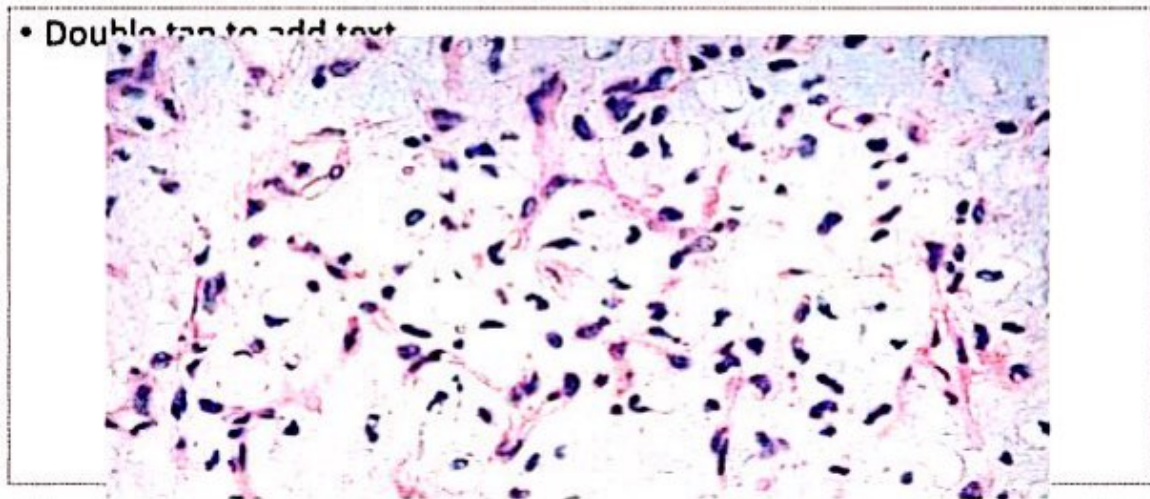


Notes



Comme

Myxoid liposarcoma. Adult-appearing fat cells and more primitive cells, with lipid vacuoles (lipoblasts), are scattered in abundant myxoid matrix and a rich, arborizing capillary network.



## Liposarcoma

فيها

**Lipoblast + polymorphic cells**



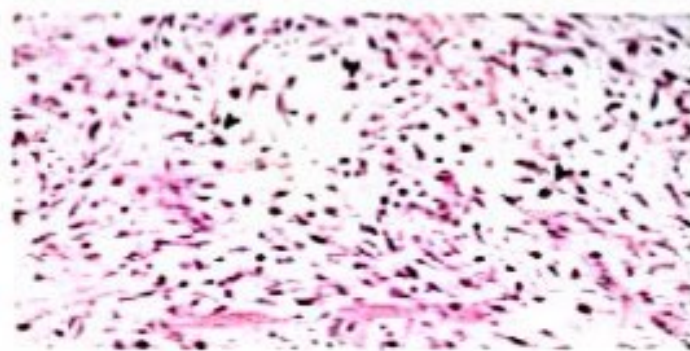
Notes



Comme

Nodular fasciitis. A highly cellular lesion composed of plump, randomly oriented spindle cells surrounded by myxoid stroma.

Note the prominent mitotic activity



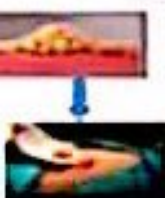
المرحلة الأولى من ال

**Fibrous tumor**

**Common in forearm**

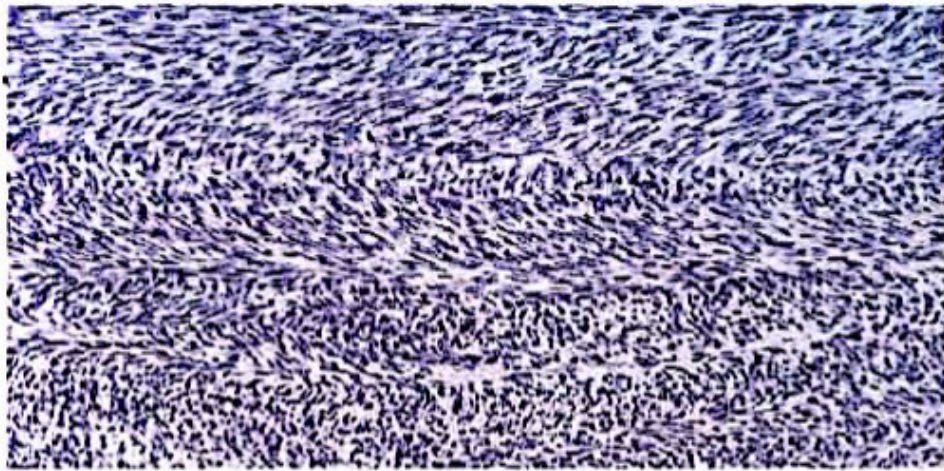
☰ Notes

💬 Comments



# Common in Thigh

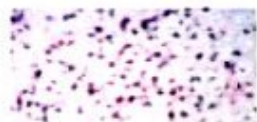
Fibrosarcoma. Malignant spindle cells here are arranged in a herringbone pattern.



Notes



Comments



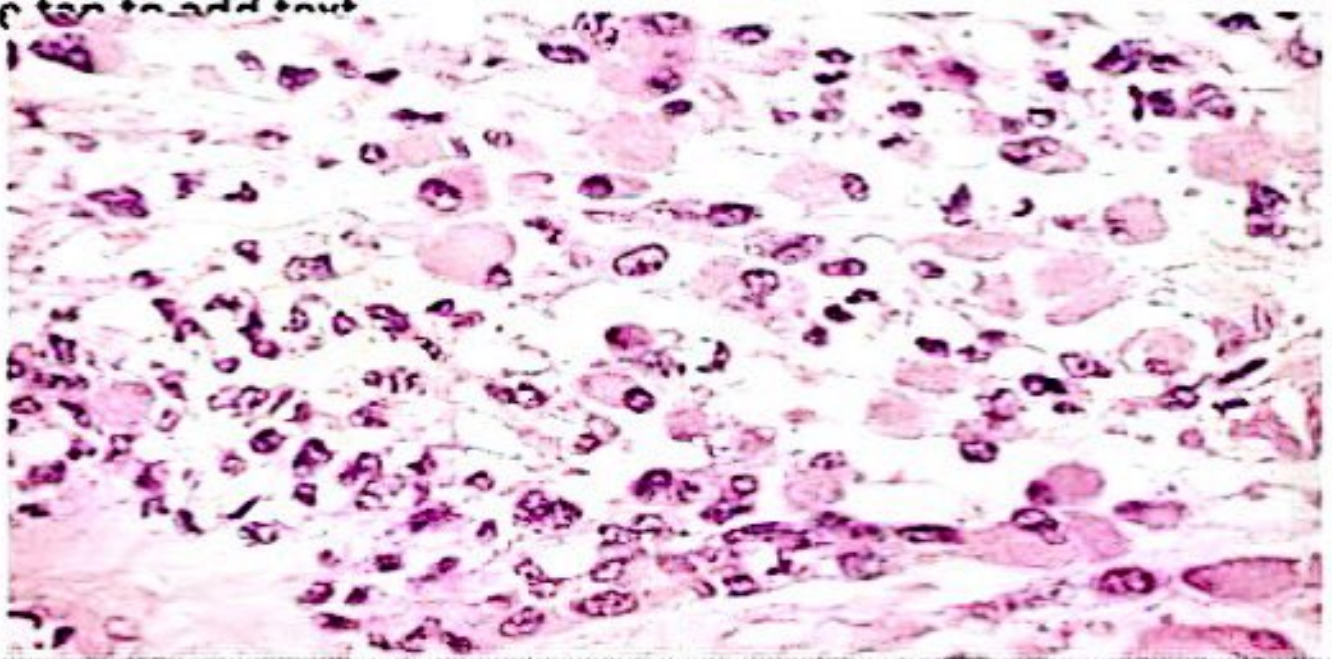
# Common in children

## Common location in head /

### UGT

Rhabdomyosarcoma. The rhabdomyoblasts are large and round and have abundant eosinophilic cytoplasm.

Double tap to add text





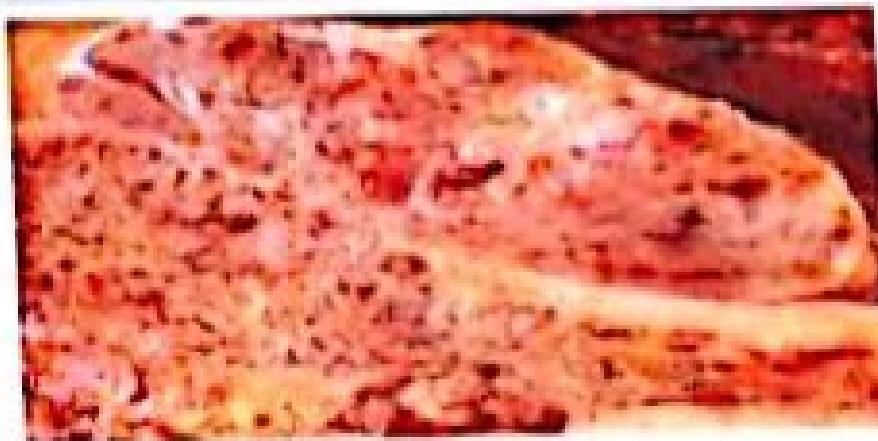


## Double t.

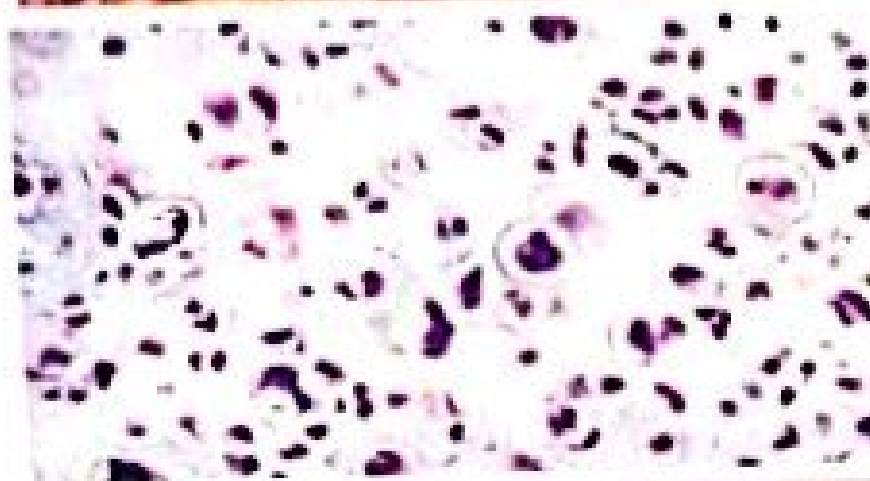
### • Double tap I

Section Type	Content Location	Page (of)
<b>Basic Training</b>		
Intro		10-10
Overview	Four basic skills	10-10
Visual content	Photograph of basic and site	10-10
Discussion	Verbal content	10-10
<b>Program</b>		
Primary assessment	Photograph of three basic personal skills and scenario	10-10
Secondary assessment	Four personal skills	10
<b>Cardiology</b>		
Intro		10-10
Discussion	Photograph of long skills	10-10
Introduction	Full range of skills and site	10-10
<b>Program</b>		
Discussion	Range of personal skills personal skills and site	10-10
<b>Discussion</b>		
Look at your results page	Photograph of long skills	10-10
Long content	Photograph and introduction	10-10

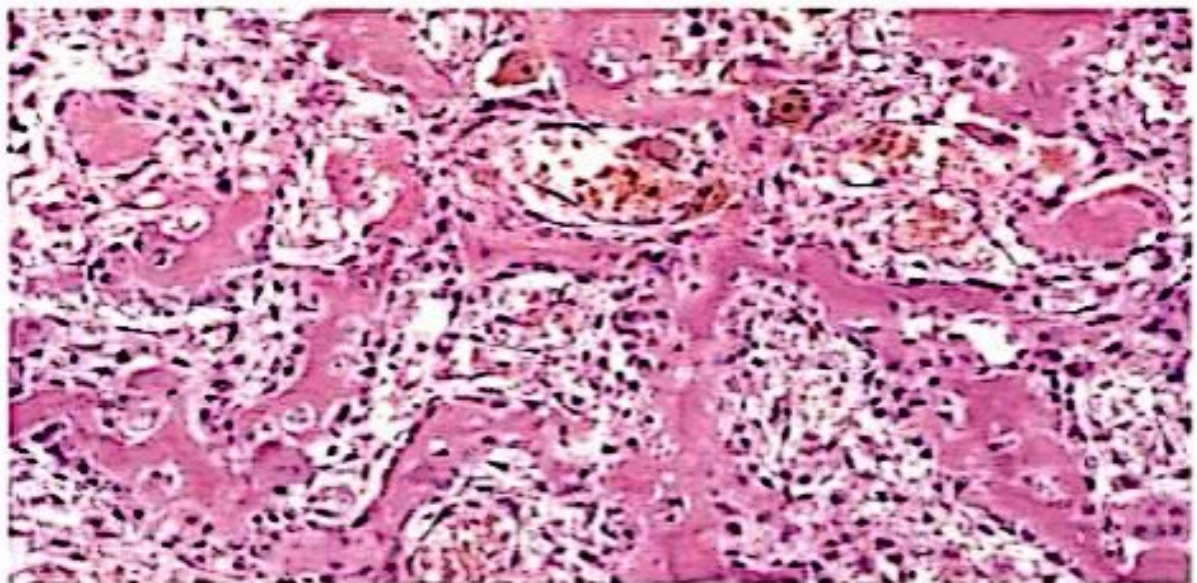
**Chondrosarcoma. A.** Islands of hyaline and myxoid cartilage expand the medullary cavity and grow through the cortex to form a sessile paracortical mass.



**B.** Anaplastic chondrocytes within a chondroid matrix.



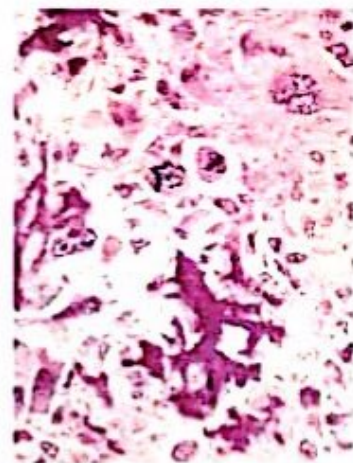
**Osteoid osteoma** showing randomly oriented trabeculae of woven bone rimmed by prominent osteoblasts. The intertrabecular spaces are filled by vascular loose connective tissue.



# Osteosarcoma

Macroscopically: Mass involving the upper end of the tibia. The tan-white tumor fills most of the medullary cavity of the metaphysis and proximal diaphysis. It has infiltrated through the cortex, lifted the periosteum, and formed soft tissue masses on both sides of the bone.

Microscopically, with coarse, lacelike pattern of neoplastic bone (arrow) produced by anaplastic tumor cells. Note the wildly aberrant mitotic figures (arrowheads).



## Lacelike pattern



Notes



Comments

# Ewing sarcoma

ممکن تكون بأي مكان بالجسم  
لكن تشكل 10% فقط من ال

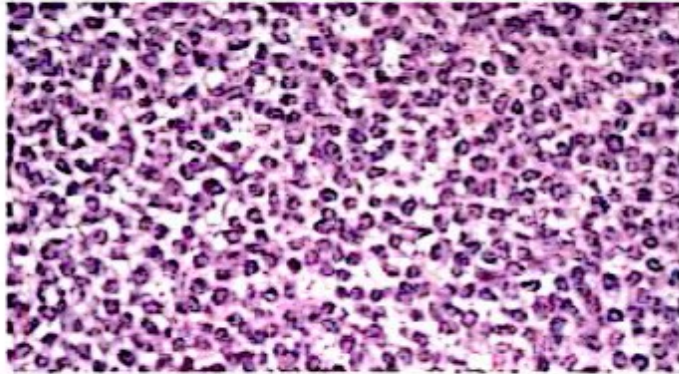
## Bone tumor

نتیجه لل

## Translocation between 22 and 21

**Macroscopically:** Ewing sarcoma/PNET arises in the medullary cavity and invades the cortex and periosteum to produce a soft tan white tumor mass, frequently with hemorrhage and necrosis.

**Microscopically:** t is composed of sheets of uniform small, round cells that are slightly larger than lymphocytes; The presence of Homer-Wright rosettes (tumor cells circled about a central fibrillary space) indicates neural differentiation.



## Ewing sarcoma

يسمى

## Small round blue tumor

Common in diaphysis

**Benign**

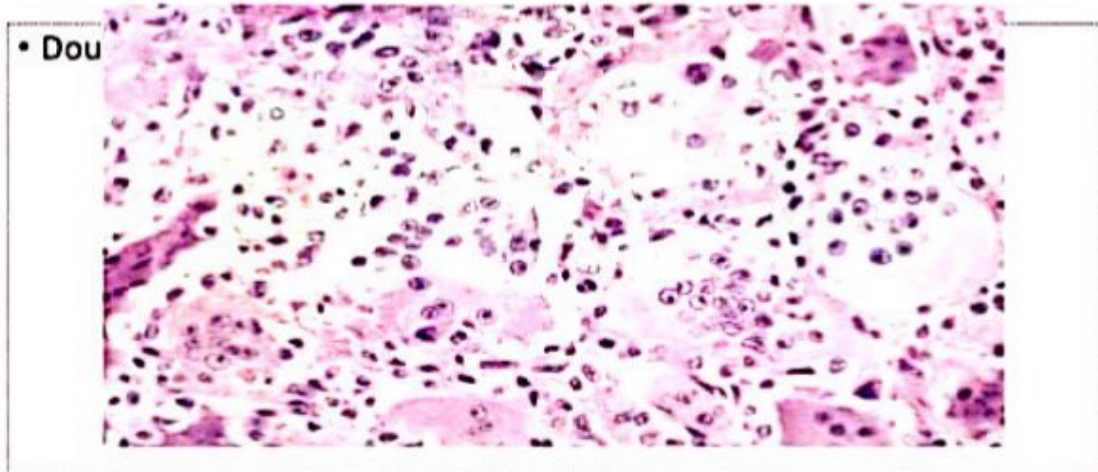
لكن

**2% منه فقط ممكن يعمل Mets**

لل

**Lung**

Benign giant cell tumor showing abundant multinucleate giant cells and a background of mononuclear cells.



**Common site Ribs**

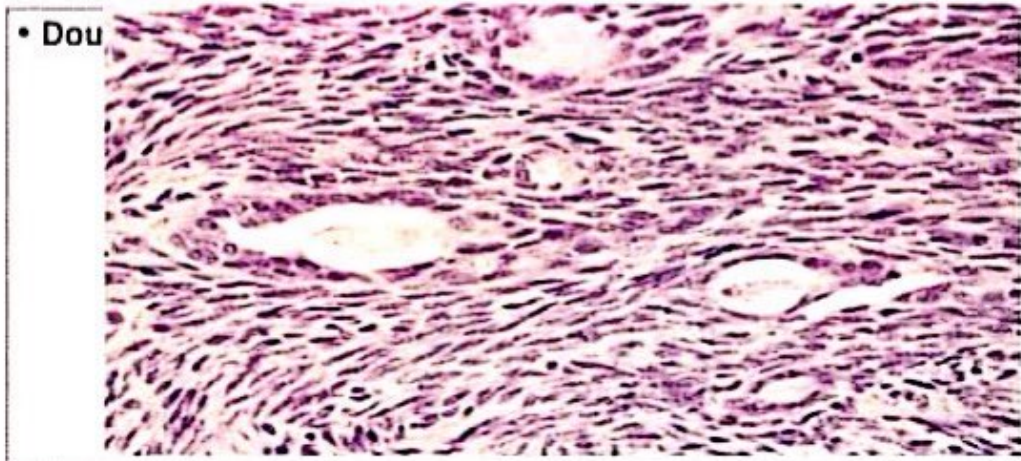
**Osteoclast**

كل خليه فيهم ممكن يكون فيها اكثر  
من ١٠٠ نواه

**Common in epiphysis**

# Translocation between X and 18 Common location knee

Synovial sarcoma exhibiting a classic biphasic spindle cell and glandlike histologic appearance.



## Uncertain location Unceratin differentiation

سموها synovial  
لكن ال  
differentiation  
Unceratin  
Not toward synovial  
ممکن تكون بال  
Face / knee

الوحيد من ال sarcoma  
بعمل Mets  
By lymph node

Notes Comr

