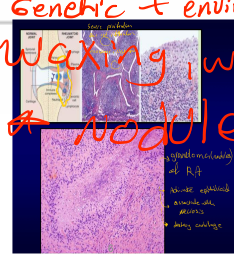
L7

Feature	Osteoarthritis (OA)	Rheumatoid Arthritis (RA)	Juvenile Idiopathic Arthritis (JIA)	Suppurative Arthritis	Lyme Arthritis
Etiology	Degeneration of cartilage; aging or secondary to preexisting disease	Autoimmune; chronic inflammatory synovitis	Unknown; autoimmune mechanism similar to RA	Bacterial infection (hematogenous spread)	Infection with *Borrelia burgdorferi*
Age Group	>50 years	4th-5th decade (F:M = 3:1)	<16 years	Any age; children: *H. influenza* <2 years, *S. aureus* older children/adults, *N. gonorrhoeae* in young adults	Any age
Joints Affected	Few weight-bearing joints (knee, hip, spine, hands)	Symmetric polyarthritis (hands, feet, wrists, ankles, MCP, PIP joints)	Large joints > small joints; oligoarthritis more common	Mostly knee, but can affect other joints	Large joints (knees most common)
Pathogenesis	Cartilage degeneration > repair and proliferation	T-cell activation → IFN-γ, IL-17, TNF, IL-1 → synovial inflammation, cartilage destruction, bone resorption	Similar to RA but ANA seropositivity is common, Rheumatoid Factor usually absent	Direct bacterial infection causing purulent inflammation	Immune response to *Borrelia* infection
Clinical Features	Joint pain worsens with use, morning stiffness, crepitus, limited range of motion, osteophyte formation, radicular pain	Symmetric joint swelling, pain, warmth, stiffness in morning and after inactivity, ulnar deviation, systemic involvement (skin, heart, lungs, vessels)	Similar to RA, but systemic disease and large joint involvement more common	Acute onset of severe pain, swollen warm joint, fever, leukocytosis, ↑ ESR	Intermittent arthritis attacks, often after initial Lyme disease rash
Serology & Markers	None specific	RF+ (80%), ACPA+ (70%)	ANA+ common, RF- usually	↑ WBC, ↑ ESR, positive culture/gram stain	Positive Lyme serology
Treatment	Pain control (NSAIDs, intra-articular steroids), joint replacement for severe cases	Steroids, Methotrexate (MTX), Anti-TNF	Variable prognosis; treatment depends on severity	Joint aspiration + IV antibiotics	Antibiotics (e.g., doxycycline, amoxicillin)

Genetic + environment



waxing, waning

nodules

AS A seronegative
Treat: Anti-IL-17
Absence RF
ligament
sacroiliac joint
HLA-B27
Bony Ankylosis (fusion)

Ankylosing spondylitis HLA-B27 (sacroiliac)
Reiter syndrome: arthritis, urethritis, conjunctivitis; Bacteria → Autoimmune
Enteropathic: salmonella, shigella
psoriatic: DIP joint

Tumor Type	Benign/Malignant	Common Location	Key Features	Genetic Mutation	Treatment
Joint Tumors	Mostly benign	Wrist (ganglion cyst), knee (Baker's cyst)	Ganglion cyst: not a true cyst, no synovial communication; Baker's cyst: true synovial cyst	No specific mutation	Surgical removal
Tenosynovial Giant Cell Tumor	Benign	Large joints, small hand tendons	Diffuse (PVNS) or localized	t(1;2)(p13q;37) (Type VI collagen α-3)	Surgical excision
Soft Tissue Sarcomas	Malignant	Extremities (thigh), deep soft tissues	Hematogenous metastasis, mostly sporadic, aggressive	NF1, Gardner syndrome, Li-Fraumeni syndrome, Osler-Weber-Rendu syndrome	Surgery, chemotherapy (CT), radiation therapy (RT)
Lipoma	Benign	Subcutaneous tissue	Well-encapsulated, mature fat cells	No specific mutation	Excision
Liposarcoma	Malignant	Extremities, retroperitoneum	Three subtypes: WD (less aggressive), myxoid, pleomorphic (most aggressive)	WD: MDM2 gene (chr 12), Myxoid: t(12;16)	Surgery, CT
Nodular Fasciitis	Benign	Subcutaneous soft tissues	Rapid growth, often mistaken for malignancy	t(17;22) MYH9-USP6 fusion gene	Self-limiting, excision if needed
Fibromas	Benign	Skin, subcutaneous tissue	Common, fibroblastic proliferation	No specific mutation	None required
Fibrosarcoma	Malignant	Soft tissues	Cellular, storiform pattern, high mitotic rate	No specific mutation	Surgery, CT
Superficial Fibromatoses	Benign	Palmar fascia, plantar fascia, penile region	Infiltrative, may impact function	No specific mutation	Surgery if needed
Deep Fibromatosis (Desmoid Tumor)	Locally aggressive	Abdominal wall, mesentery, limbs	Doesn't metastasize but recurs, infiltrative	CTNNB1 (β-catenin), APC (FAP syndrome)	Surgery, recurrence common
Rhabdomyoma	Benign	Associated with tuberous sclerosis	Rare	No specific mutation	None required
Rhabdomyosarcoma	Malignant	Children, skeletal muscle	Three types: embryonal, alveolar, pleomorphic	Specific mutations (not specified)	Surgery, CT, RT
Leiomyoma	Benign	Uterus (fibroids), skin, soft tissue	Well-circumscribed, hormonally responsive	Some cases: Fumarate hydratase (1q42.3)	Surgery if symptomatic
Leiomyosarcoma	Malignant	Extremities, deep soft tissue, retroperitoneum, great vessels	Hemorrhage, necrosis, high mitotic rate	Complex genotypes	Surgery, CT
Synovial Sarcoma	Malignant	Deep soft tissues, extremities	Monophasic (spindle cells) or biphasic (spindle + glands)	t(X;18)(p11;q11) SS18 fusion gene	Surgery + CT
Undifferentiated Pleomorphic Sarcoma (UPS)	Malignant	Deep soft tissue, extremities	Highly pleomorphic, aggressive, formerly MFH	Complex genetic abnormalities	Surgery, CT, poor prognosis

Tumor Type	Correlated Mutation
Tenosynovial Giant Cell Tumor	t(1;2)(p13q;37) (Type VI collagen α-3)
Liposarcoma (Well-Differentiated)	MDM2 gene (chr 12)
Liposarcoma (Myxoid Type)	t(12;16)
Nodular Fasciitis	t(17;22) MYH9-USP6 fusion gene
Deep Fibromatosis (Desmoid Tumor)	CTNNB1 (β-catenin) or APC gene (FAP syndrome)
Leiomyoma (Subset Cases)	Fumarate hydratase (1q42.3)
Synovial Sarcoma	t(X;18)(p11;q11) SS18 fusion gene
Soft Tissue Sarcomas (Some Cases)	NF1, Gardner syndrome, Li-Fraumeni syndrome, Osler-Weber-Rendu syndrome
Undifferentiated Pleomorphic Sarcoma (UPS)	Complex genetic abnormalities

18

pseudogout

- Idiopathic
- secondary

> 50 age

inflam response by deposit calcium phosphate

CPPD crystal

Risk factor: DM, previous joint damage, HPTH, Hemochrom

difficult diagnose

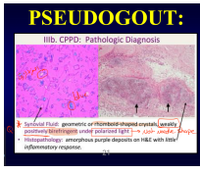
- Acute
- subacute
- chronic

Tr: supportive

Histologic:

Rhomboid-shape crystals

⊕ birefringent → not needle shape



Gout

cartilage

synovium

Big toe

inflam response by deposit urate

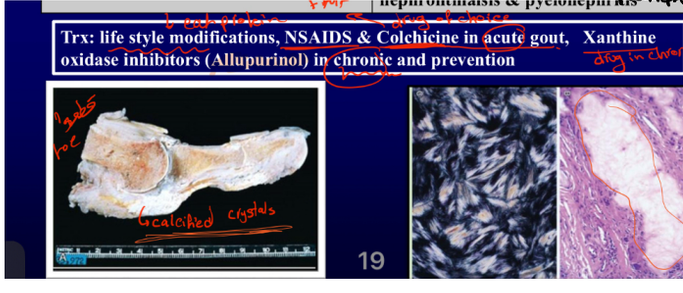
Deposition MSU crystals ↑uric Acid

Risk factors 20-30y, obesity, Alcohol, genetic predispos, ↑ thiaside

Acute: NSAIDs, colchicine

chronic: xanthine (Allupurinol)

- Acute Arthritis
- Chronic tophaceous arthritis → crystals deposition, thick synovium, pannus, ⊕ Birefringent, Needle shape
- Tophi → cartilage, ligament, bursa, tendon
- Gouty nephropathy → deposition crystals in Kidney



True cyst: baker cyst around knee(herniation process

Joint tumor

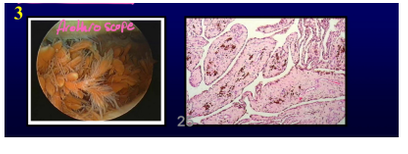
- Rare
- common: Ganglion cyst, tenosynovial synth

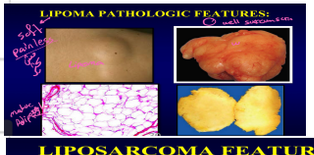
Not true

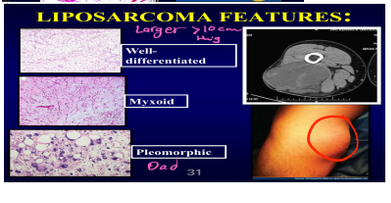
Close to joint

Wrist

Tenosynovial Giant Cell Tumor	Benign	Large joints, small hand tendons	Diffuse (PVNS) or localized (Pigmented(brown), villonodular synovitis,)	t(1;2)(p13q;37) (Type VI collagen α-3)	Surgical excision
Soft Tissue Sarcomas Ex: Ewing synovial sarcoma	Malignant	Extremities (thigh), deep soft tissues	Hematogenous metastasis, mostly sporadic, aggressive	NF1, Gardner syndrome, Li-Fraumeni syndrome, Osler-Weber-Rendu syndrome	Surgery, chemotherapy (CT), radiation therapy (RT)
Lipoma common	Benign	Subcutaneous tissue	Well-encapsulated, mature fat cells	No specific mutation	Excision
Liposarcoma	Malignant Large	Extremities, retroperitoneum Common in adult >50	Three subtypes: WD (less aggressive), myxoid, pleomorphic (most aggressive)	WD: MDM2 gene (chr 12), Myxoid: t(12;16)	Surgery, CT



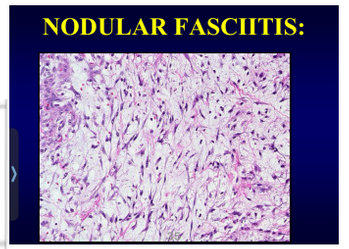


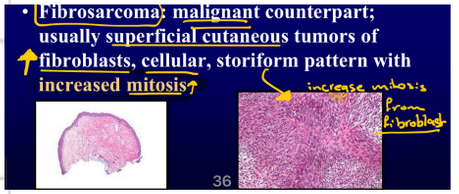


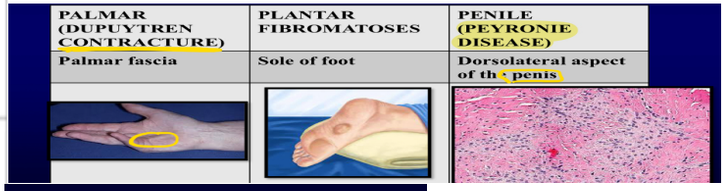
L9 L10

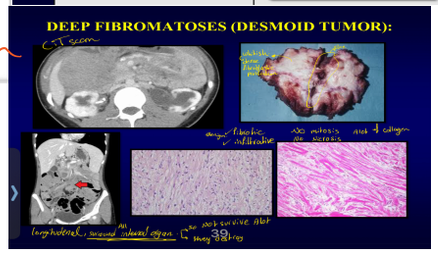
Fibrous Tumor:

Nodular Fasciitis	Benign	Subcutaneous soft tissues (Trauma)	Rapid growth, often mistaken for malignancy	t(17;22) MYH9-USP6 fusion gene	Self-limiting, excision if needed
Fibromas	Benign	Skin, subcutaneous tissue	Common, fibroblastic proliferation	No specific mutation	None required
Fibrosarcoma	Malignant	Soft tissues (superficial cutaneous)	Cellular, storiform pattern, high mitotic rate	No specific mutation	Surgery, CT
Superficial Fibromatoses	Benign	Palmar fascia (Dupuytren contracture), plantar fascia (Sole, foot), penile region (peyronie disease)	Infiltrative (fibroblast), may impact function (exception)	No specific mutation	Surgery if needed
Deep Fibromatosis (Desmoid Tumor)	Locally aggressive	Abdominal wall, mesentery, limbs	Doesn't metastasize but recurs, infiltrative, female>male	CTNNB1 (β-catenin), APC (FAP syndrome)	Surgery, recurrence common (complete excision)



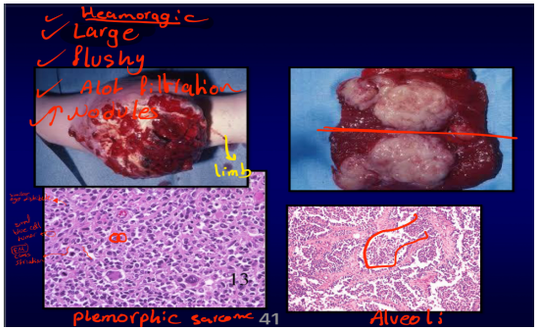






skeletal muscle Tumor:

		limbs	infiltrative	syndrome)	
Rhabdomyoma	Benign (exception)	Associated with tuberous sclerosis	Rare	No specific mutation	None required
Rhabdomyosarcoma (RMS)	Malignant	Children (common), skeletal muscle	Three types: embryonal (common), alveolar, pleomorphic	Specific mutations (not specified)	Surgery, CT, RT (Radiotherapy) (↑ high grade)

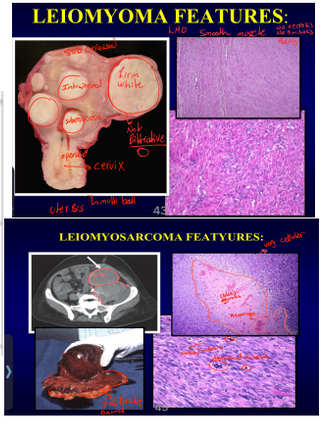


Smooth muscle Tumor

Leiomyoma	Benign	Uterus (fibroids), skin, soft tissue	Well-circumscribed, hormonally responsive	Some cases: Fumarate hydratase (1q42.3)	Surgery if symptomatic
Leiomyosarcoma	Malignant	Extremities, deep soft tissue, retroperitoneum, great vessels	Hemorrhage, necrosis, high mitotic rate	Complex genotypes	Surgery, CT

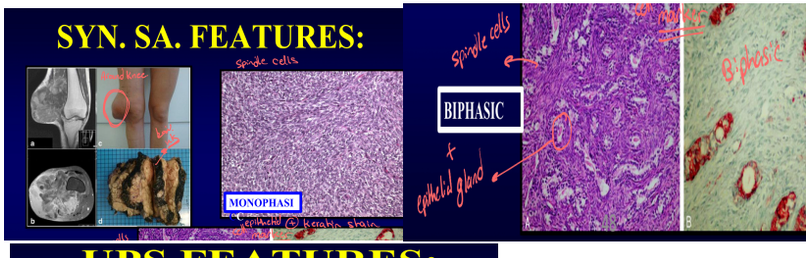
Adult, female

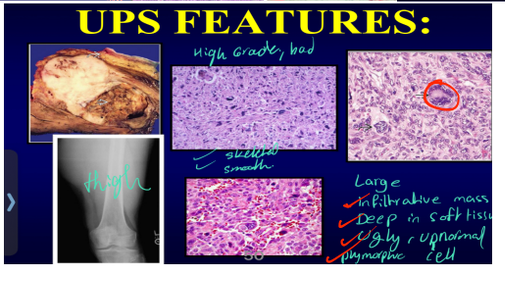
location, size, grade



uncertain origin

Synovial Sarcoma	Malignant metastasis lung + lymph (except)	Around knee Deep soft tissues, extremities Adult (20-40)	Monophasic (spindle cells) or biphasic (spindle + glands)	t(X;18)(p11;q11) SS18 fusion gene confirm diagnose	Surgery + CT (excision) chemo therapy stages
Undifferentiated Pleomorphic Sarcoma (UPS) skeletal muscle Smooth	Malignant high grade mesenchymal	Deep soft tissue, extremities	Highly pleomorphic, aggressive, formerly MFH Tumor: ugly (anaplastic) pleomorphic Abnormal mitosis necrosis	Complex genetic abnormalities	Surgery, CT, poor prognosis RT





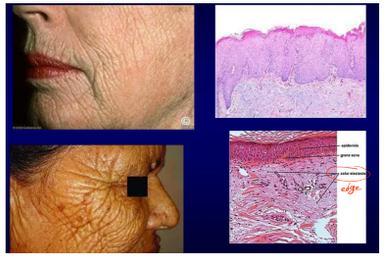
L11

Solar elastosis

sun damage

Thick + yellow skin

Damage of collagen + elastic fiber



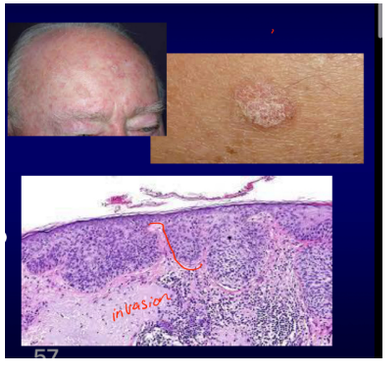
Actinic keratosis

- pre-malignant
  - progress: squamous cell carcinoma in situ

UV light damage

Tp 53 mutation.

- localised
- superficial.



Seborrheic keratosis

middle / older

Benign tumor.

* Very common

- FGFR3 mutations

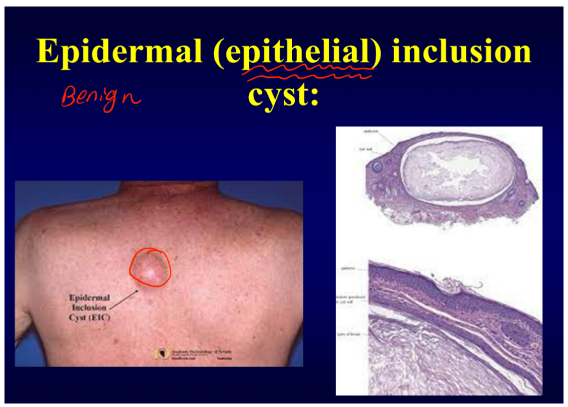
clinical.

- coin like
- pigmented "like"
- elevated (stuck on)

Skin
Bump
Benign
(Remove excision)

(Epidermal)Epithelial inclusion cyst

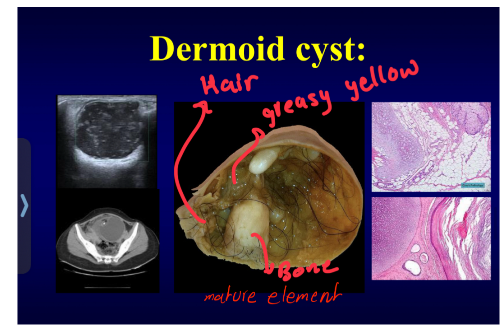
(EIC)
- Benign
- fill with keratin debri
- Rupture / Not



Dermoid cyst

- (mature) element "WHO"
(Bone, hair, muscle, collagen)
- greasy yellow material
- أحيانا (immature) (malignant) → Metast
ovary / testis يحكي

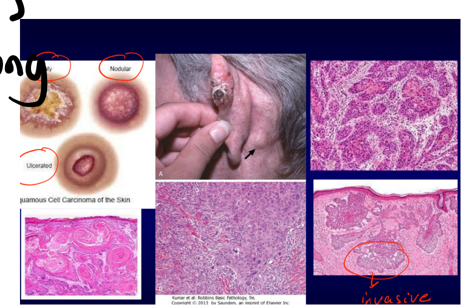
لازم تتأكد
لأن، لفحص

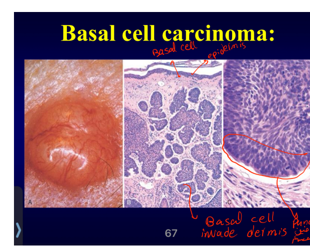


Squamous cell carcinoma

* common neoplasm
sun damage, localised
* Invasive

Risk factors:
→ Immunocomp (HPV)
→ sun exposure prolong
→ Radiation
→ old burns
→ tars, oils





Basal cell carcinoma

Small, large nucleus, on epidermis invade to dermis
تعرض sun

Multiply
- PTCH1, TP53
- WHO papules + pigment localise
* Gorlin syndrome (navus

from melanocyte ← **Melanocytic neoplasm**

NEVUS

وراثي خلقة
congenital

Absence Atypical

- Benign
- BRAF, RAS (mutation)
- clinical :-
  - → sharp demarcated
  - * → elevated
  - → pigmented
- excision surgically

X melanoma نادراً جداً تتحول

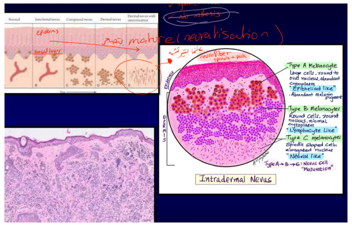
- No change with time.

* Histology :-
  - → symmetry
  - → maturation as move deep

بتصغر بيصير شكلها

As neurofiber
↓
pink

stages :
1- Junctional [Between dermis-epidermis]
2- compound [Junction + dermis]
3- Intradermal

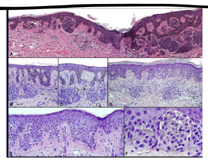


Dysplastic Nevus

- Atypical.
- { sporadic / familial → multiple → High Life Risk }
- with / without sun
* Microscopic diagnosed not clinical

Histology :-
- ↳ Asymmetry
- → Fusion Junctional
- → superficial dermal fibrosis
- → * lymphocytic infiltration.
- → Melanin incontinence

الميلانين ماعم تخلص



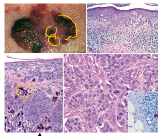
Melanoma

- malignant (fatal)
- surgical cured (excision)

mutation early transition	late mutation transition
BRAF RAS	P53 PTEM

vertical growth then led to Metastasis (bad prognosis)

Features :
- ✓ Irregular Border
- ✓ pigmentation
- ✓ ↑ # single cells
- ✓ ↑ thickness (called Breslow thick)
- ✓ Deep invasion → stage
- ✓ Large Atypical nuclei
- ✓ cherry red nucleoli



Treat :
- Anti BRAF + KIT
- Immuno therapy T-cell (Immune check point inhibitor)

شو العلامات تدل انا melanoma :
- ✓ Rapid enlarge
- ✓ Itch + pain
- ✓ New pigment