Caratteristiche istologiche dei sarcomi dei tessuti molli

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Soft-Tissue Sarcomas in Adults

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SOFT-TISSUE SARCOMAS ARE UNCOMMON TUMORS THAT HAVE TRADITIONally been managed by wide excisional surgery and radiotherapy; the use of chemotherapy has been reserved for advanced disease. Advances in multidisciplinary care have improved the evaluation and care of patients with this disease. Limb-conserving surgical paradigms, superior radiotherapy delivery, and novel adjuvant agents for specific tumors are now available. This overview is intended as a review of current understanding and treatment of soft-tissue sarcoma, with an emphasis on recent advances.

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N Engl J Med 2005;353:701-11.

Although soft-tissue sarcomas can arise anywhere in the body (Table 1), the majority occur in the limb or limb girdle or within the abdomen (retroperitoneal or visceral and intraperitoneal). Benign soft-tissue tumors, especially lipomas, are 100 times as common. Soft tissue in this context is defined as nonepithelial extraskeletal tissue, including muscle, fat, and fibrous supporting structures, arising mainly from embryonic mesoderm, with some neuroectodermal contribution.

Accurate pretreatment evaluation is critical for treating soft-tissue sarcomas. Surgery for localized disease is often curative, alone or in combination with radiotherapy and chemotherapy in selected patients. Function-preserving limb conservation is the goal of treatment for soft-tissue sarcomas of the limbs. Intraabdominal tumors pose treatment challenges because of the proximity of adjacent vital organs. Half of patients with soft-tissue sarcomas will die from this disease, a statistic that has changed little in recent decades.[1]

Soft-tissue sarcomas are best treated in multidisciplinary centers that specialize in treating this disease,[2-6] have experience with functional limb preservation, and have low rates of local recurrence and good rates of overall survival.[3] The management of this tumor at other types of centers may lead to inappropriate tests,[2] positive margins after surgical resection, and a reduced likelihood of radiotherapy.[6] Patients with soft-tissue sarcomas are reportedly willing to travel greater distances in order to receive care in a specialty center.[4] Specialists who preserve the function of a given site can work cooperatively with oncologists to enhance the likelihood of a good outcome.

DEMOGRAPHIC AND ETIOLOGIC CHARACTERISTICS

Soft-tissue sarcomas account for only about 1 percent of all cancers.[7] Approximately 8700 new cases of soft-tissue sarcoma are diagnosed each year in the United States[7] and about 1500 in the United Kingdom. The relative frequency and response of each subtype vary according to age. For example, soft-tissue sarcomas in children, particularly rhabdomyosarcomas, more often respond to chemotherapy than do those in adults.[8]

The overall incidence of soft-tissue sarcoma has been increasing,[9] perhaps as a result of the increase in Kaposi's sarcoma, which is often associated with the acquired immunodeficiency syndrome (AIDS),[9,10] as well as improved recognition and diagnosis.

Most soft-tissue sarcomas are sporadic; few have an identifiable cause. There is an association between certain viral infections (notably Epstein–Barr virus in those with AIDS) and leiomyosarcoma.[11] Sarcoma may develop 3 to 15 years after therapeutic ir-

SARCOMAS

100%
OF SARCOMAS ARE RARE

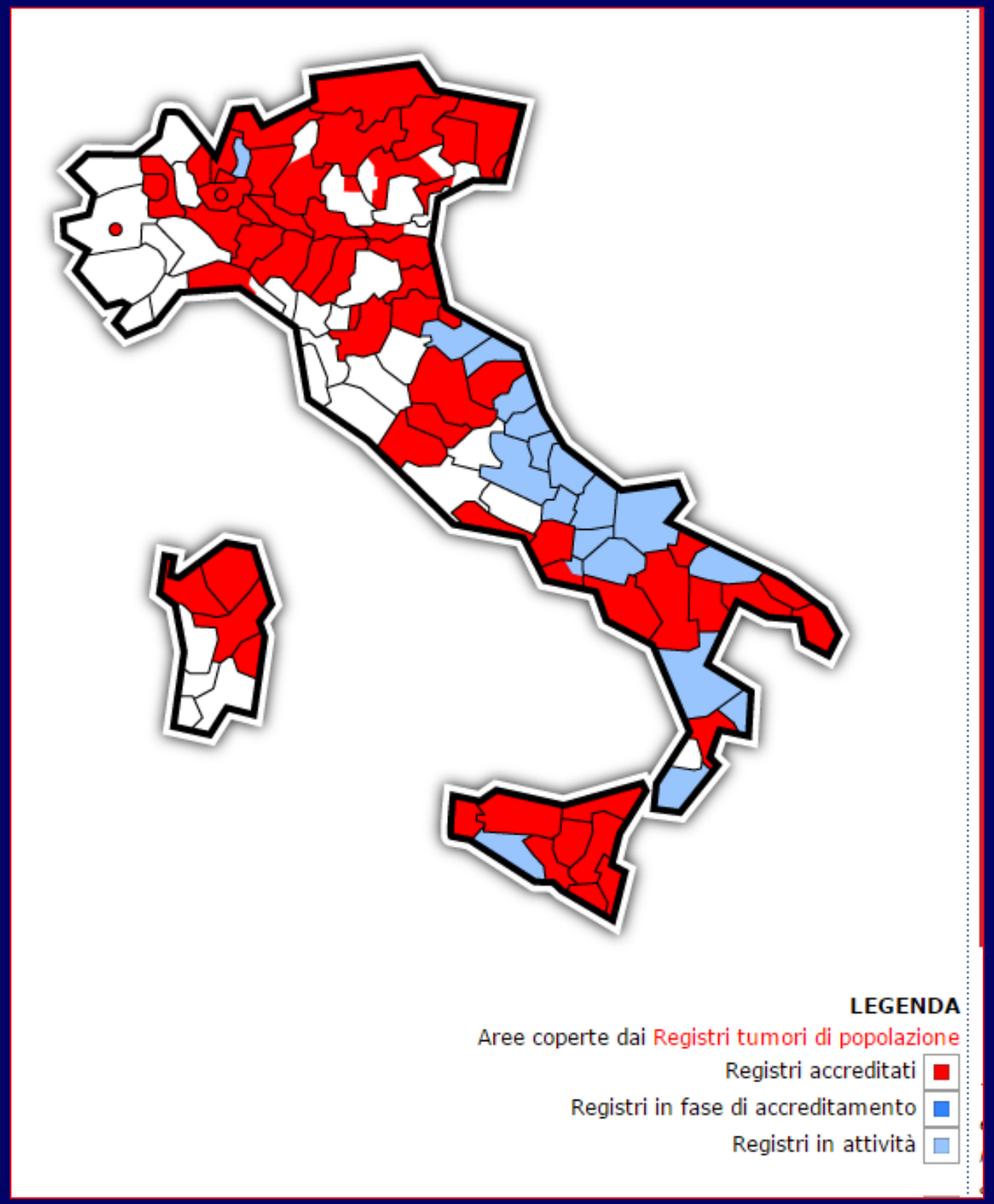
INCIDENCE

5 883
ESTIMATED NEW CASES
ITALY, 2015

- **4 072** SOFT TISSUE SARCOMAS
- **499** BONE SARCOMAS
- **386** GASTROINTESTINAL STROMAL TUMOURS
- **927** KAPOSI SARCOMA

PREVALENCE

68 931
ESTIMATED PREVALENT CASES
ITALY, 2010



Arch Pathol Lab Med. 2013 Feb;137(2):233-40

Outside Case Review of Surgical Pathology for Referred Patients: The Impact on Patient Care.

Swapp RE, Aubry MC, Salomão DR, Cheville JC

Our review of 71 811 cases initially examined between 2005 and 2010 identified 457 major disagreements (0.6%). The most frequent areas of disagreement were gastrointestinal (80 cases; 17.5%), lymph node (73; 16.0%), bone/soft tissue (47; 10.3%), and genitourinary (43; 9.4%). Treatment was affected by a changed diagnosis in 126 cases (90.0%), and prognosis was affected in 129 cases (92.1%). For 86 (51.8%) of the 166 cases, additional tissue was obtained

Our findings demonstrate the value of outside case review of pathology materials for referred patients, and suggest that it decreases the likelihood of diagnostic errors and provides better protection for patients.

Soft Tissue Cases by Diagnostic Category: Emory University Soft Tissue Consultation Service, July 1, 1998, Through September 1, 1998

Diagnostic Category	No. (%) of Cases
• Benign mesenchymal tumors	206 (41.2)
• Sarcomas	186 (37.2)
• Reactive lesions	74 (14.8)
• Nonmesenchymal lesions	34 (6.8)
• All cases	500 (100.0)

Arbiser ZK, Folpe AL, Weiss SW. Consultative (expert) second opinions in soft tissue pathology. Analysis of problem-prone diagnostic situations. *Am J Clin Pathol.* 2001 Oct;116(4):473-6

Major Discrepancies

Category*	Second Opinion	Submitting Diagnosis	No. (%) of Cases
1	Benign mesenchymal lesion	Sarcoma	29 (45)
2	Sarcoma	Benign mesenchymal lesion	15 (23)
3	Nonmesenchymal tumor	Mesenchymal tumor	13 (20)
4	Grading discrepancy	Grading discrepancy	8 (12)
		Total	65 (100)

1 fascite (craniale, intravascolare, proliferativa, ischemica)
pseudotumori producenti osso (miosite ossificante, panniculite ossificante, periostite reattiva)
2 sarcoma sinoviale, sarcoma fibromixoide di basso grado
3 leucemie-linfomi, melanomi, carcinomi

Arbiser ZK, Folpe AL, Weiss SW. Consultative (expert) second opinions in soft tissue pathology.
Analysis of problem-prone diagnostic situations. *Am J Clin Pathol* 2001;116(4):473-6

Troxel DB. Trends in Pathology Malpractice Claims. *Am J Surg Pathol* 2012;36:e1–e5

OXFORD JOURNALS Annals of Oncology

Ann Oncol. 2012 Sep; 23(9): 2442–2449. PMCID: PMC3425368
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Sarcoma: concordance between initial diagnosis and centralized expert review in a population-based study within three European regions

I. Ray-Coquard,[1,2,*] M. C. Montesco,[3] J. M. Coindre,[4,5] A. P. Dei Tos,[6] A. Lurkin,[1,2] D. Ranchère-Vince,[2] A. Vecchiato,[3] A. V. Decouvelaere,[2] S. Mathoulin-Pélissier,[4,5,7] S. Albert,[7] P. Cousin,[2] D. Cellier,[8] L. Toffolatti,[6] C. R. Rossi,[3,9] and J. Y. Blay[2,10], for the Conticanet group

Methods

Histological data of patients diagnosed with sarcoma in Rhone-Alpes (France), Veneto (Italy) and Aquitaine (France) over a 2-year period were collected. Initial diagnoses were systematically compared with SO from regional and national experts.

Results

Of 2016 selected patients, 1463 (73%) matched the inclusion criteria and were analyzed. Full concordance between primary diagnosis and SO (the first pathologist and the expert reached identical conclusions) was observed in 824 (56%) cases, partial concordance (identical diagnosis of connective tumor but different grade or histological subtype) in 518 (35%) cases and complete discordance (benign versus malignant, different histological type or invalidation of the diagnosis of sarcoma) in 121 (8%) cases. The major discrepancies were related to histological grade ($n = 274$, 43%), histological type ($n = 144$, 24%), subtype ($n = 18$, 3%) and grade plus subtype or grade plus histological type ($n = 178$, 29%).

Conclusion

More than 40% of first histological diagnoses were modified at second reading, possibly resulting in different treatment decisions.

Concordance analysis

Concordance	Zero	Partial	Full	*P*
Included tumors[a]	104	515	814	
Type of laboratory				
Public	40 (5%)	241 (32%)	477 (63%)	**<0.001**
Private	64 (9%)	274 (41%)	337 (50%)	
Included tumors[b]	119	518	820	
Type of tumor sample				
Biopsy	26 (9%)	110 (38%)	154 (53%)	0.47
Surgical specimen	93 (8%)	408 (35%)	666 (57%)	
Included tumors	51	409	449	
Grade				
I	18 (7%)	77 (30%)	164 (63%)	**<0.001**
II–III	33 (5%)	332 (51%)	285 (44%)	
Included tumors[c]	116	515	821	
Type of sarcoma				
Soft tissue	82 (9%)	323 (36%)	502 (55%)	**0.004**
Visceral	34 (6%)	192 (35%)	319 (59%)	
Included tumors	121	518	824	
Region				
Aquitaine	34 (10%)	148 (42%)	170 (48%)	**<0.001**
Rhone-Alpes	65 (10%)	252 (38%)	345 (52%)	
Veneto	22 (5%)	118 (26%)	309 (69%)	
Included tumors	121	518	824	
Subgroup analysis				
SO requested	71 (13%)	263 (47%)	230 (40%)	**<0.001**
No SO requested	50 (6%)	255 (28%)	594 (66%)	

Qualità dell'evidenza SIGN	Raccomandazione clinica	Forza della raccomandazione clinica
D*	Masse profonde di qualsiasi dimensioni o masse superficiali >5 cm devono essere considerate sospette per sarcoma e trattate come tali o inviate ai Centri di Alta Specializzazione.	**Positiva forte**
D*	Una lesione clinicamente sospetta dei tessuti molli deve essere studiata mediante l'esecuzione di ecografia o di appropriata tecnica per immagini.	**Positiva forte**
D*	I pazienti con lesione potenzialmente maligna devono essere sottoposti a RM o TAC dell'area anatomica interessata dalla massa.	**Positiva forte**
D*	I pazienti portatori di lesione sospetta delle parti molli devono essere sottoposti a biopsia diagnostica con ago tranciante, se necessario sotto controllo ecografico o TAC o con biopsia chirurgica incisionale.	**Positiva forte**
D*	La tecnica bioptica (con ago sotto controllo ecografico o TAC o chirurgica incisionale) deve tener conto dei principi di chirurgia oncologica e deve essere preferibilmente eseguita presso il Centro presso il quale verrà eseguito l'intervento chirurgico.	**Positiva forte**

*Opinione espressa dal panel LG AIOM e LG ESMO (20)

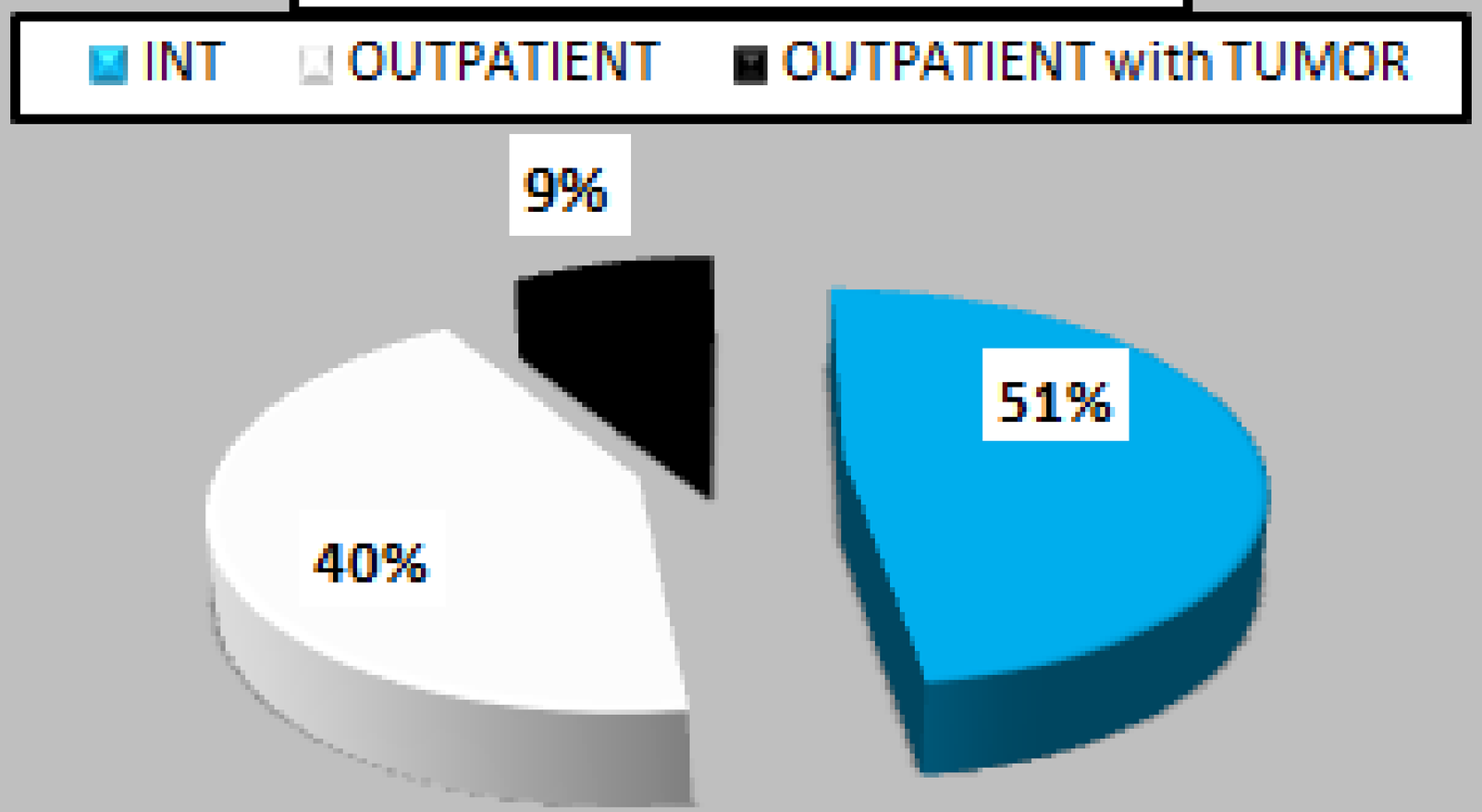
Qualità dell'evidenza SIGN	Raccomandazione clinica	Forza della raccomandazione clinica
A	Per essere considerata adeguata, la resezione dei STM degli arti deve essere effettuata con margini ampi. Può essere considerata accettabile anche una resezione focalmente marginale, purchè seguita da Radioterapia, qualora l'unica alternativa sia un intervento demolitivo o un danno funzionale grave (11).	**Positiva forte**

Qualità dell'evidenza SIGN	Raccomandazione clinica	Forza della raccomandazione clinica
D*	**L'esame istologico di un STM dovrebbe essere riferito o almeno verificato in Servizi di Anatomia Patologica dotati di sufficiente esperienza, o è raccomandabile una seconda opinione patologica.** √Il livello di raccomandazione e' debole per la scarsita' di studi dedicati. Tale consuetudine sta acquisendo sempre maggiore importanza per la complessità della diagnosi istologica e per le indagini di biologia molecolare che sono essenziali per una corretta condotta terapeutica	**Positiva debole**

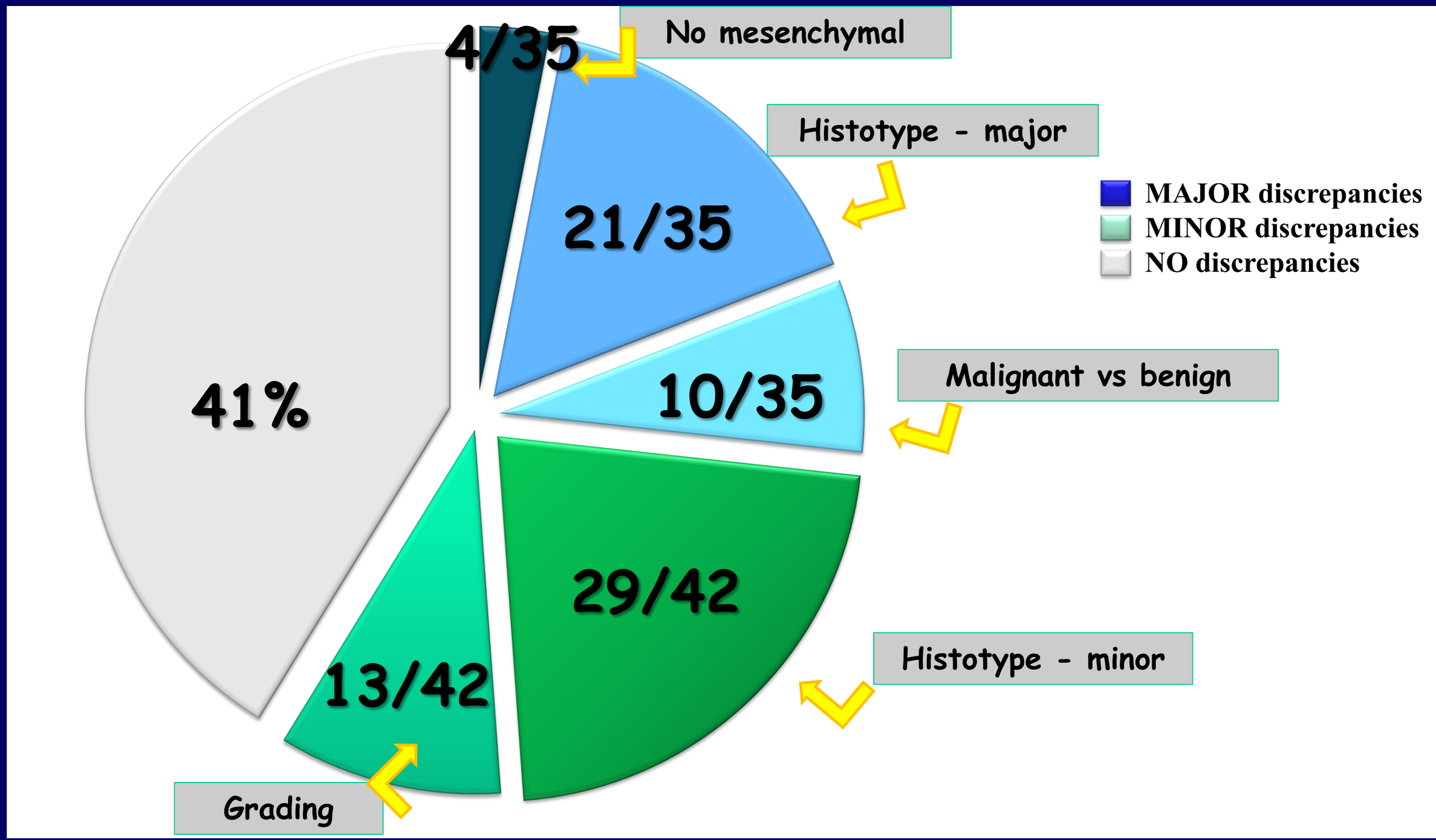
1998-2005

	INT	792	
	OUTPATIENT	713	
	OUTPATIENT with TUMOR	150	

TOTAL PERCENTAGE



2012-2013 135 referred patients



- Data insorgenza
- Trauma
- Pregressa gravidanza
- Sindromi associate
- Pregressa RT
- Indagini radiologiche

- Sede
- Profondità

CLINICA

MACRO

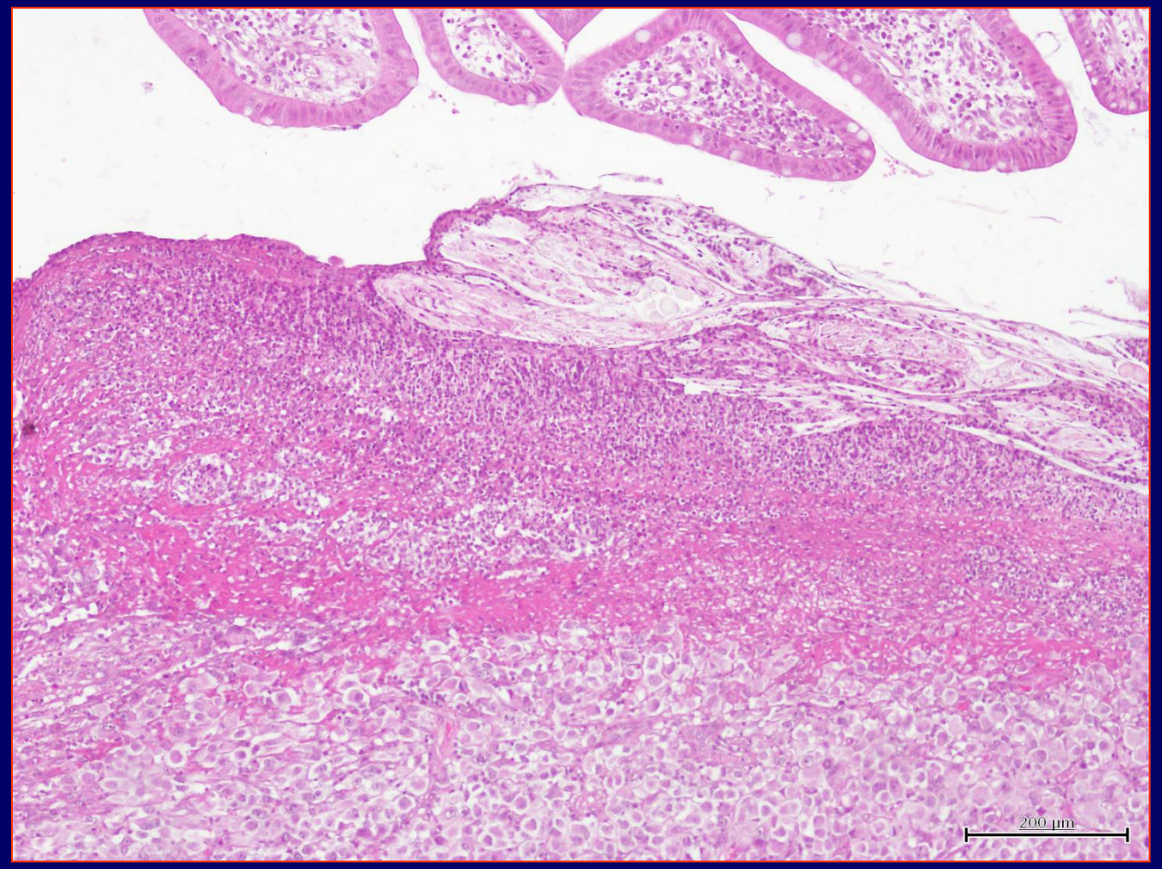
DIAGNOSI

TECNICHE SPECIALI

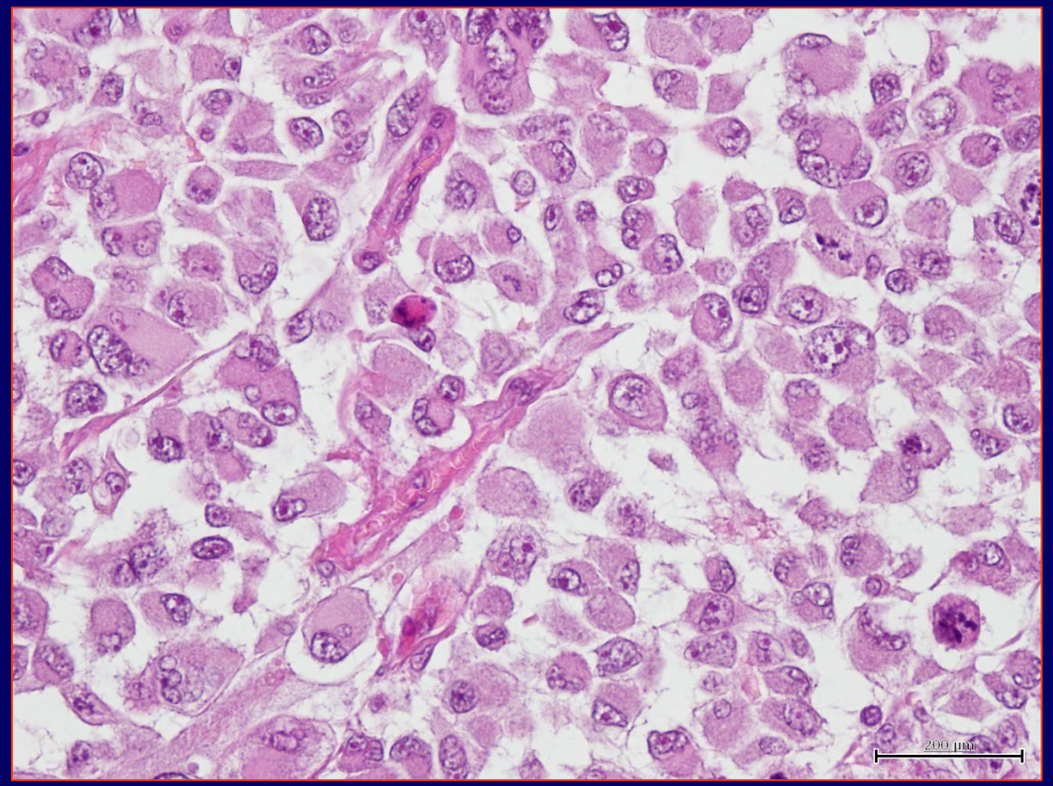
ISTOLOGIA

- Immunoistochimica
- FISH
- RT-PCR

- Pattern crescita
- Tipo di cellule
- Background



Metastasi mixofibrosarcoma alto grado braccio



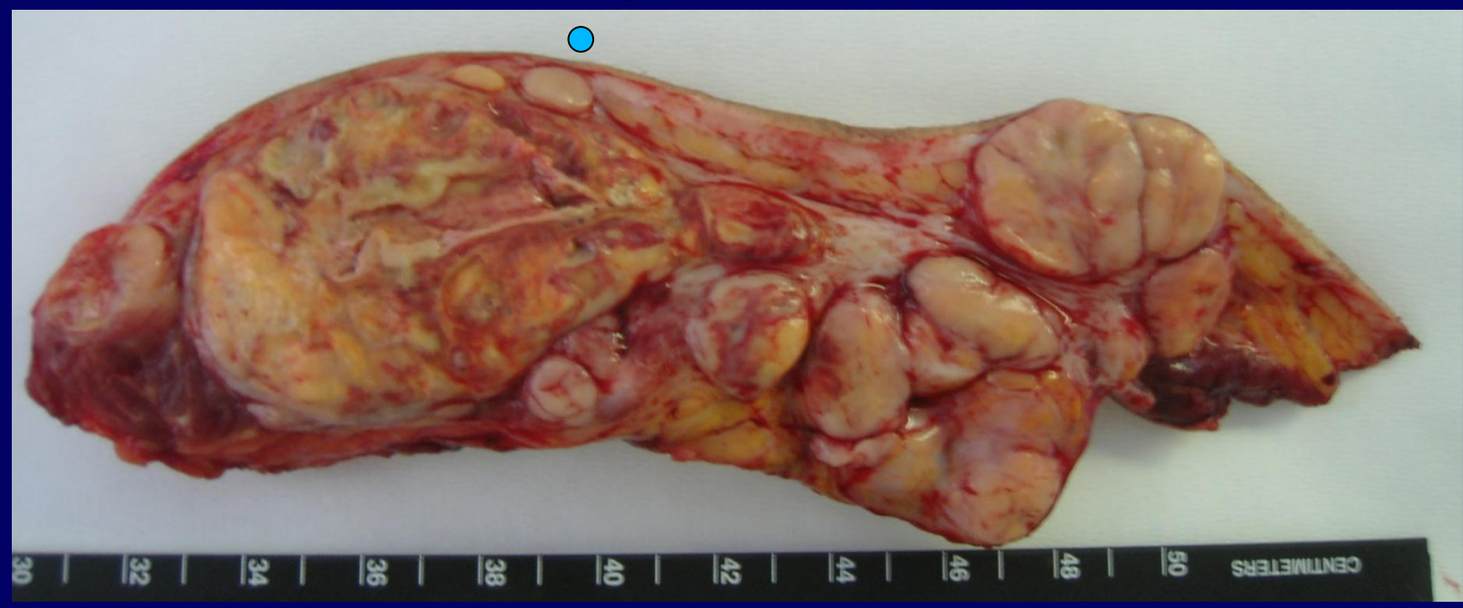
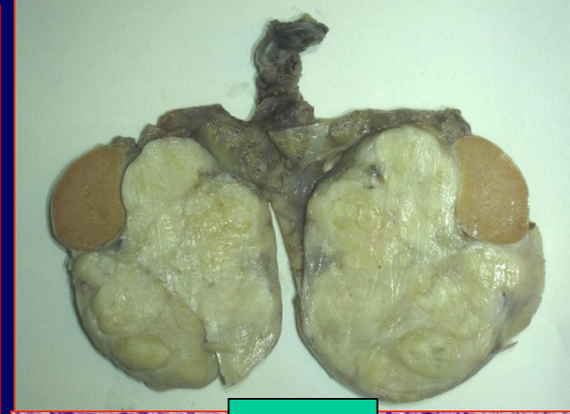
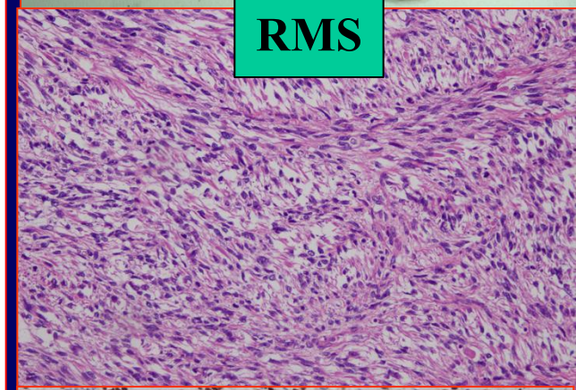


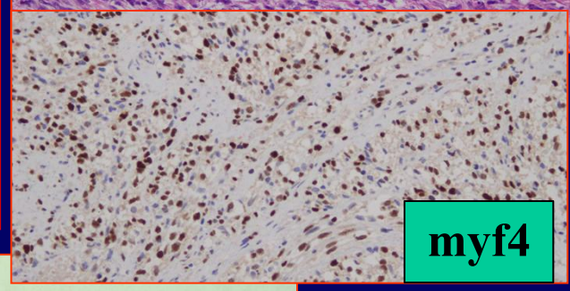
Table 3-2 -- Spindle Cell Tumors Occurring at Specific Anatomic Sites

Tumor Type	Location
Pseudosarcomatous myofibroblastic proliferation	Urinary tract
Fibroma of tendon sheath	Hand and foot
Nuchal fibroma	Back of neck
Elastofibroma	Scapular area
Solitary circumscribed neuroma	Face
Spindle cell lipoma	Upper back, shoulder, neck
Superficial fibromatoses	Palmar, plantar, and penile areas
Gastrointestinal stromal tumor	Intra-abdominal
Dedifferentiated liposarcoma	Retroperitoneum, paratesticular
Spindle cell angiosarcoma	Head and neck (especially face and scalp)
Spindle cell rhabdomyosarcoma	Paratesticular, head and neck
Intranodal palisaded myofibroblastoma	Inguinal lymph nodes



RMS





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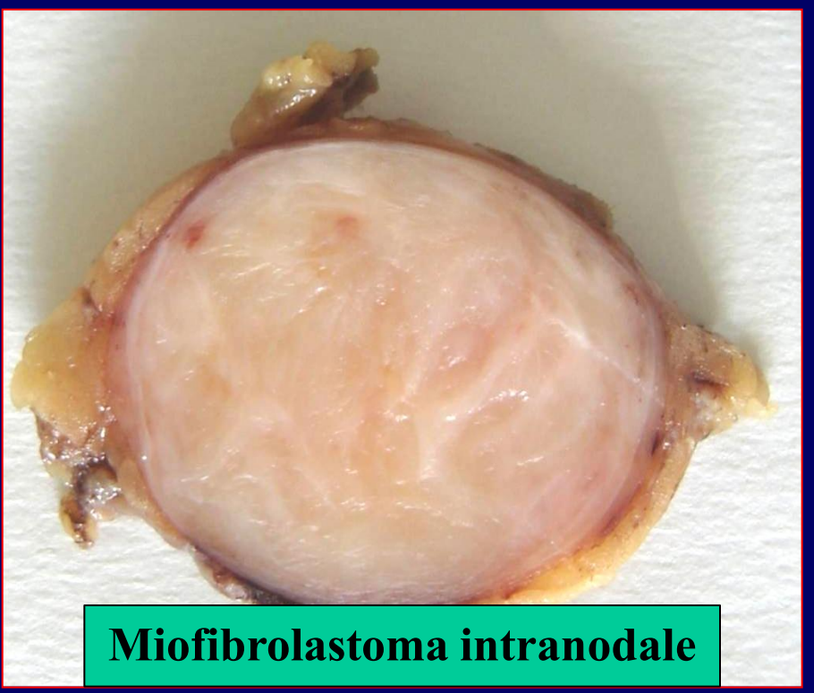
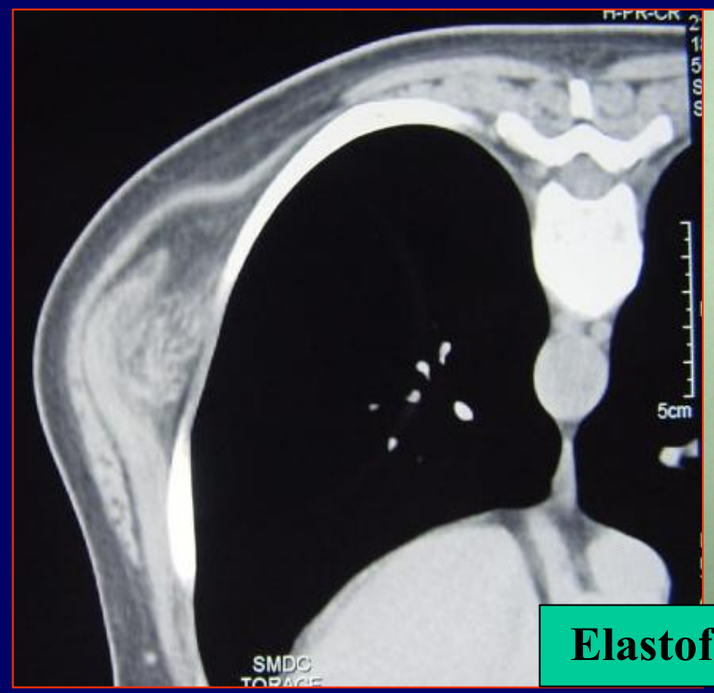
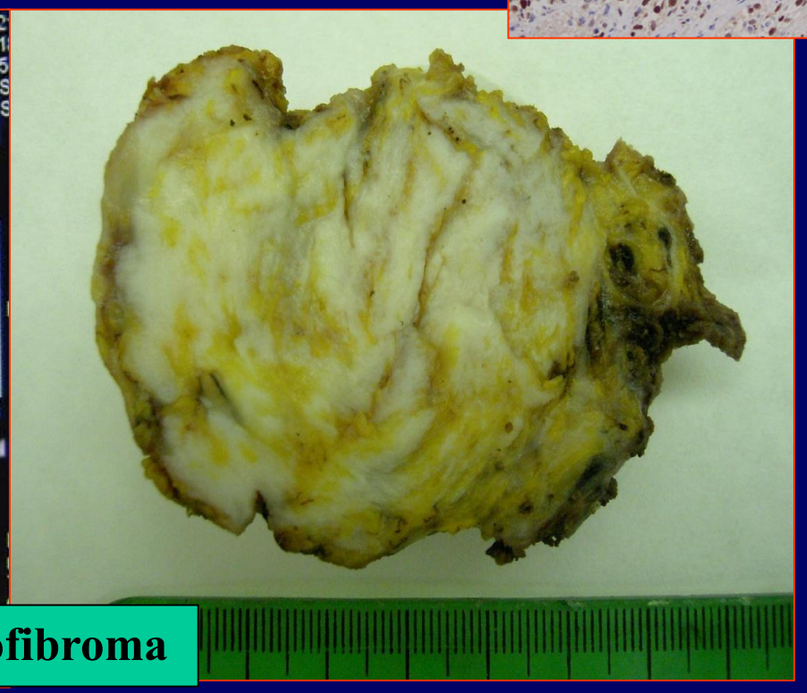


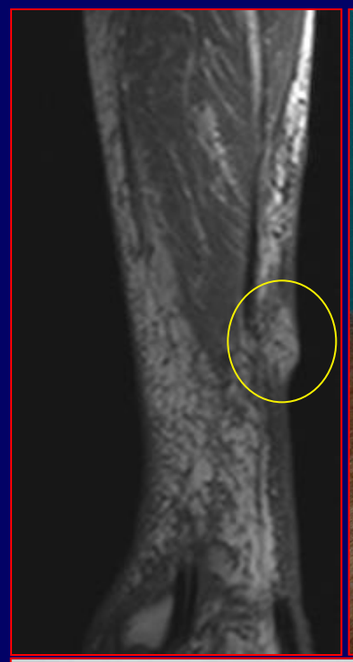
Miofibrolastoma intranodale

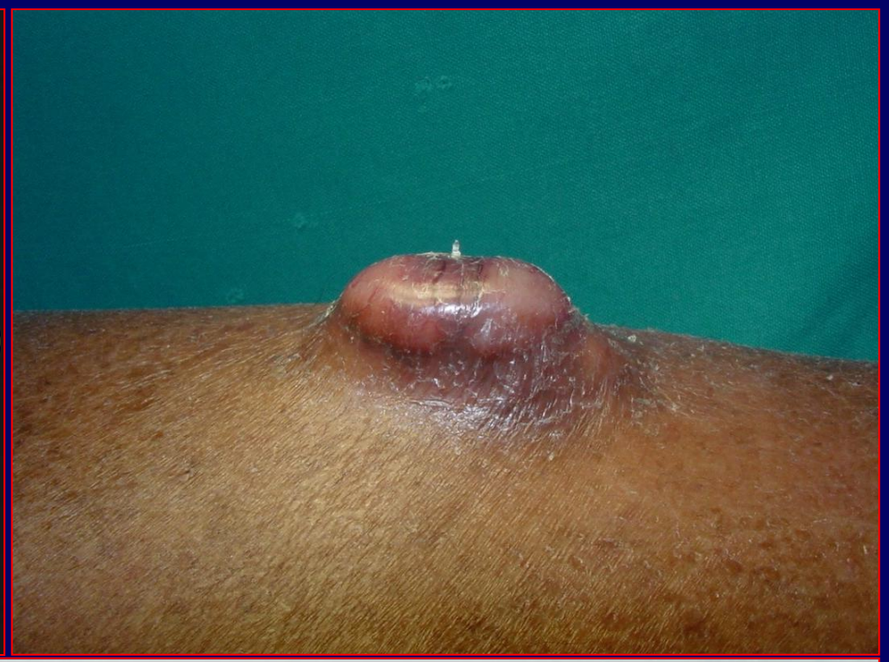


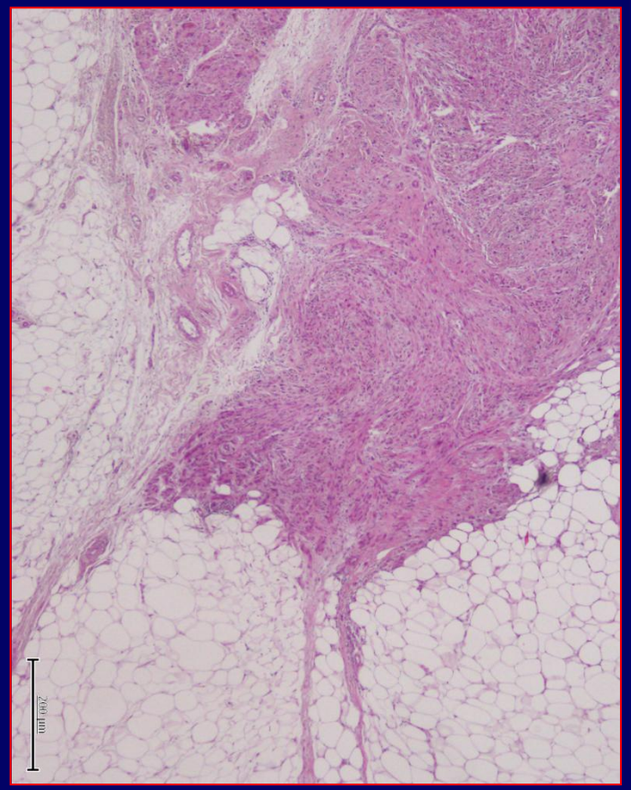


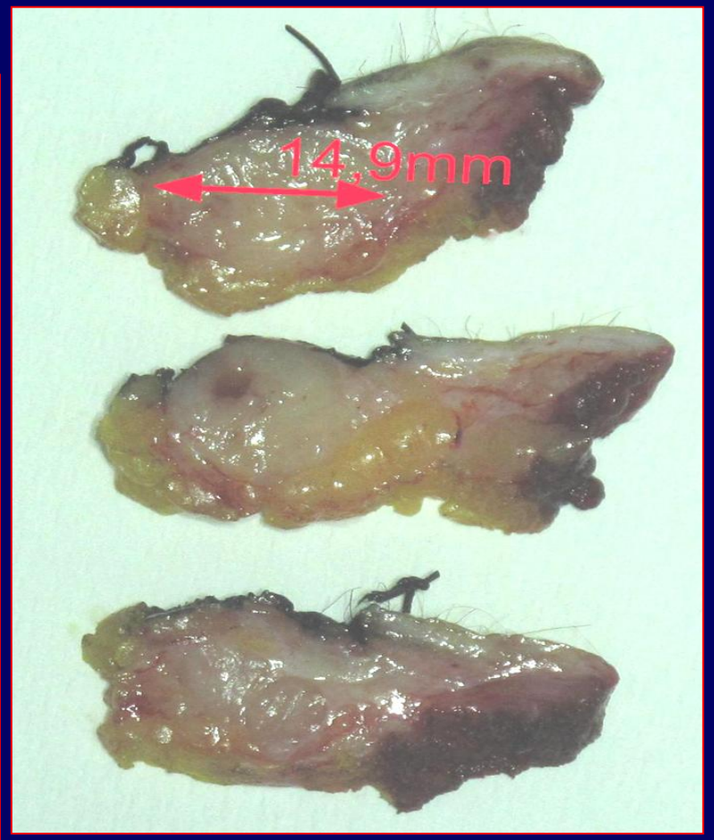
Elastofibroma

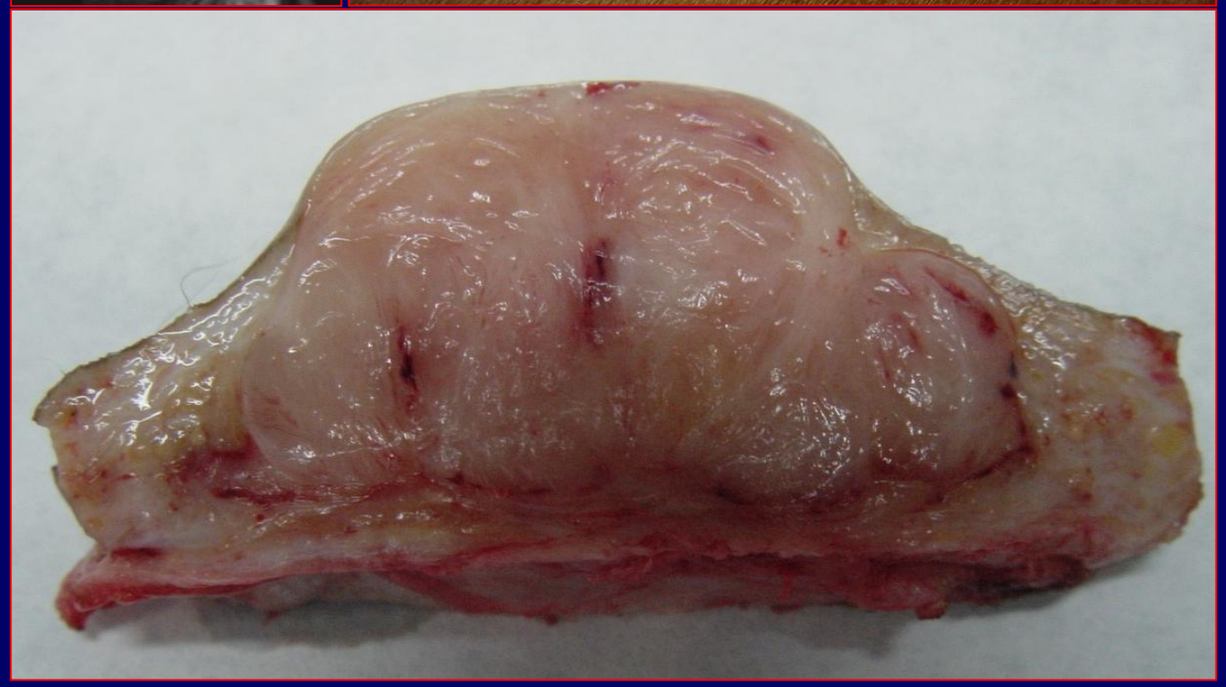
Sede - Profondità

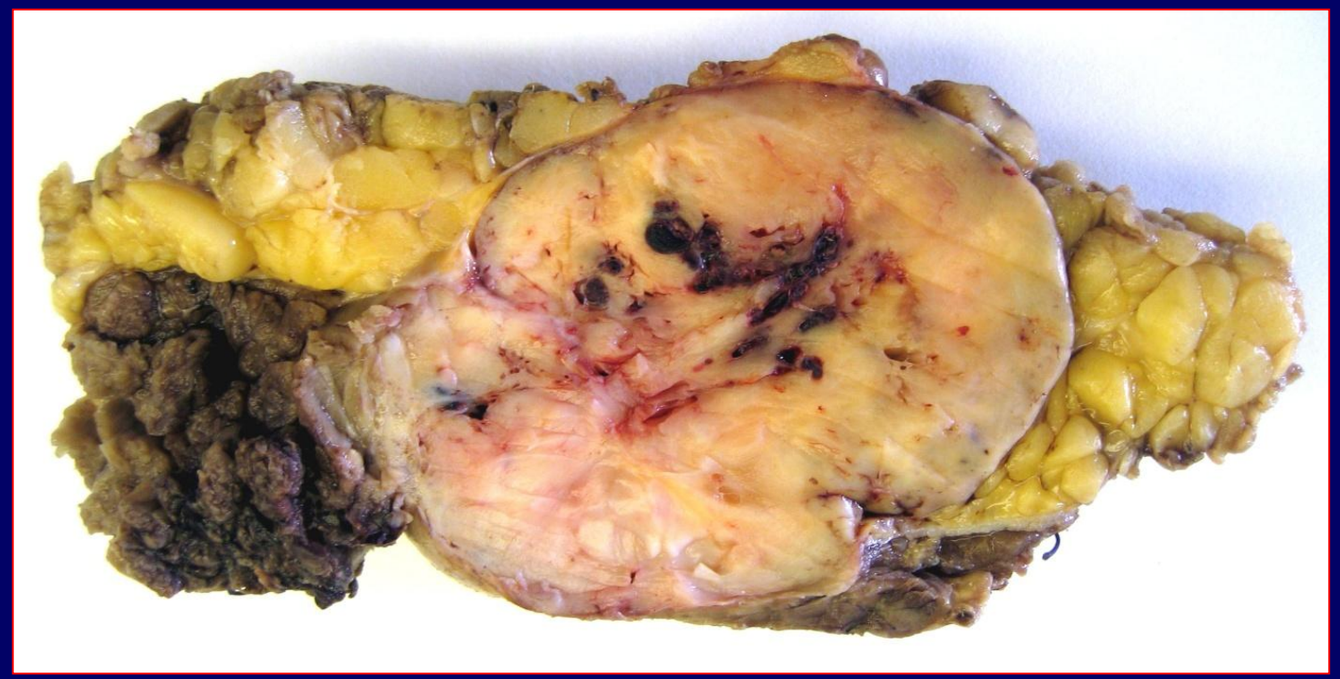


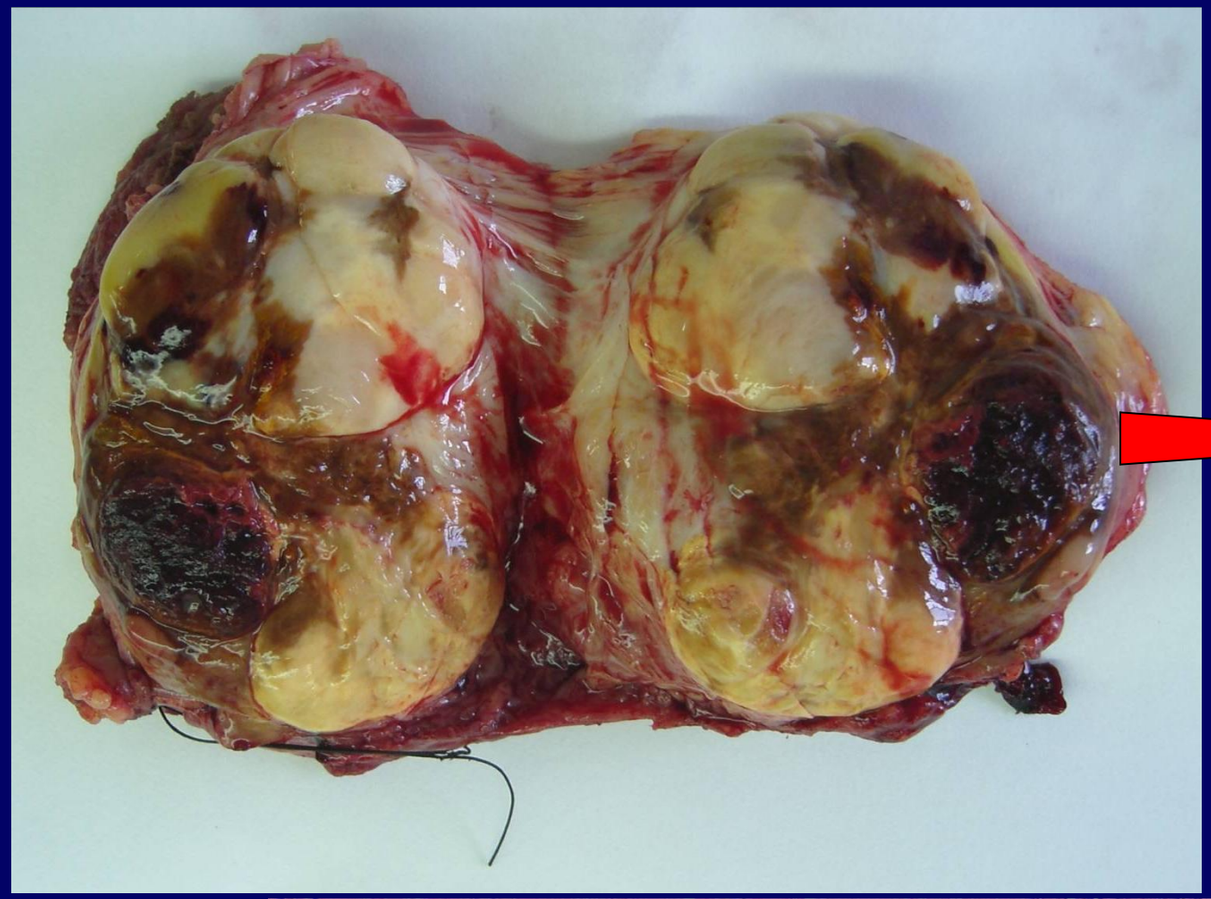


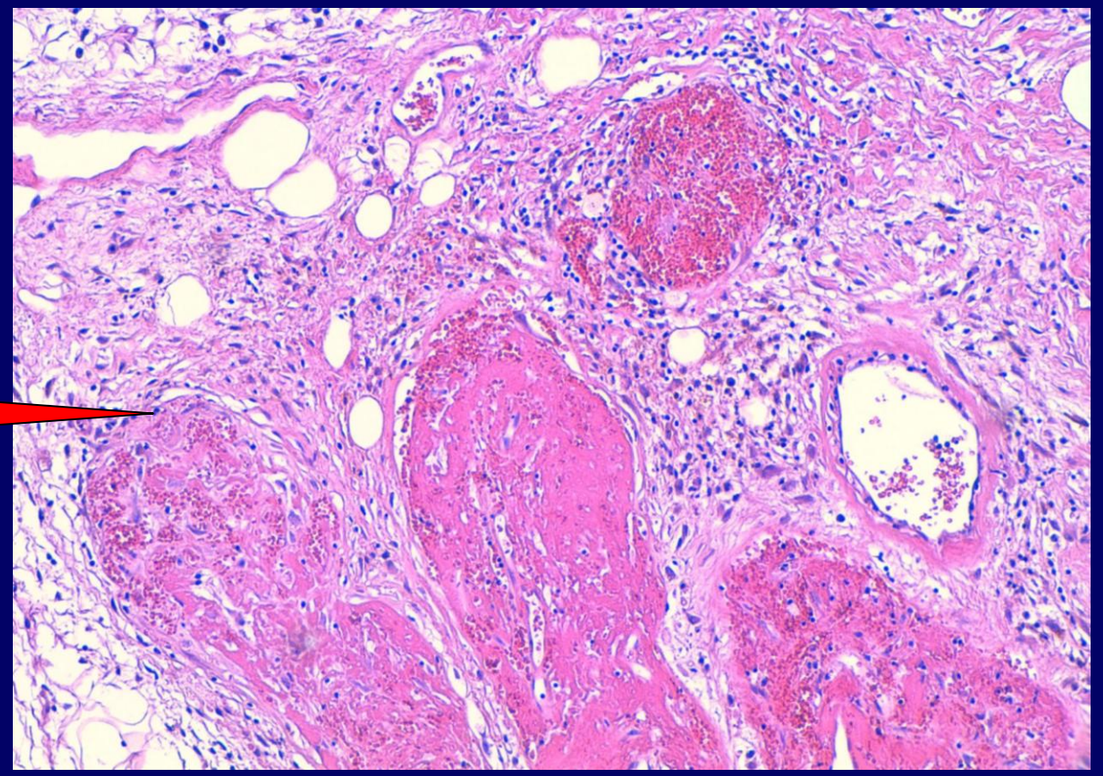


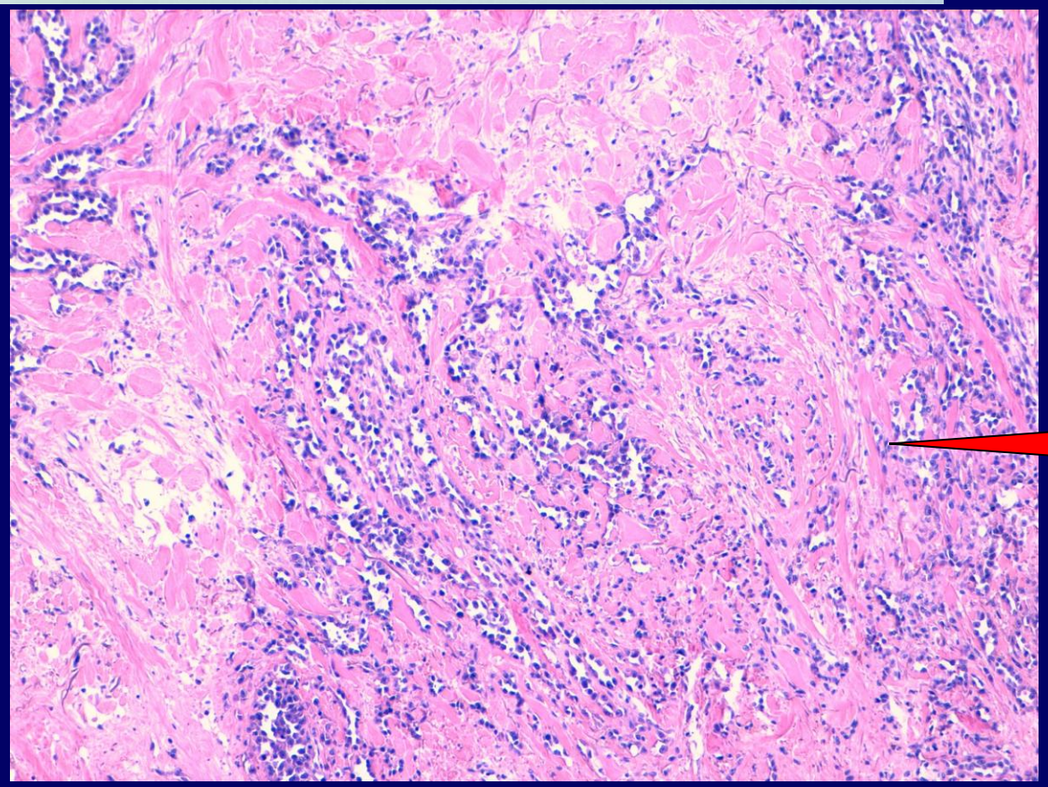


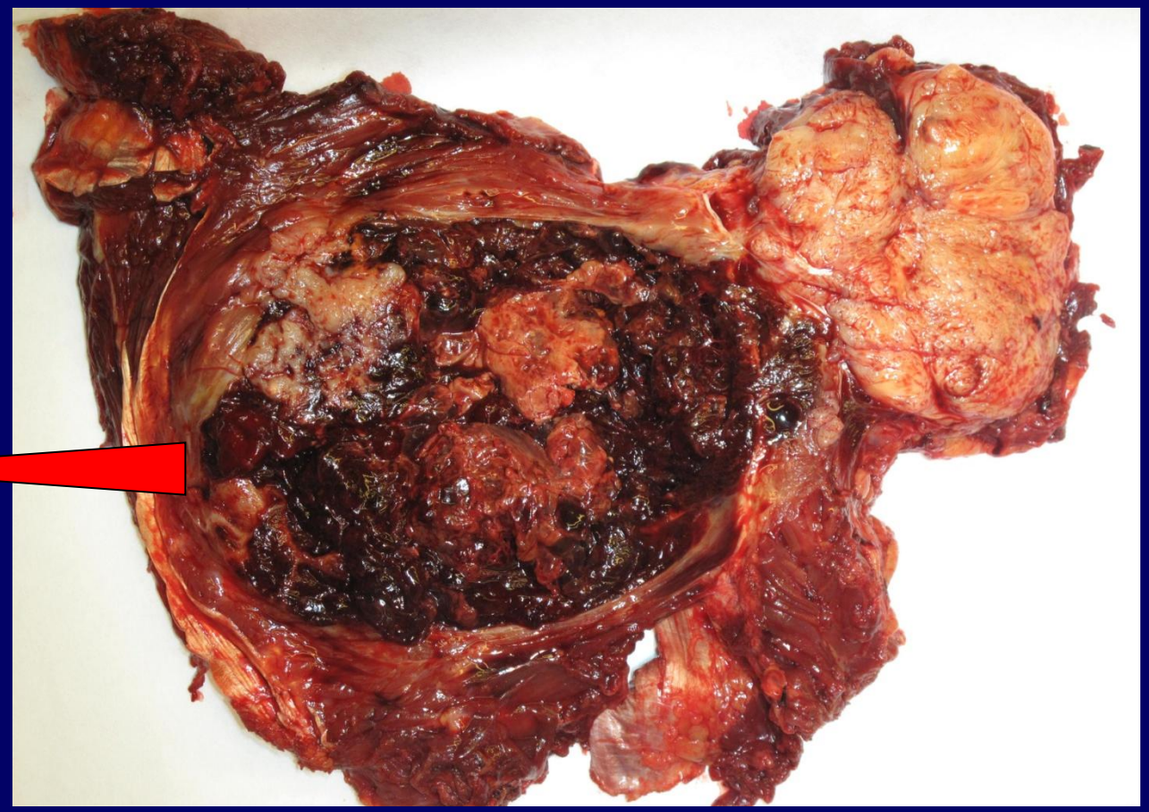












- Fascicolato
- Storiforme
- Lobulato
- Plessiforme
- A palizzata
- Mixoide

PATTERN

CELLULE

- Fusate
- Epitelioidi
- Pleomorfe
- Rotonde
- Bifasiche

DIAGNOSI

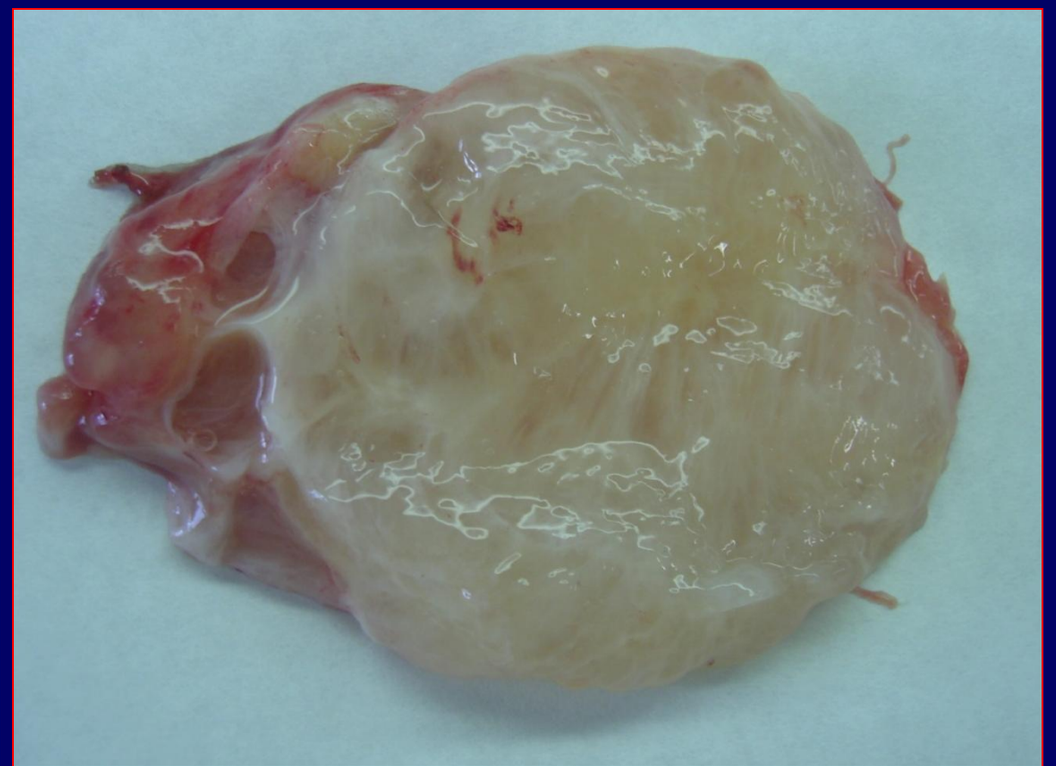
ALTRE CELLULE

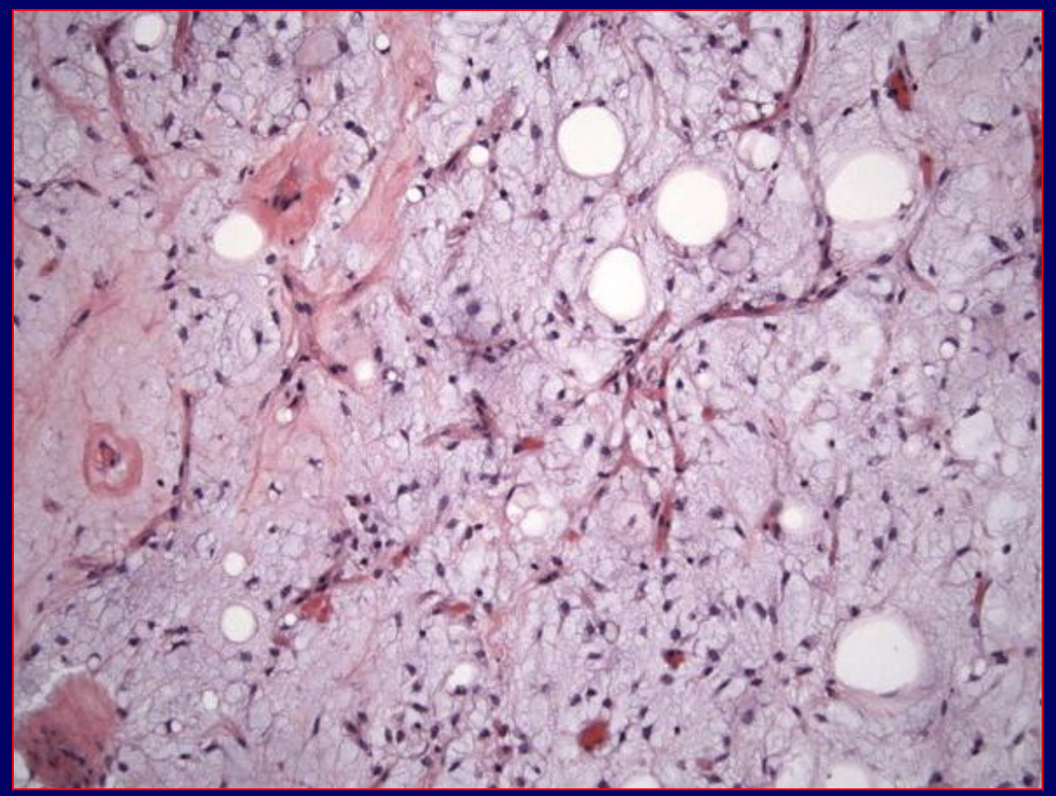
- Adipociti
- Cellule giganti
- Osso/cartilagine

FONDO

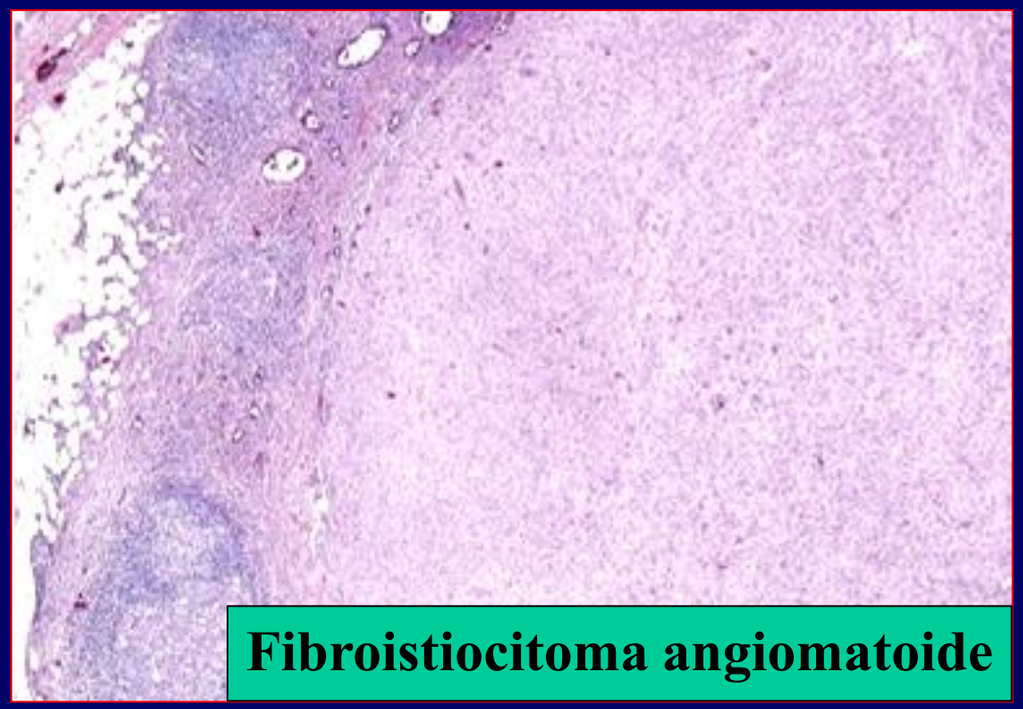
- Stroma
- Vasi
- Infiammazione

	Intramuscular/cellular myxoma
	Dermal nerve sheath myxoma
	Superficial acral fibromyxoma
	Superficial angiomyxoma
	Deep angiomyxoma
	Ossifying fibromyxoid tumor
	Myoepithelioma/myoepithelial carcinoma
	Myxofibrosarcoma
Myxoid	Pleomorphic liposarcoma
	Myxoid liposarcoma
	Extraskeletal myxoid chondrosarcoma
	Low-grade fibromyxoid sarcoma
	Myxoinflammatory fibroblastic sarcoma
	Neurofibroma
	Soft tissue or reticular perineurioma
	Malignant peripheral nerve sheath tumor
	Spindle cell lipoma

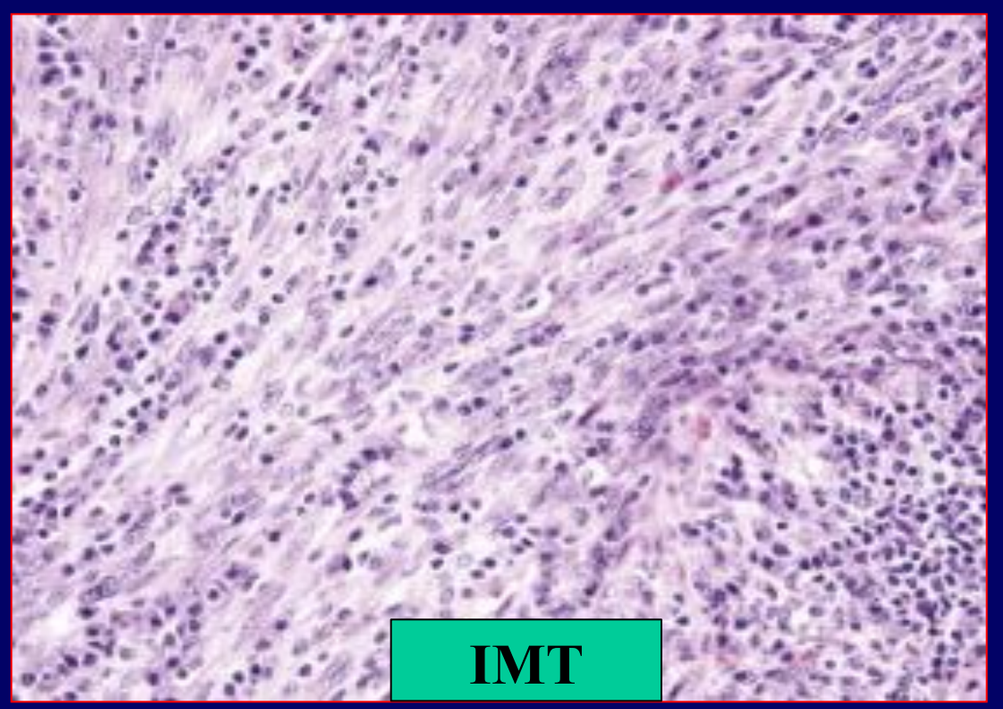




Prominent inflammatory cells	Calcifying fibrous tumor (lymphocytes) Inflammatory myofibroblastic tumor (plasma cells, lymphocytes) Leiomyosarcoma (lymphocytes, histiocytes; small subset) Epstein-Barr virus–associated smooth muscle neoplasm (lymphocytes) Myxoinflammatory fibroblastic sarcoma (neutrophils, lymphocytes) Follicular dendritic cell sarcoma (lymphocytes) Interdigitating dendritic cell sarcoma (lymphocytes) Fibroblastic reticular cell sarcoma (lymphocytes) Angiomatoid fibrous histiocytoma (lymphocytes, including germinal centers) Gastrointestinal schwannoma (lymphocytes, including germinal centers) Inflammatory fibroid polyp (eosinophils)



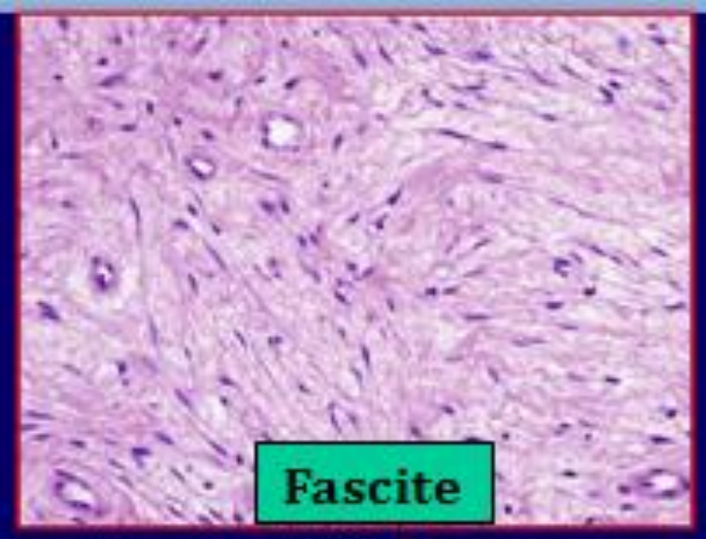
Fibroistiocitoma angiomatoide

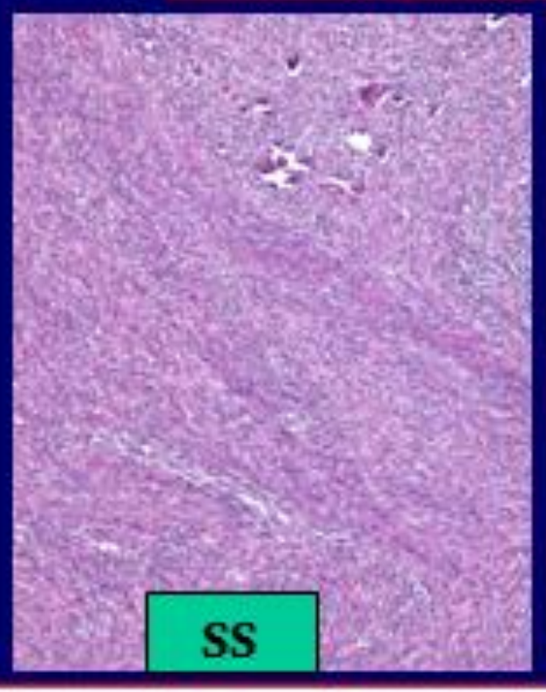


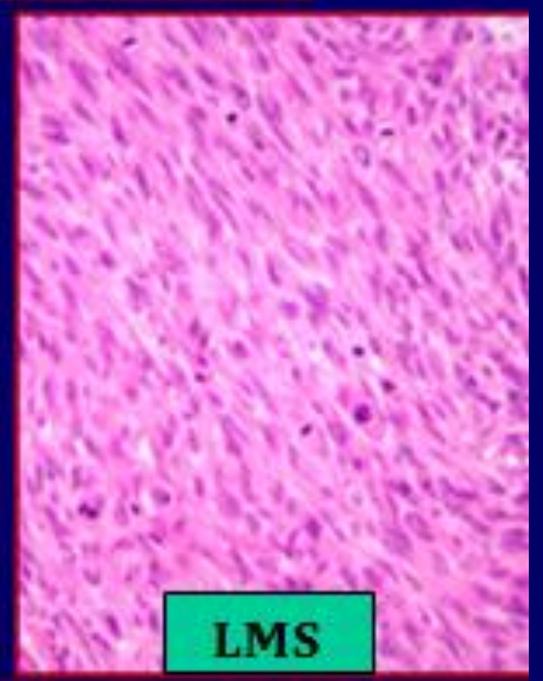
IMT

Pattern-Based Approach to Diagnosis

Pattern	Selected Diseases to Be Considered
Spindle cell	Nodular fasciitis Myofibroma/myopericytoma Cellular benign fibrous histiocytoma Dermatofibrosarcoma protuberans Superficial or desmoid fibromatosis Neurofibroma Schwannoma Leiomyoma Leiomyosarcoma Gastrointestinal stromal tumor Solitary fibrous tumor Spindle cell lipoma Soft tissue perineurioma Low-grade fibromyxoid sarcoma Monophasic synovial sarcoma Malignant peripheral nerve sheath tumor Dedifferentiated liposarcoma Clear cell sarcoma Nodular Kaposi sarcoma Pseudomyogenic hemangioendothelioma



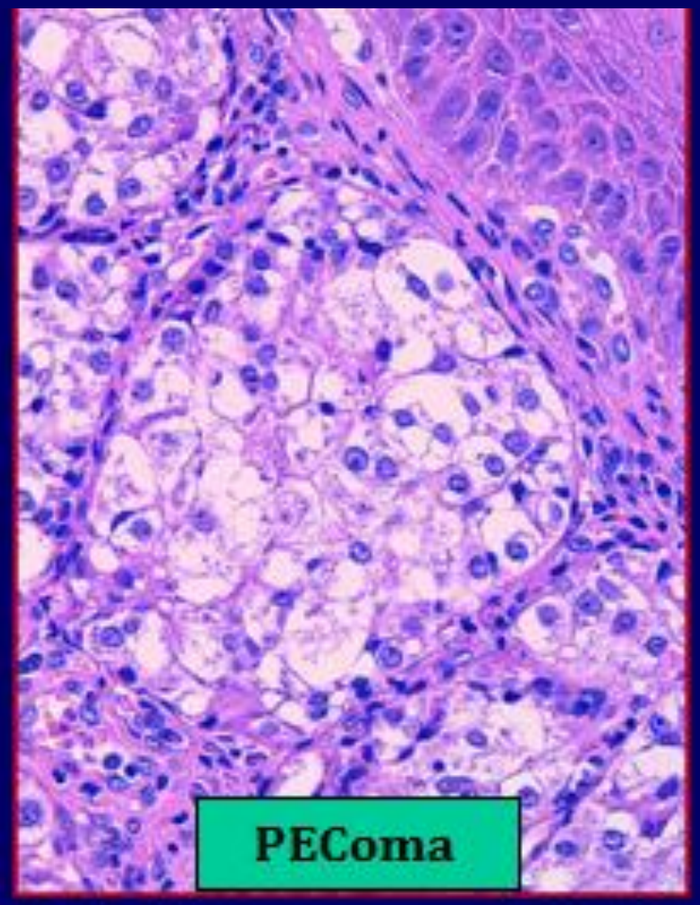


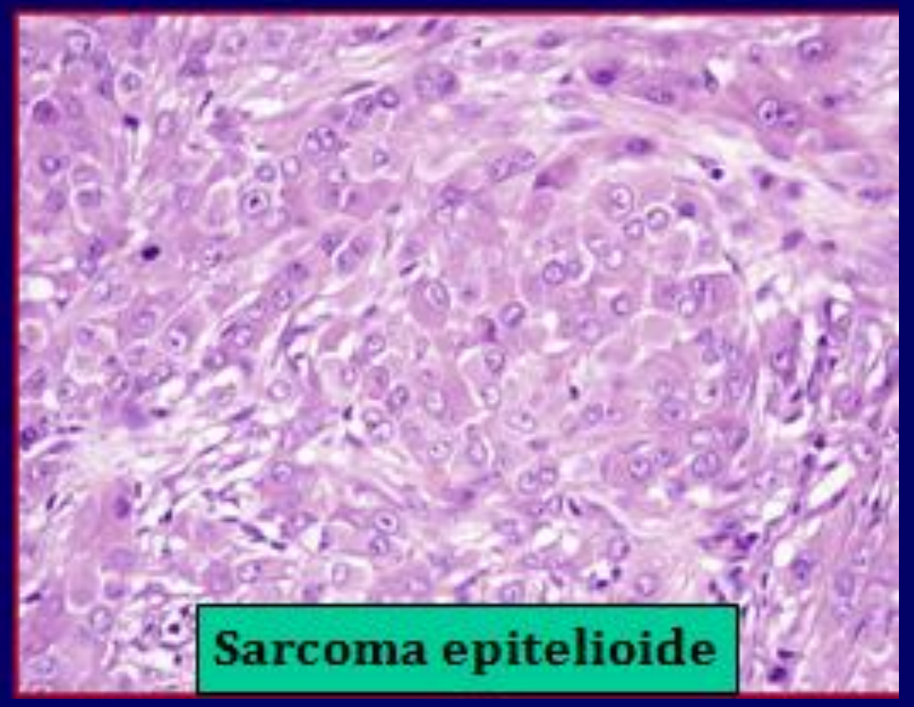


Nonmesenchymal Spindle Cell Neoplasms

Spindle cell carcinoma
Spindle cell/desmoplastic melanoma
Spindle cell/desmoplastic mesothelioma
Others
- Paraganglioma
- Gliosarcoma (metastasis)
- Extracranial meningioma
- Granulocytic sarcoma (extramedullary myeloid tumor, chloroma)
- Interdigitating dendritic cell sarcoma
- Mast cell neoplasms (systemic mastocytosis, mastocytoma, mast cell sarcoma)

Epithelioid	Epithelioid hemangioma Epithelioid hemangioendothelioma Epithelioid angiosarcoma Glomus tumor Granular cell tumor Cellular neurothekeoma Myoepithelioma/myoepithelial carcinoma Epithelioid schwannoma Epithelioid malignant peripheral nerve sheath tumor Gastrointestinal stromal tumor Perivascular epithelioid cell tumor (PEComa) Epithelioid sarcoma Malignant rhabdoid tumor Alveolar soft part sarcoma Clear cell sarcoma Sclerosing epithelioid fibrosarcoma





Nonmesenchymal Epithelioid Tumors That May Be Encountered in Soft Tissue

Frequent

- Carcinoma (metastases)
- Melanoma (metastases)
- Hematologic malignancies (diffuse large B-cell lymphoma, anaplastic large cell lymphoma, plasmacytoma/plasma cell myeloma)

Rare or Exceptional

- Extragonadal primary and metastatic germ cell tumors
- Paraganglioma
- Adenomatoid tumor
- Malignant mesothelioma (epithelioid and deciduoid variants)
- Leydig/Sertoli cell tumor (metastases)
- Granulocytic sarcoma (chloroma)
- Histiocytic lesions (e.g., Rosai-Dorfman disease)

Immunohistochemistry of Selected Spindle Cell Soft Tissue Tumors

Tumor	CD34	CK	SMA	S100	Desmin	Other Diagnostic Markers
Angiosarcoma	+	±	-	-	-	CD31, FLI-1, FVIIIRAg
Dermatofibrosarcoma	+	-	-	+ (Bednar)	-	
Follicular dendritic cell sarcoma	-	-	-	+	-	CD21, CD23, CD35, fascin, D2-40
Gastrointestinal stromal tumor	+	-	+	-	±	CD117, DOG1, H-caldesmon
Inflammatory myofibroblastic tumor	-	±	+	-	±	ALK (50%)
Kaposi sarcoma	+	-	-	-	-	CD31, HHV8
Leiomyosarcoma	-	±	+	-	+	H-caldesmon, SMM
Myofibrosarcoma	-	-	+	-	±	Calponin, H-caldesmon (-)
Malignant peripheral nerve sheath tumor	±	±	-	±	+ (Triton)	
Solitary fibrous tumor	+	-	-	-	-	Bcl-2, CD99, CD56
Spindle cell carcinoma	-	+	+	-	-	EMA, CK5/6, CK34βE12
Synovial sarcoma	-	+	-	±	-	EMA, TLE1, CD99, CD56

± = Positive in some cases.

Immunohistochemistry of Selected Pleomorphic Soft Tissue Tumors

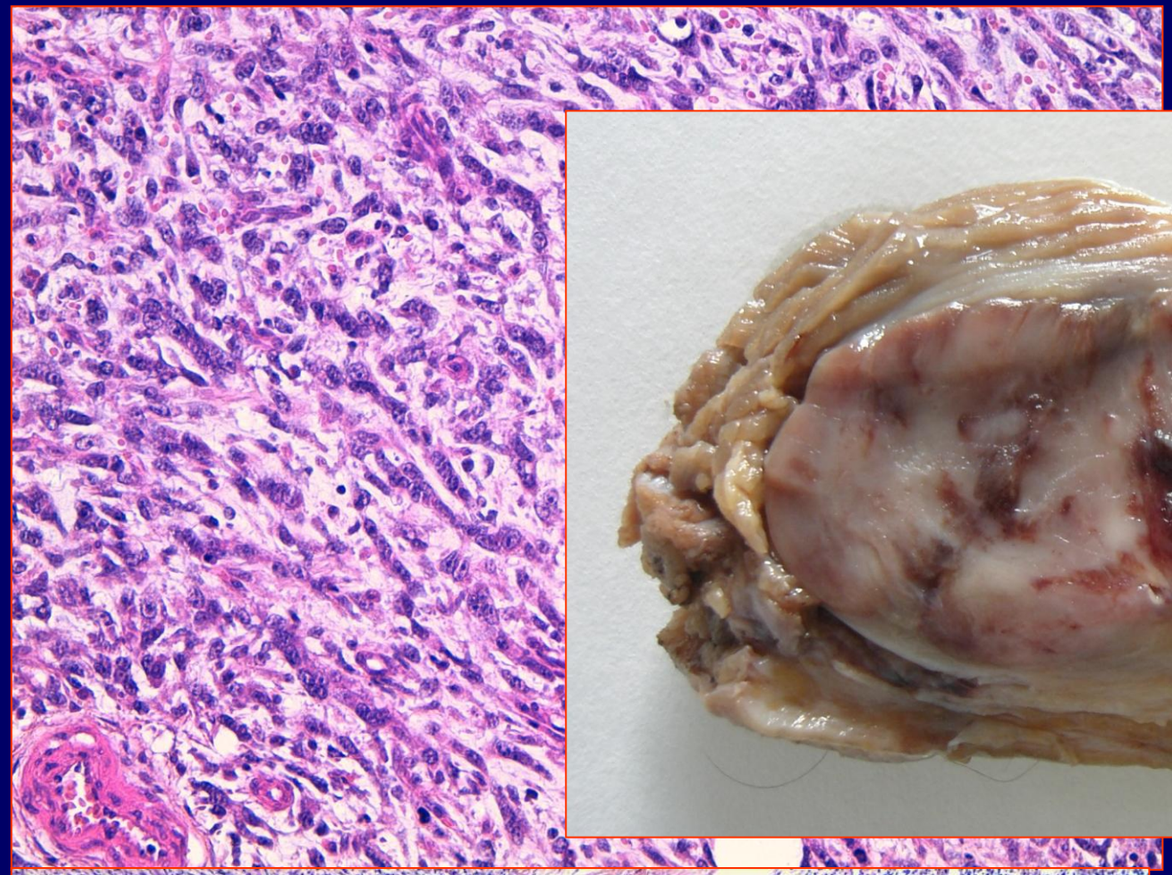
Tumor	CD34	SMA	Desmin	H-Caldesmon	Myogenin	Cytokeratin
Myofibrosarcoma	-	+	-	-	-	-
Leiomyosarcoma	-	+	+	+	-	-
Rhabdomyosarcoma	-	±	+	-	+	-
Sarcomatoid carcinoma	-	±	-	-	-	+
Pleomorphic undifferentiated sarcoma	±	±	±	-	-	-*

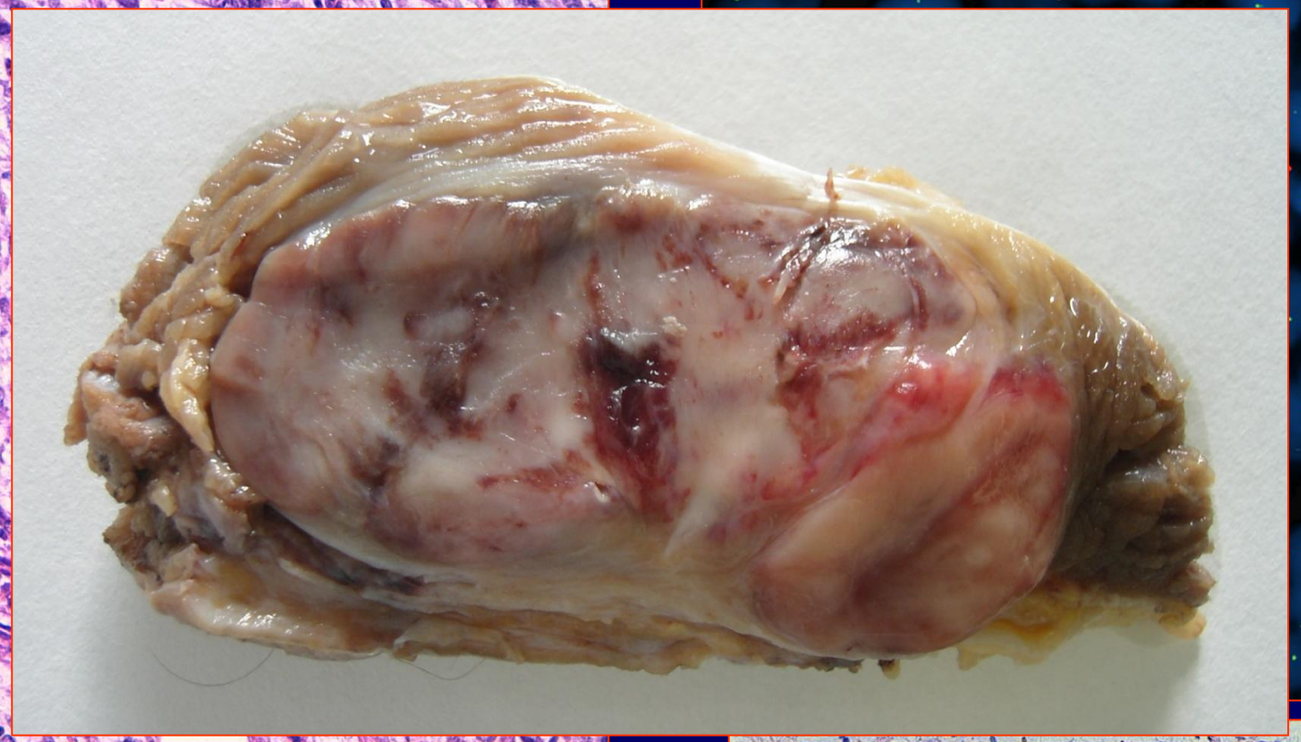
* Rarely positive; any CK positivity should raise suspicion of carcinoma, especially in organ-based tumors.

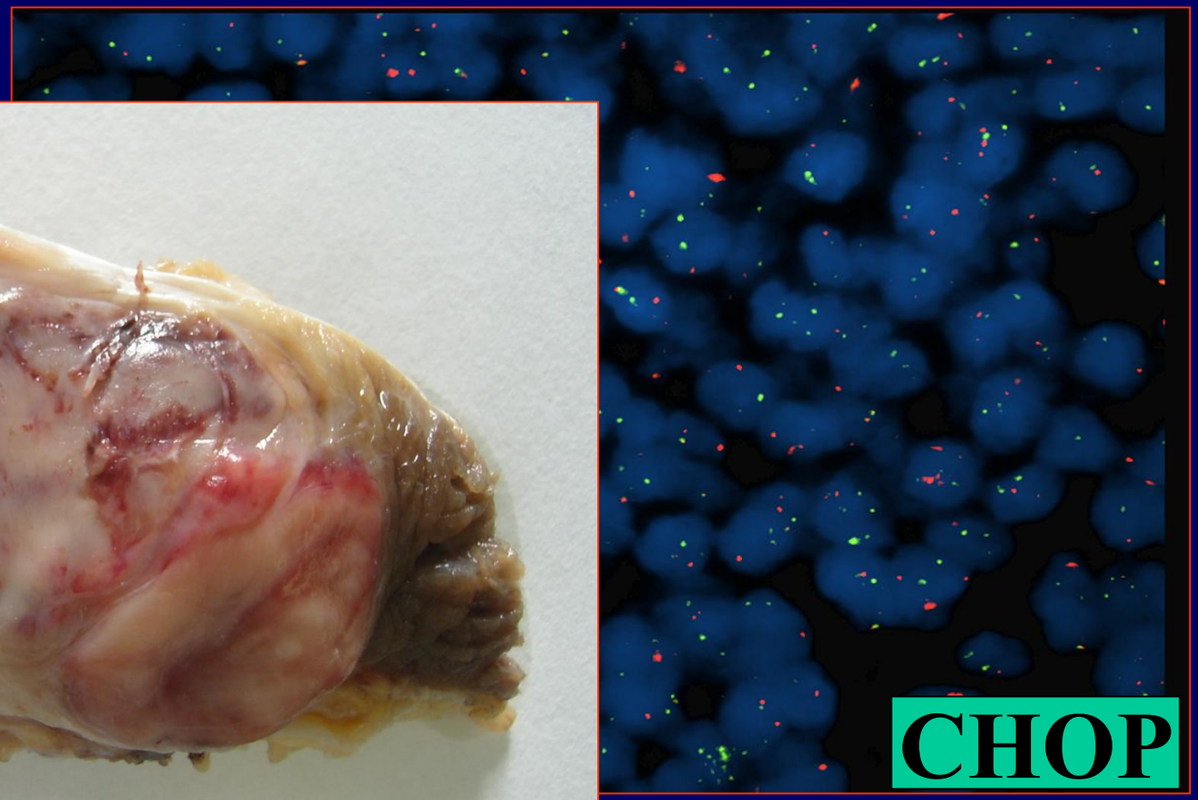
Table 6-1 -- Immunohistochemistry in Epithelioid Tumors of Soft Tissue

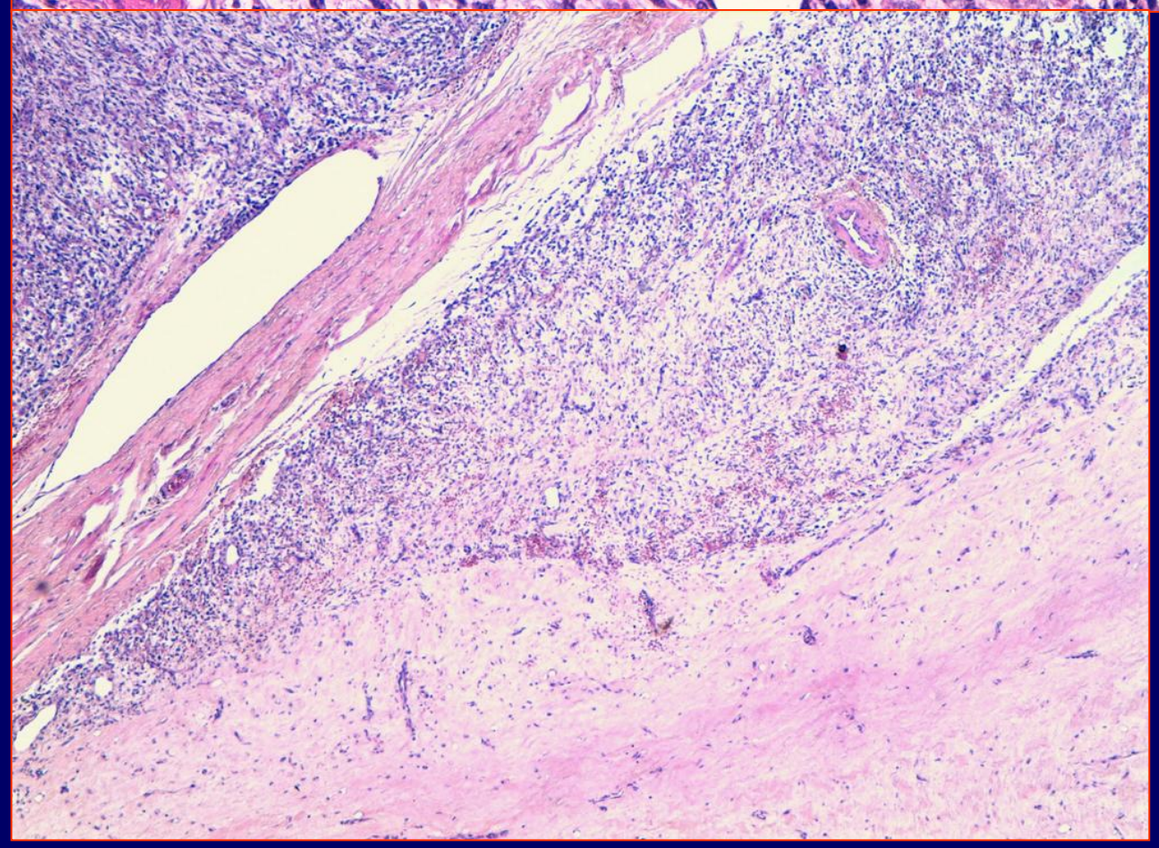
	CK	EMA	S-100	HMB-45	SMA	Des	Myog	CD34	CD31	INI1
Carcinoma	+	+	±	–	–	–	–	–	–	+
Melanoma	–	–	+	+	–	–	–	–	–	+
Mesothelioma	+	+	–	–	–	±	–	–	–	+
Chordoma	+	+	+	–	–	–	–	–	–	+
Myoepithelioma	+	+	+	–	±	–	–	–	–	±
Synovial sarcoma	+	+	±	–	–	–	–	–	–	+
Epithelioid sarcoma	+	+	–	–	±	–	–	±	–	–
Clear cell sarcoma	–	–	+	+	–	–	–	–	–	+
Alveolar soft part sarcoma	–	–	–	–	–	–	–	–	–	+
Extraskeletal myxoid chondrosarcoma	–	–	±	–	±	–	–	–	–	+
Rhabdomyosarcoma	–	–	±	–	±	+	+	–	–	+
Epithelioid hemangioendothelioma	±	–	–	–	±	–	–	+	+	+
Epithelioid angiosarcoma	±	–	–	–	–	–	–	+	+	+
Epithelioid malignant peripheral nerve sheath tumor	–	–	+	–	–	–	–	–	–	±
Desmoplastic small round cell tumor	+	+	±	–	–	+	–	–	–	+
Malignant rhabdoid tumor	+	+	±	–	±	–	–	–	–	–

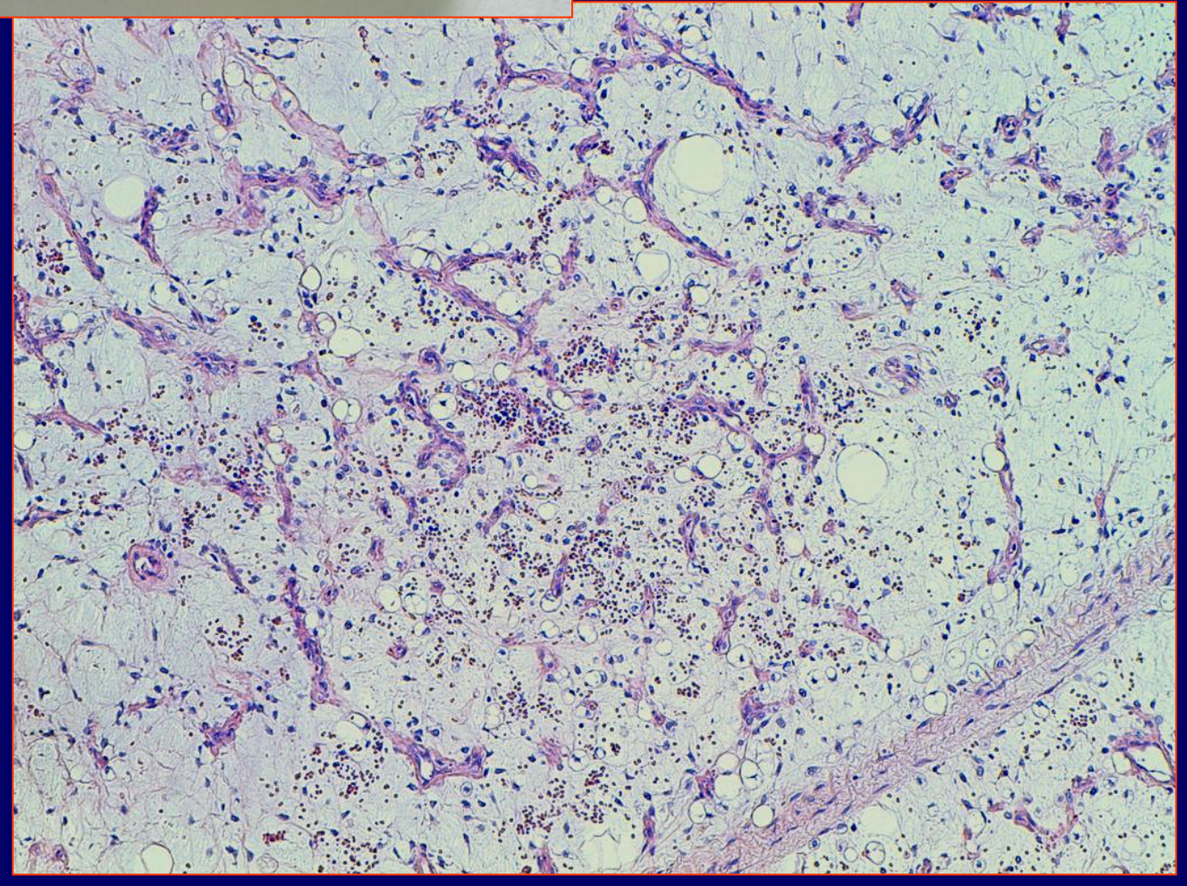
CK, keratins; Des, desmin; EMA, epithelial membrane antigen; Myog, myogenin; SMA, smooth muscle actin.

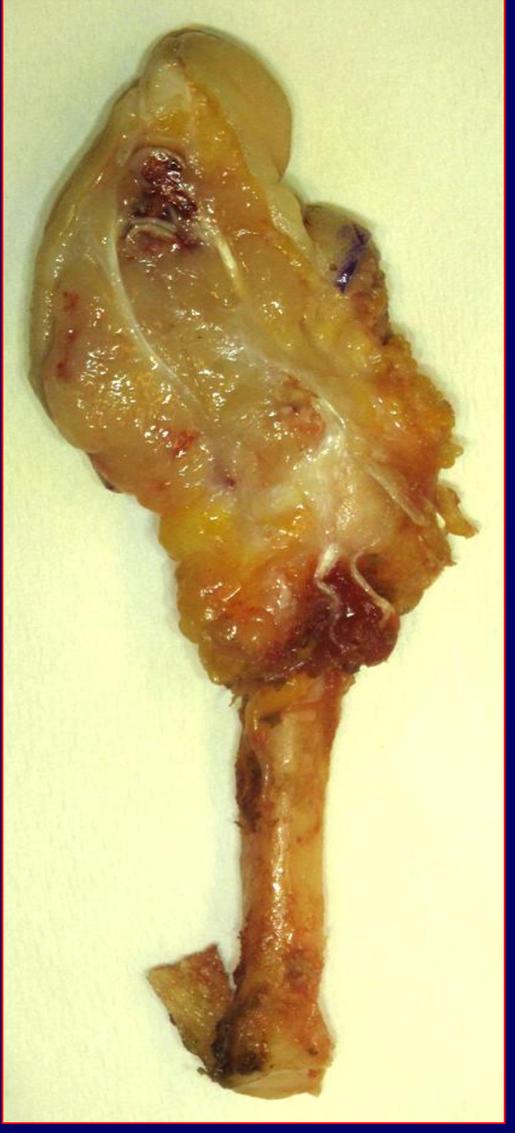


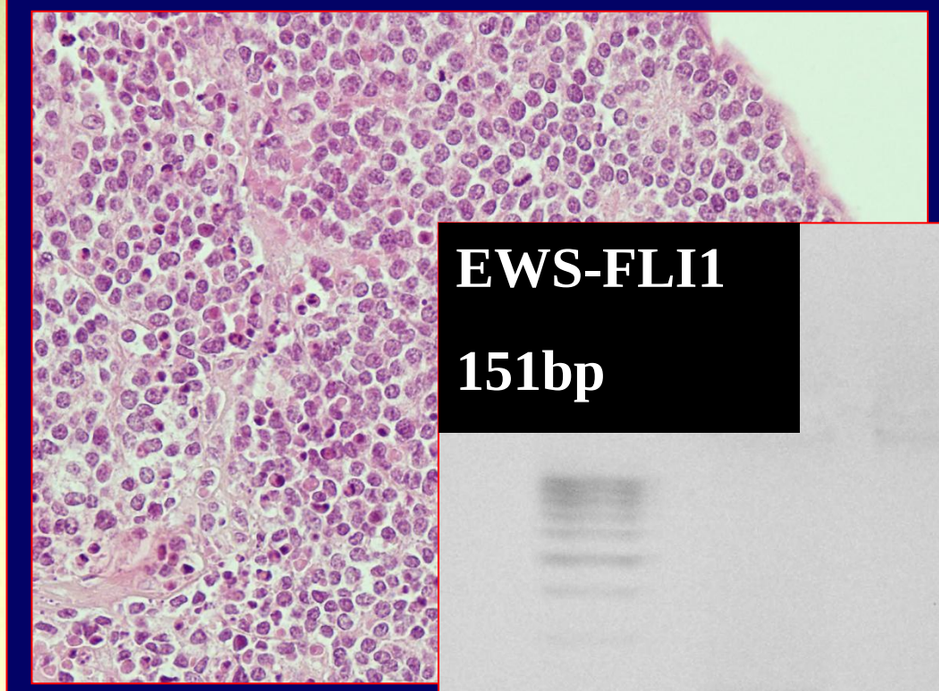


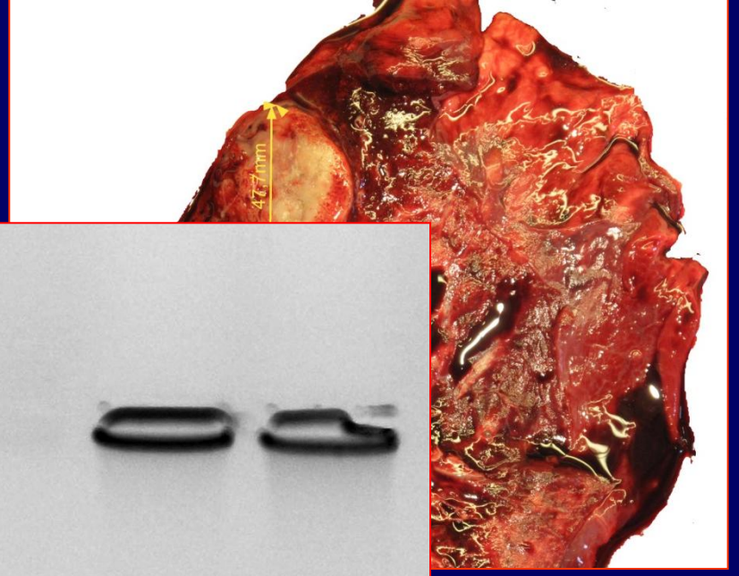

CHOP





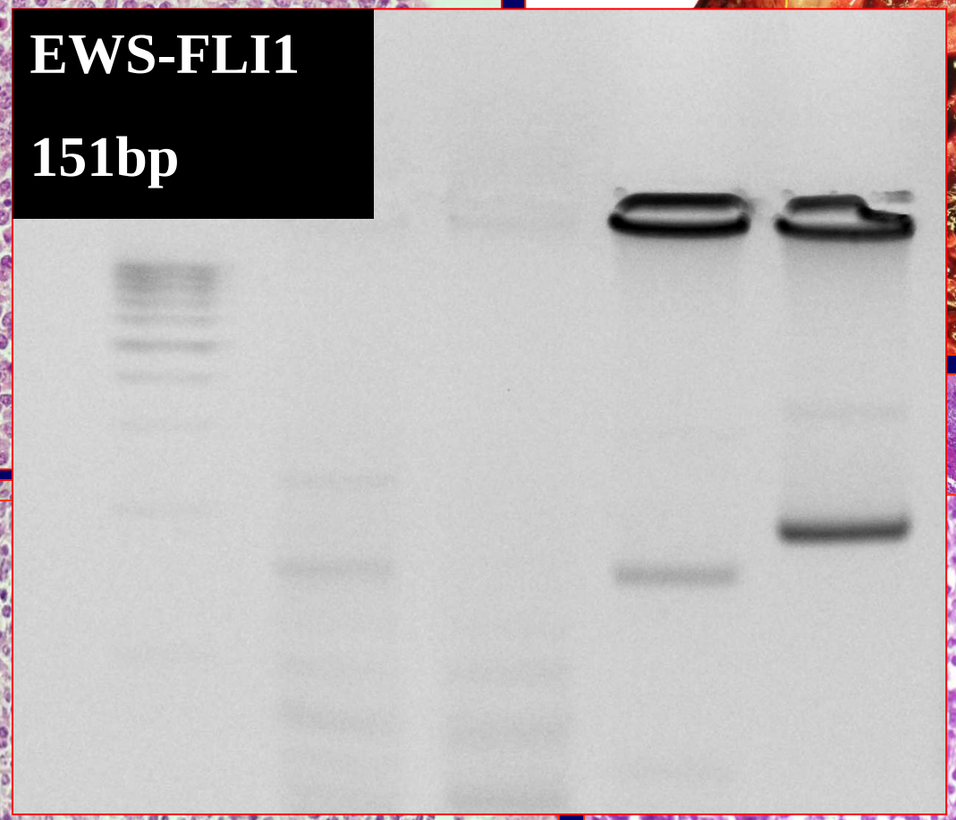


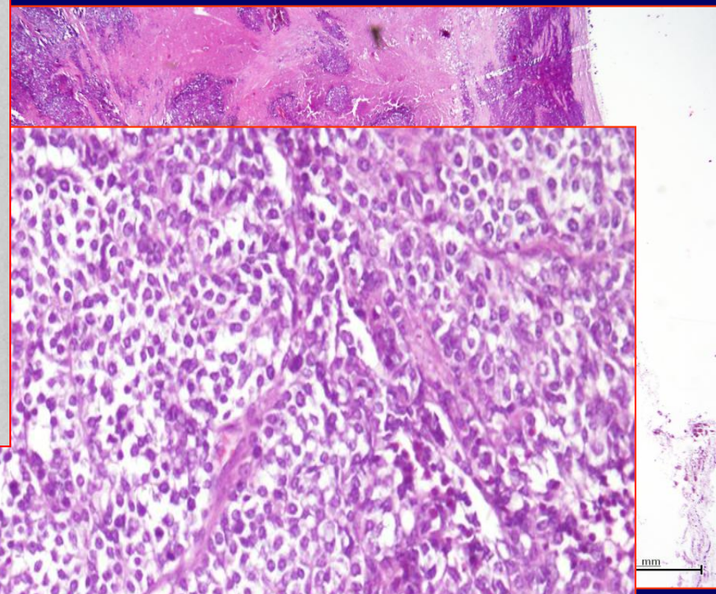


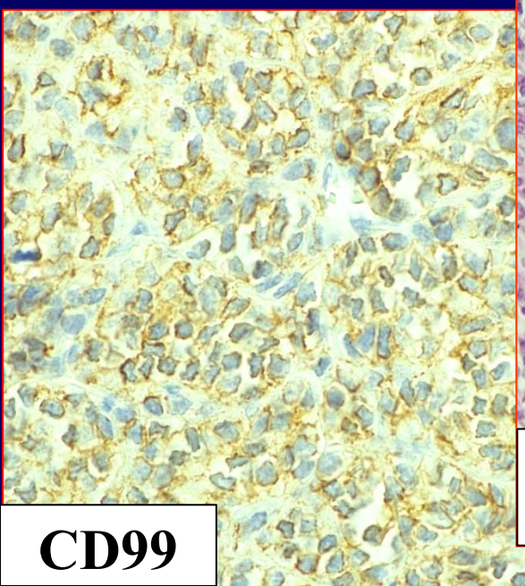


EWS-FLI1

151bp







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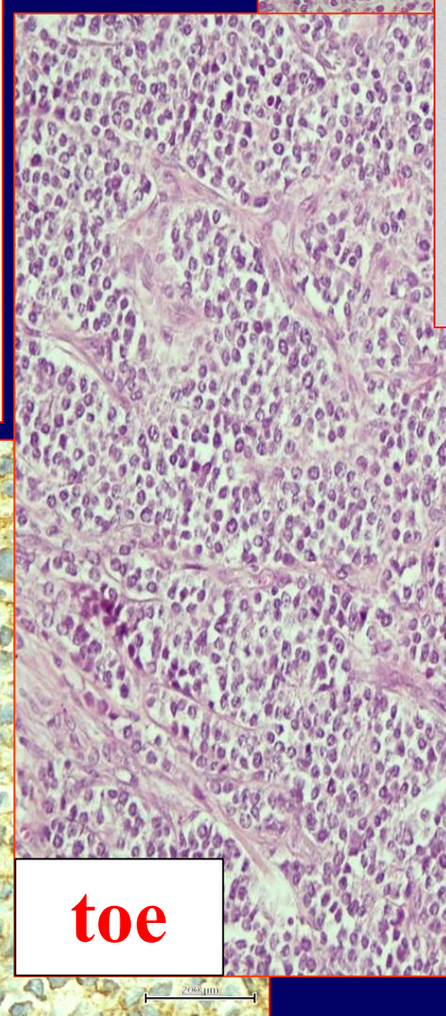
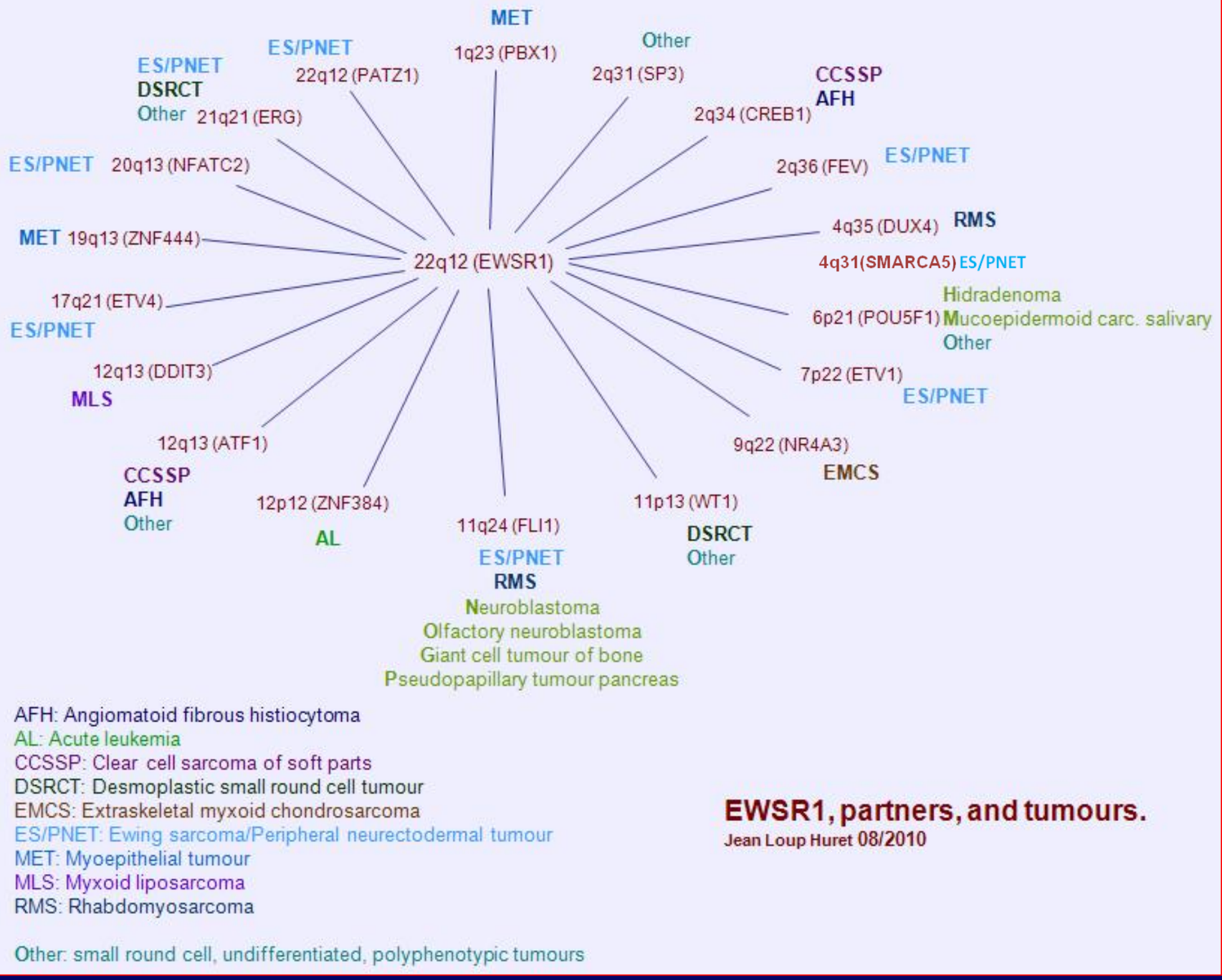


toe

lung

Gene promiscuity

- **EWSR1** (22q12)
  - Ewing sarcoma
  - clear cell sarcoma
  - angiomatoid fibrous histiocytoma
  - myxoid liposarcoma
  - extraskeletal myxoid chondrosarcoma
  - primary pulmonary myxoid sarcoma
  - myoepithelioma, soft tissue
  - hyalinizing clear cell ca salivary glands
  - skin hydradenoma
  - mucoepidermoid ca salivary glands
- **TFE3** (Xp11.2)
  - alveolar soft part sarcoma
  - Xp11-renal cell carcinoma
  - epithelial hemangioendothelioma
  - PEComaa
- **ALK-translocation** t(2p23)
  - inflammatory myofibroblastic tumor
  - anaplastic large cell lymphoma
  - subgroup DLBCL
  - esophageal squamous cell carcinoma
  - non-small-cell lung cancer
  - medullary ca kidney
- **NCOA2** (8q12)
  - alveolar rhabdomyosarcoma
  - mesenchymal chondrosarcoma
  - spindle cell rhabdomyosarcoma
  - angiofibroma
  - acute/biphenotypic leukemia
- **USP6** (17p13.1)
  - aneurysmal bone cyst
  - nodular fasciitis
- **PHF1** (6p21)
  - endometrial stromal sarcoma
  - ossifying fibromixoid tumor



Med Oncol. 2013 Mar;30(1):412. doi: 10.1007/s12032-012-0412-8. Epub 2013 Jan 18.

Molecular detection and targeting of EWSR1 fusion transcripts in soft tissue tumors.

Cantile M, Marra L, Franco R, Ascierto P, Liguori G, De Chiara A, Botti G.

Pathology Unit, National Cancer Institute "Fondazione G. Pascale", Via Mariano Semmola, 80131 Naples, Italy.

Translocation promiscuity

- **ETV6-NTRK3**
  t(12;15)(p13;q26)
  - infantile fibrosarcoma
  - congenital mesoblastic nephroma
  - acute myeloid leukemia
  - secretory breast carcinoma
  - secretory ca salivary glands

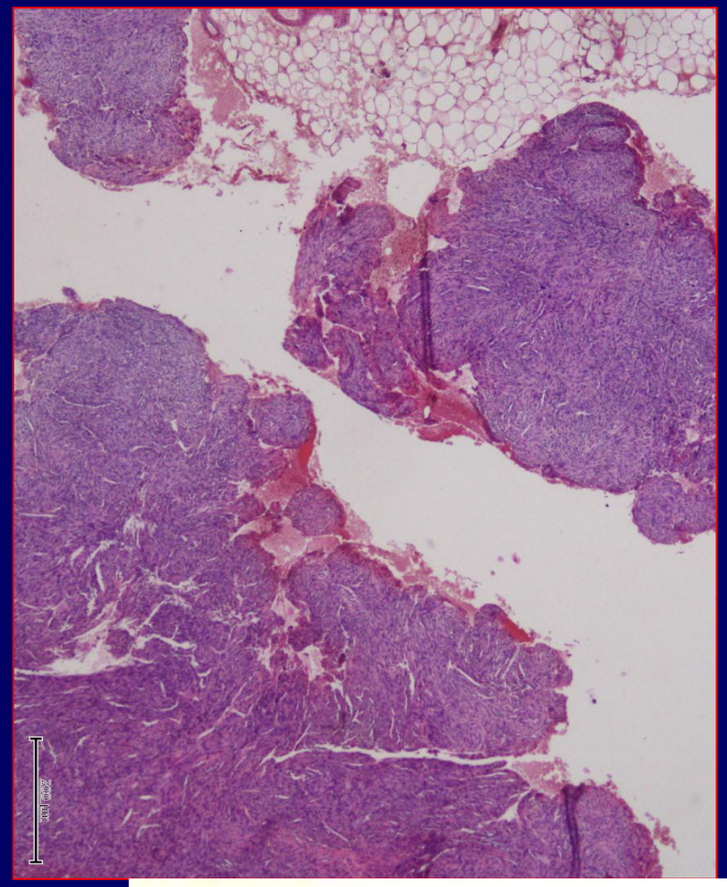
- **ASPL-TFE3**
  t(X;17)(p11;q25)
  - alveolar soft part sarcoma
  - Xp11-renal cell carcinoma

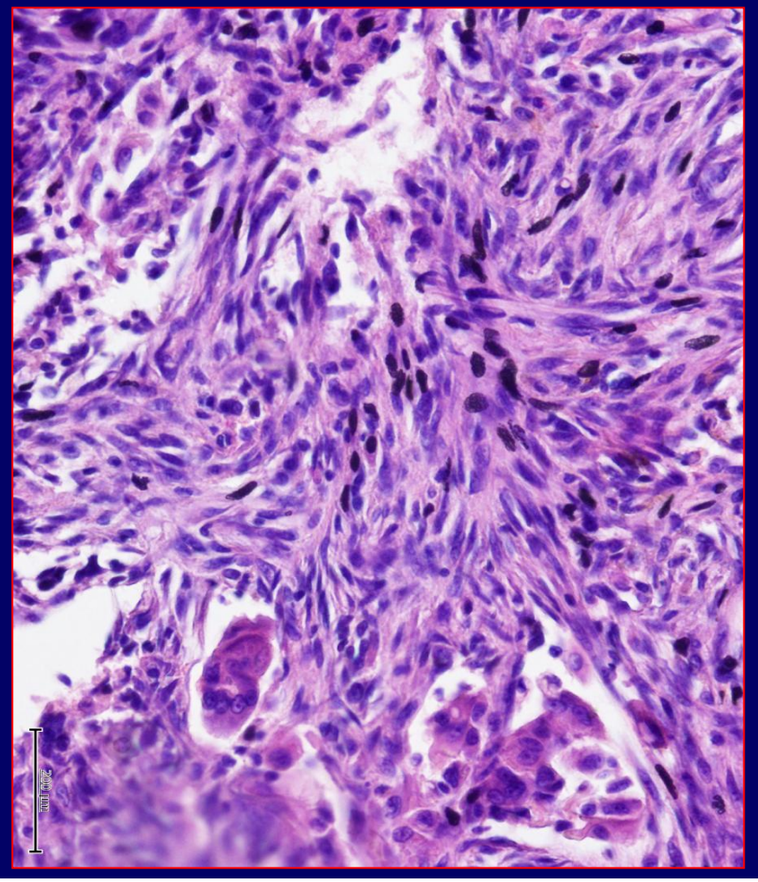
- **EWSR1-ATF1**
  t(12;22)(q13;q12)
  - hyalinizing clear cell ca salivary glands
  - myoepithelial tumor (single case)
  - clear cell sarcoma

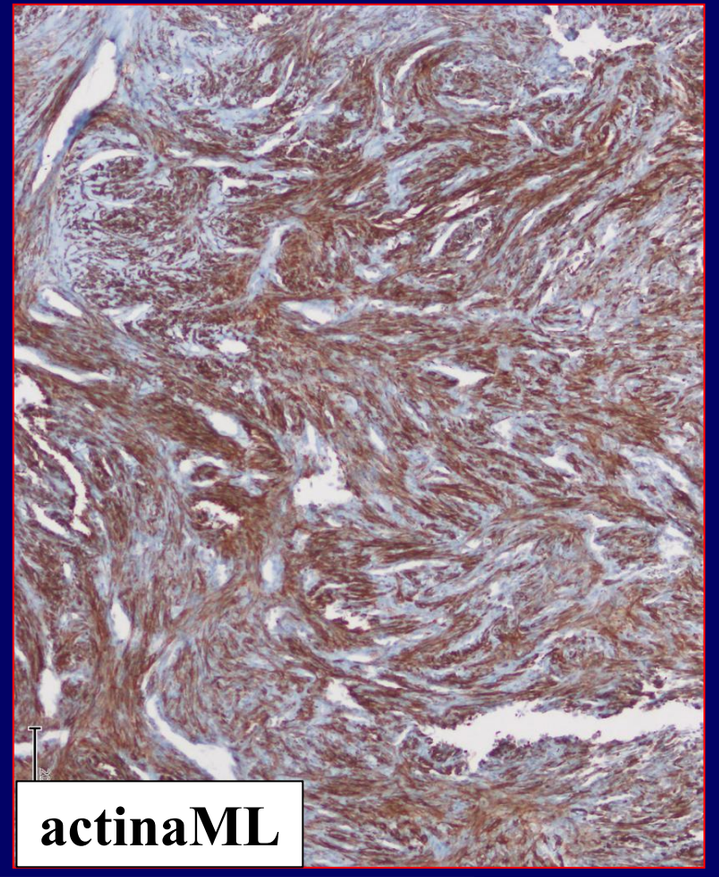
  EWSR1-CREB1
  t(2;22)(q33-34;q12)
  - angiomatoid fibrous histiocytoma
  - primary pulmonary myxoid sarcoma

- **ALK-translocation**
  t(2p23)
  - inflammatory myofibroblastic tumor
  - anaplastic large cell lymphoma
  - subgroup DLBCL
  - esophageal squamous cell carcinoma
  - non-small-cell lung cancer
  - medullary ca kidney

- **EWSR1-POU5F1**
  t(6;22)(p21;q12)
  - skin hydradenoma
  - mucoepidermoid ca salivary glands
  - myoepithelioma, soft tissue



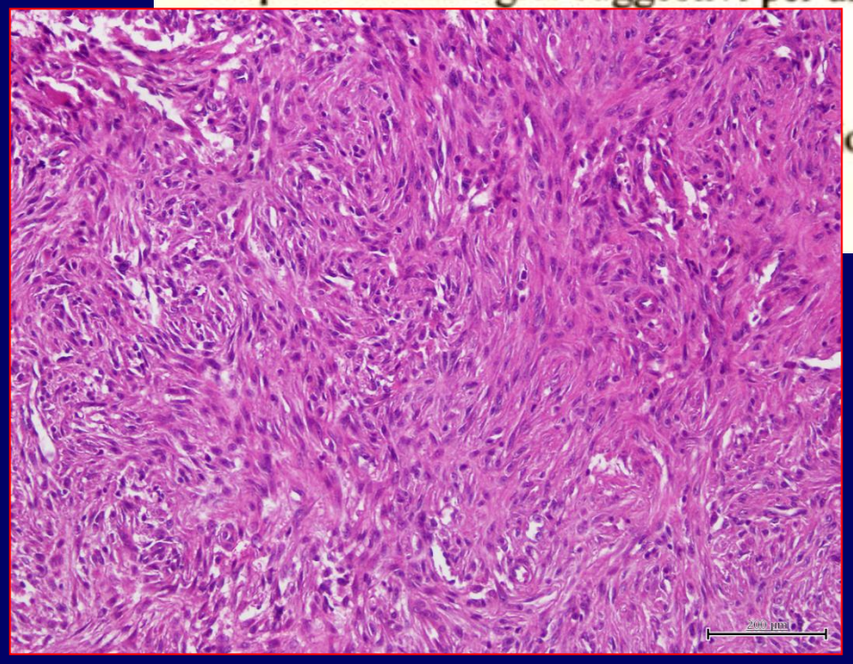


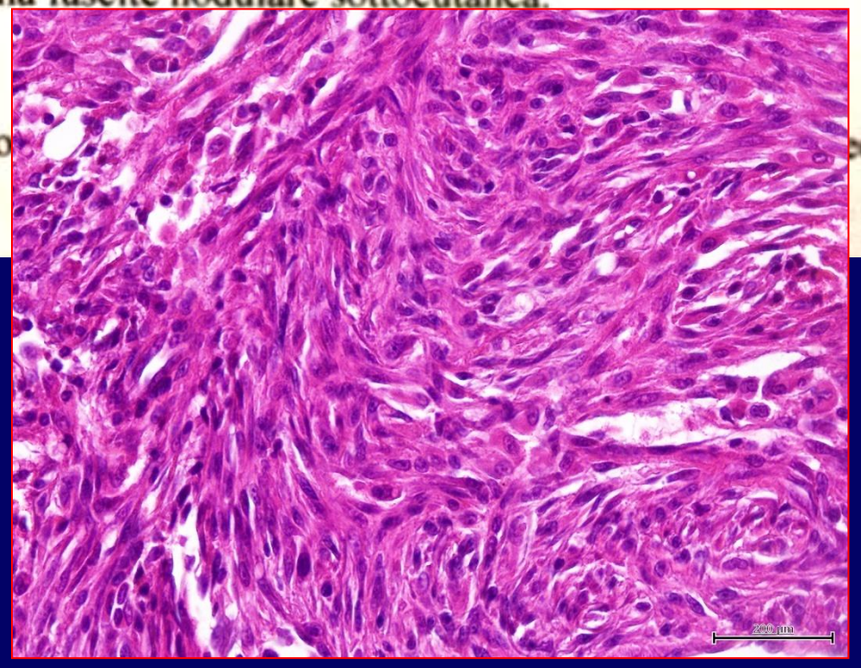


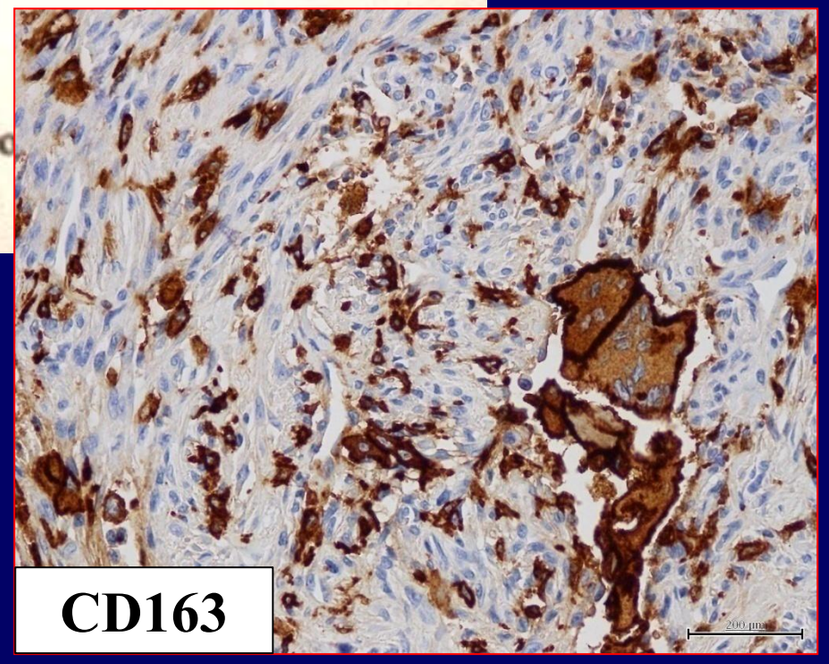
actinaML

Diagnosi:

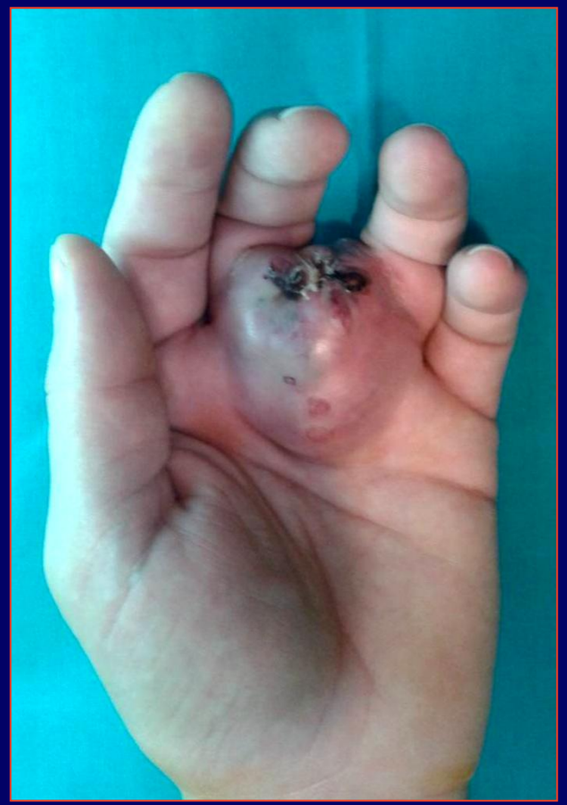
Reperti morfologici suggestivi per una fascite nodulare sottocutanea.

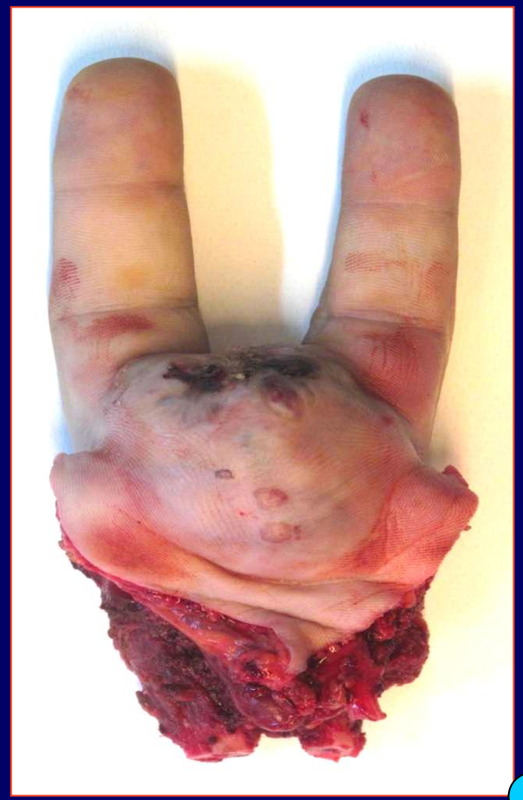


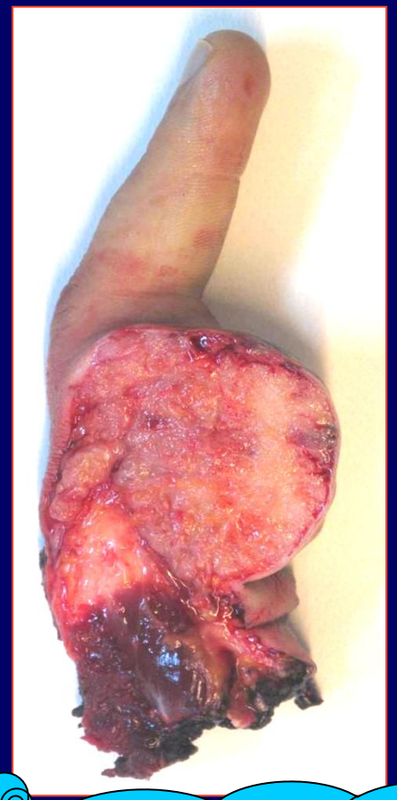


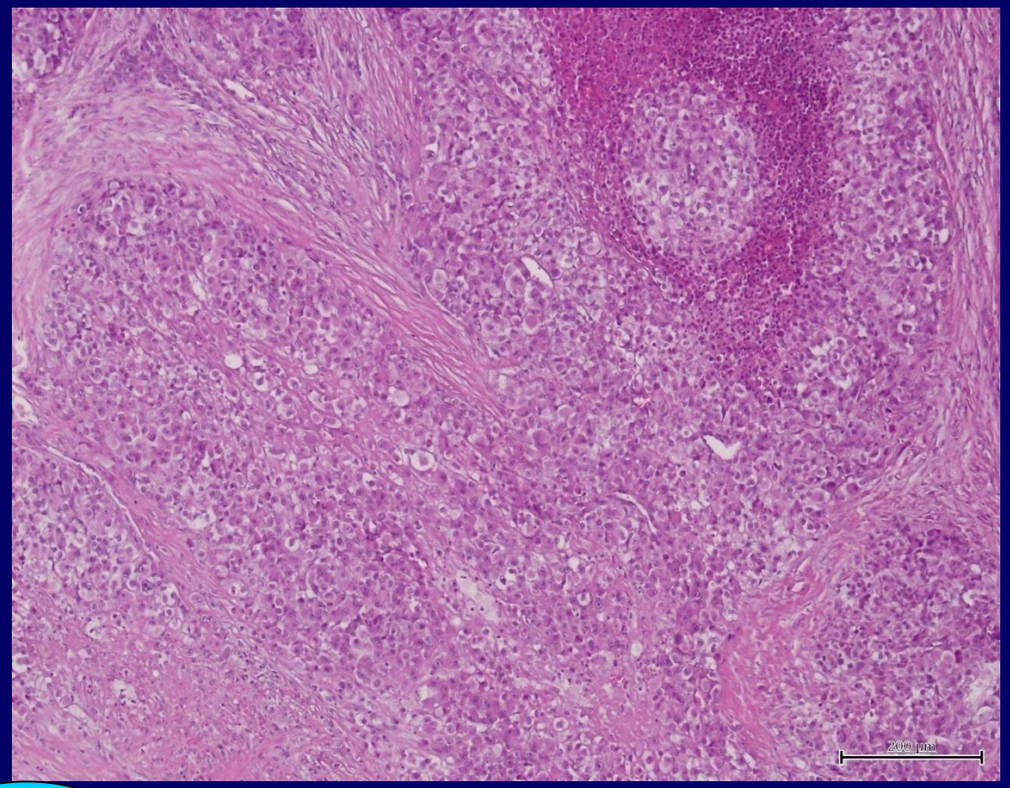


CD163

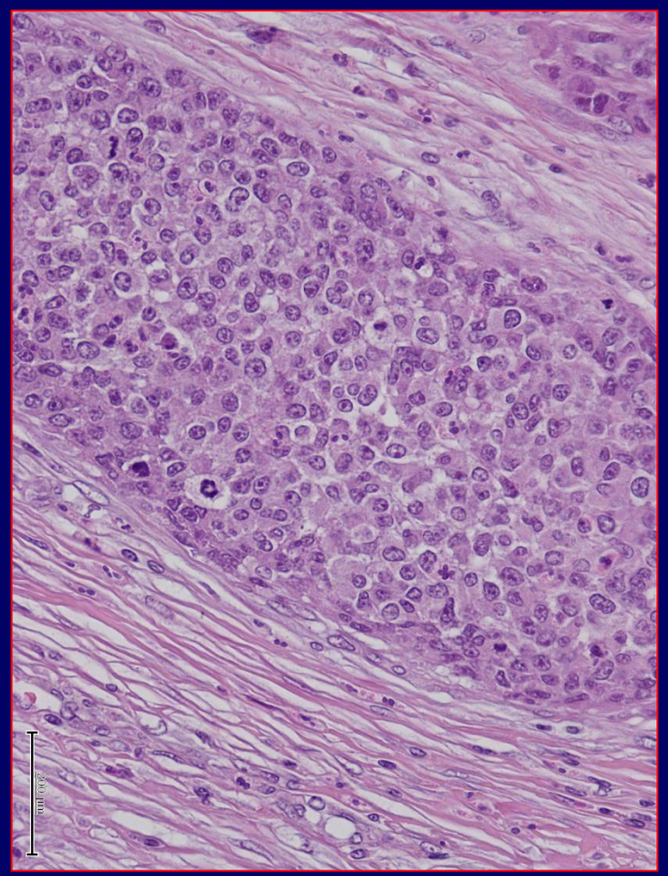


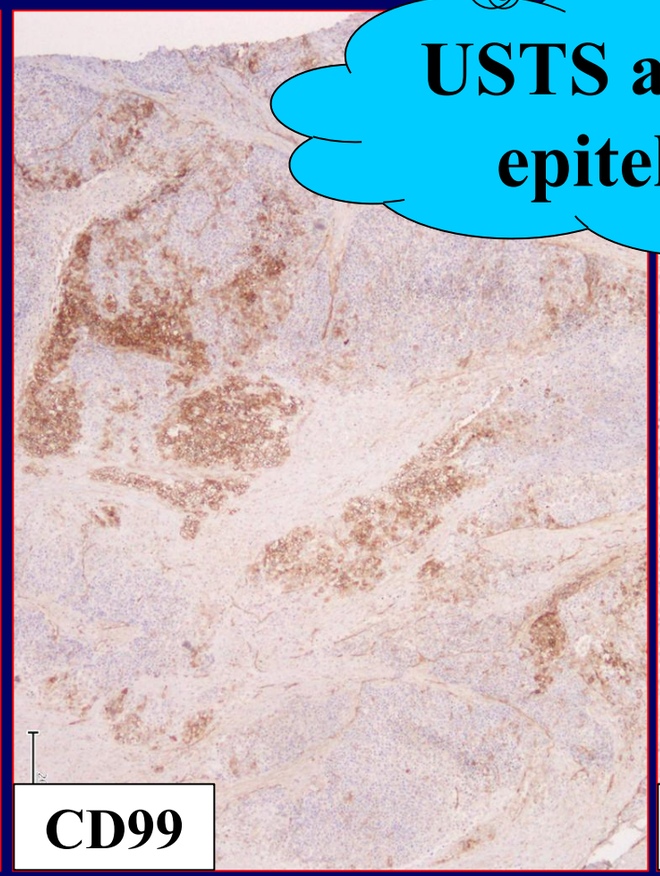






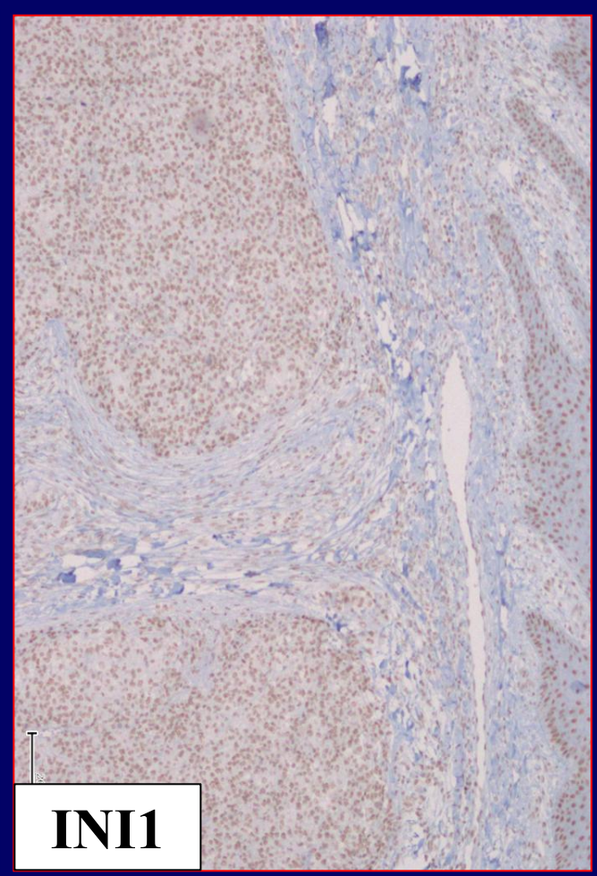
USTS a cellule epitelioidi





CD99

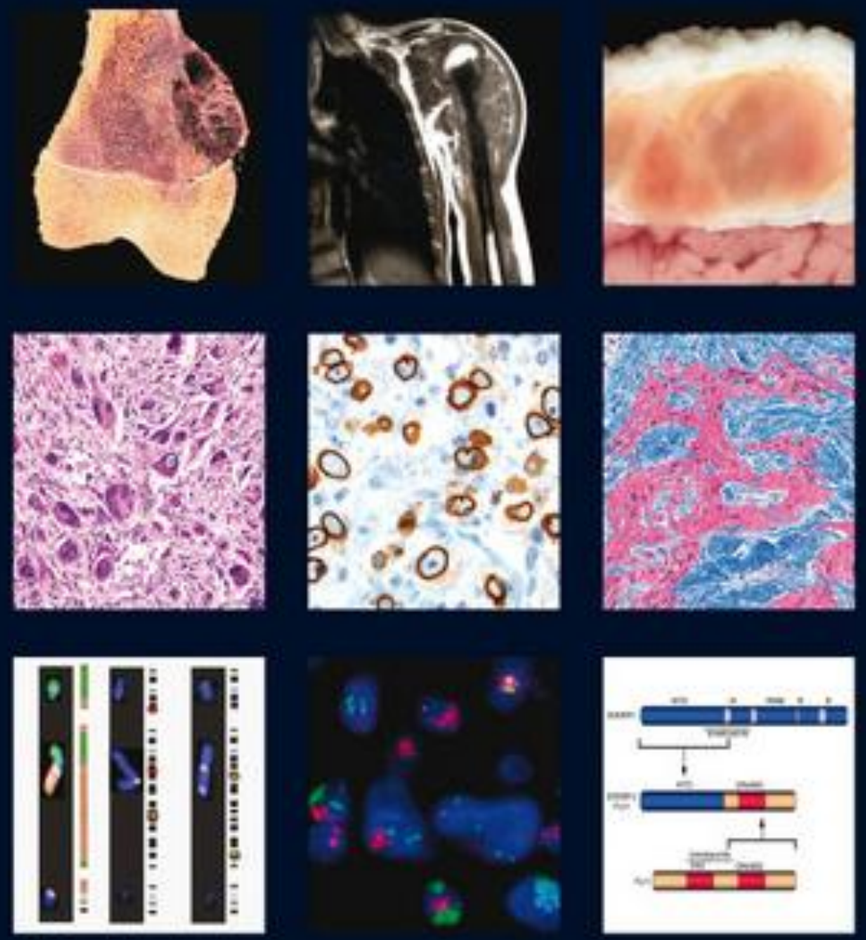
CK



INI1

WHO Classification of Tumours of Soft Tissue and Bone

Edited by Christopher D.M. Fletcher, Julia A. Bridge, Pancras C.W. Hogendoorn, Fredrik Mertens



WHO

ADIPOCYTIC TUMOURS

Benign

Lipoma	8850/0*
Lipomatosis	8850/0
Lipomatosis of nerve	8850/0
Lipoblastoma / Lipoblastomatosis	8881/0
Angiolipoma	8861/0
Myolipoma	8890/0
Chondroid lipoma	8862/0
Extrarenal angiomyolipoma	8860/0
Extra-adrenal myelolipoma	8870/0
Spindle cell/ Pleomorphic lipoma	8857/0 8854/0
Hibernoma	8880/0

Intermediate (locally aggressive)

Atypical lipomatous tumour/ Well differentiated liposarcoma	8851/3

Malignant

Dedifferentiated liposarcoma	8858/3
Myxoid liposarcoma	8852/3
Round cell liposarcoma	8853/3
Pleomorphic liposarcoma	8854/3
Mixed-type liposarcoma	8855/3
Liposarcoma, not otherwise specified	8850/3

FIBROBLASTIC / MYOFIBROBLASTIC TUMOURS

Benign

Nodular fasciitis	
Proliferative fasciitis	
Proliferative myositis	
Myositis ossificans	
fibro-osseous pseudotumour of digits	
Ischaemic fasciitis	
Elastofibroma	8820/0
Fibrous hamartoma of infancy	
Myofibroma / Myofibromatosis	8824/0
Fibromatosis colli	
Juvenile hyaline fibromatosis	
Inclusion body fibromatosis	
Fibroma of tendon sheath	8810/0
Desmoplastic fibroblastoma	8810/0
Mammary-type myofibroblastoma	8825/0
Calcifying aponeurotic fibroma	8810/0
Angiomyofibroblastoma	8826/0
Cellular angiofibroma	9160/0
Nuchal-type fibroma	8810/0
Gardner fibroma	8810/0
Calcifying fibrous tumour	
Giant cell angiofibroma	9160/0

Intermediate (locally aggressive)

Superficial fibromatoses (palmar / plantar)	
Desmoid-type fibromatoses	8821/1
Lipofibromatosis	

Intermediate (rarely metastasizing)

Solitary fibrous tumour	8815/1
and haemangiopericytoma (incl. lipomatous haemangiopericytoma)	9150/1
Inflammatory myofibroblastic tumour	8825/1
Low grade myofibroblastic sarcoma	8825/3
Myxoinflammatory fibroblastic sarcoma	8811/3
Infantile fibrosarcoma	8814/3

Malignant

Adult fibrosarcoma	8810/3
Myxofibrosarcoma	8811/3
Low grade fibromyxoid sarcoma	8811/3
hyalinizing spindle cell tumour	
Sclerosing epithelioid fibrosarcoma	8810/3

* Morphology code of the International Classification of Diseases for Oncology (ICD-O) (726) and the Systematize Nomenclature of Medicine (http://snomed.org).

SMOOTH MUSCLE TUMOURS

Angioleiomyoma	8894/0
Deep leiomyoma	8890/0
Genital leiomyoma	8890/0
Leiomyosarcoma (excluding skin)	8890/3

PERICYTIC (PERIVASCULAR) TUMOURS

Glomus tumour (and variants)	8711/0
malignant glomus tumour	8711/3
Myopericytoma	8713/1

SKELETAL MUSCLE TUMOURS

Benign

Rhabdomyoma	8900/0
adult type	8904/0
fetal type	8903/0
genital type	8905/0

Malignant

Embryonal rhabdomyosarcoma	8910/3
(incl. spindle cell, botryoid, anaplastic)	8912/3 8910/3
Alveolar rhabdomyosarcoma (incl. solid, anaplastic)	8920/3
Pleomorphic rhabdomyosarcoma	8901/3

VASCULAR TUMOURS

Benign

Haemangiomas of	
subcut/deep soft tissue:	9120/0
capillary	9131/0
cavernous	9121/0
arteriovenous	9123/0
venous	9122/0
intramuscular	9132/0
synovial	9120/0
Epithelioid haemangioma	9125/0
Angiomatosis	
Lymphangioma	9170/0

Intermediate (locally aggressive)

Kaposiform haemangioendothelioma	9130/1

Intermediate (rarely metastasizing)

Retiform haemangioendothelioma	9135/1
Papillary intralymphatic angioendothelioma	9135/1
Composite haemangioendothelioma	9130/1
Kaposi sarcoma	9140/3

Malignant

Epithelioid haemangioendothelioma	9133/3
Angiosarcoma of soft tissue	9120/3

CHONDRO-OSSEOUS TUMOURS

Soft tissue chondroma	9220/0
Mesenchymal chondrosarcoma	9240/3
Extraskeletal osteosarcoma	9180/3

TUMOURS OF UNCERTAIN DIFFERENTIATION

Benign

Intramuscular myxoma (incl. cellular variant)	8840/0
Juxta-articular myxoma	8840/0
Deep ("aggressive") angiomyxoma	8841/0
Pleomorphic hyalinizing angiectatic tumour	
Ectopic hamartomatous thymoma	8587/0

Intermediate (rarely metastasizing)

Angiomatoid fibrous histiocytoma	8836/1
Ossifying fibromyxoid tumour (incl. atypical / malignant)	8842/0
Mixed tumour/	8940/1
Myoepithelioma/	8982/1
Parachordoma	9373/1

Malignant

Synovial sarcoma	9040/3
Epithelioid sarcoma	8804/3
Alveolar soft part sarcoma	9581/3
Clear cell sarcoma of soft tissue	9044/3
Extraskeletal myxoid chondrosarcoma ("chordoid" type)	9231/3
PNET / Extraskeletal Ewing tumour	
pPNET	9364/3
extraskeletal Ewing tumour	9260/3
Desmoplastic small round cell tumour	8806/3
Extra-renal rhabdoid tumour	8963/3
Malignant mesenchymoma	8990/3
Neoplasms with perivascular epithelioid cell differentiation (PEComa)	
clear cell myomelanocytic tumour	
Intimal sarcoma	8800/3
Pleomorphic 'MFH' / Undifferentiated pleomorphic sarcoma	8830/3
Giant cell 'MFH' / Undifferentiated pleomorphic sarcoma with giant cells	8830/3
Inflammatory 'MFH' / Undifferentiated pleomorphic sarcoma with prominent inflammation	8830/3

Tumori ASL Napoli 3 sud" il territorio di riferimento del Registro Tumori della Regione Campania c/o l'ASL Napoli 3 Sud corrisponde all'intero territorio della stessa ASL, distretti 34, 48 - 59, mantenendo la copertura di due distretti, 46 e 47, attualmente afferenti alla ASL Napoli 2 nord. A seguito di tale estensione, la nuova area di riferimento del Registro è composta da 59 Comuni con una popolazione di 1.170.000 abitanti.

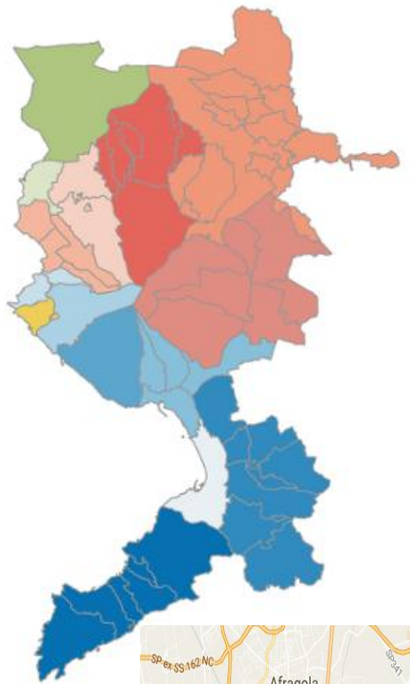
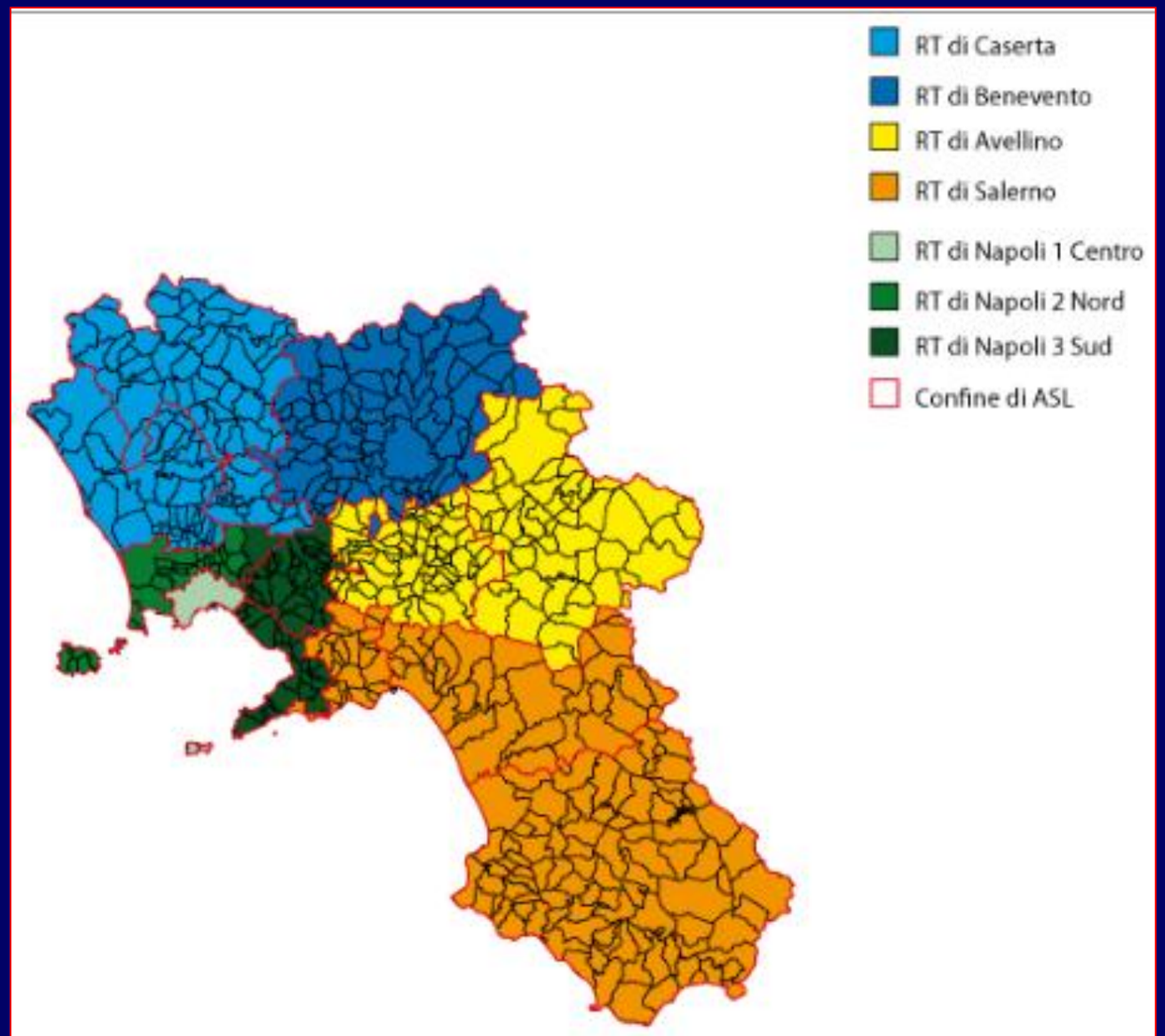


Tabella 1 – Comuni coperti dal Registro Tumori dell'ASL Napoli 3 sud che rientrano in aree definite a rischio ambientale: 1-"Terra dei Fuochi"; 2- SIN Agro Aversano- Litorale Domitio Flegreo (AALDF); 3- SIN Litorale Vesuviano (LV); 4- Bacino del Sarno (BS); 5- Area Termovalorizzatore. In rosso i Comuni inseriti in due o più aree a rischio.

	1 - " TERRA dei FUOCHI" 35/90	2 - SIN AALDF: 19/77	3 - SIN BACINO SARNO: 12/39	4 - SIN LV: 11/11	5 - AREA TERMOVALORIZ. 7/18
1	ACERRA	ACERRA	CASOLA DI NAPOLI	BOSCOTRECASE	ACERRA
2	BRUSCIANO	BRUSCIANO	GRAGNANO	POMPEI	BRUSCIANO
3	CAMPOSANO	CAMPOSANO	LETTERE	ERCOLANO	CASALNUOVO
4	CARBONARA DI NOLA	CARBONARA	PALMA CAMPANIA	SAN GIORGIO A CREMANO	MARIGLIANELLA
5	CASALNUOVO	CASAMARCIANO	PIMONTE	TERZIGNO	MARIGLIANO
6	CASAMARCIANO	CASTELLO DI CISTERNA	POGGIOMARINO	TORRE DEL GRECO	POMIGLIANO D'ARCO
7	CASTELLO DI CISTERNA	CICCIANO	SANTA MARIA LA CARITA'	TRECASE	CASTELLO di CISTERNA
8	CERCOLA	CIMITILE	SANT'ANTONIO ABATE	PORTICI	
9	CICCIANO	MARIGLIANELLA	STRIANO	BOSCOREALE	
10	CIMITILE	MARIGLIANO	BOSCOREALE	CASTELLAMMARE DI STABIA	
11	COMIZIANO	NOLA	CASTELLAMMARE DI STABIA	TORRE ANNUNZIATA	
12	LIVERI	POMIGLIANO d'ARCO	TORRE ANNUNZIATA		
13	MARIGLIANELLA	ROCCARAINOLA			
14	MARIGLIANO	S.PAOLO BELSITO			
15	MASSA DI SOMMA	S.VITALIANO			
16	NOLA	SAVIANO			
17	OTTAVIANO	SCISCIANO			
18	POMIGLIANO D'ARCO	TUFINO			
19	PALMA CAMPANIA	VISCIANO			
20	POGGIOMARINO				
21	ROCCARAINOLA				
22	S. GIUSEPPE VESUVIANO				
23	SAN GENNARO VES.				
24	SAN PAOLO BELSITO				
25	SAN VITALIANO				
26	SAVIANO				
27	SCISCIANO				
28	SOMMA VESUVIANA				
29	STRIANO				
30	TERZIGNO				
31	TUFINO				
32	VISCIANO				
33	VOLLA				
34	BOSCOREALE				
35	ERCOLANO				



La situazione attuale

A oggi in Campania sono attivi tre Registri tumori:

ASL Napoli 3 Sud	attivo dal 1996, copre 59 comuni (1.200.000 abitanti)	dati 1996-2009	accreditato AIRTUM (vai alla scheda)
ASL Salerno	attivo dal 1997 (158 comuni – 1.100.000 abitanti)	dati: 1996-2009	accreditato AIRTUM (vai alla scheda)
ASL Caserta	attivo dal 2012 (104 comuni – 904.000 abitanti)	sta completando la raccolta dei dati relativi alla registrazione del primo triennio di incidenza (2008-2010)	

Altri 4 registri, afferenti ognuno a una ASL (ASL Napoli 2 Nord, ASL Napoli 1 Centro, ASL Benevento, ASL Avellino), sono in fase di start up, corrispondente al periodo di avvio della rilevazione dei dati di incidenza (relativi al periodo 2010-2012/13). Solo al termine di questa fase potranno chiedere l'accreditamento ad AIRTUM.

ASL Napoli 2 Nord -> start up 2010-12 (32 comuni – 1.032.000 abitanti)

ASL Napoli 1 Centro -> start up 2010-12 (3 comuni – 1.010.000 abitanti)

ASL Benevento -> start up 2010-13 (78 comuni – 290.000 abitanti)

ASL Avellino -> start up 2010-12 (119 comuni – 440.000 abitanti)

Medicine®

OBSERVATIONAL STUDY

OPEN

Incidences of Primary Soft Tissue Sarcoma Diagnosed on Extremities and Trunk Wall

A Population-Based Study in Taiwan

Giun-Yi Hung, MD, Chueh-Chuan Yen, MD, PhD, Jiun-Lin Horng, PhD, Chun-Yu Liu, MD, PhD, Wei-Ming Chen, MD, Tain-Hsiung Chen, MD, and Chien-Lin Liu, MD

Abstract: Most epidemiological studies of soft tissue sarcoma (STS) were performed in the Western countries, and only limited data highlighting that in the Asian population. The aim of this study is to conduct a comprehensive analysis for the incidence rates of STS in Taiwan.

This population-based study analyzed the incidence rates and trends of the primary STS over extremities and trunk wall during 2003 to 2011 by using the nationwide Taiwan Cancer Registry. More specific analyses were conducted for subtypes. Incidence rates of overall STS by cities and counties were also investigated.

A total of 3843 cases were diagnosed with STS during the study period, giving an age-standardized rate (ASR) of 1.63 per 100,000 person-years. Liposarcoma was the most frequent subtype, followed by undifferentiated pleomorphic sarcoma and leiomyosarcoma. STS was more frequently diagnosed in males and angiosarcoma was the most prominent sex-specific type. ASR increased with age in most of the STS subtypes and varied by histologic subtype. The incidence of peripheral primitive neuroectodermal tumor was highest in children, whereas rhabdomyosarcoma revealed a bimodal age distribution. Annual percent change (APC) of STS was 2.2%, and significant change in trend was only in males (APC, 3.5%, $P < 0.05$). Geographical variations indicated that New Taipei City had a significantly higher rate compared with the rest areas. Significantly lower rates were observed in 1 major offshore island.

Incidence variations of STS by sexes, ages, histologic subtypes, and geographic regions were observed in Taiwanese population. The emerging factors associated STS incidence rates deserve further studies to verify.

(*Medicine* 94(41):e1696)

Abbreviations: APC = annual percent change, ASR = age-standardized incidence rate, CI = confidence intervals, DCO = death certificate only, IARC = International Agency for Research on Cancer, M/F = male-to-female, MV = microscopy-verified, NF1 = neurofibromatosis type 1, NOS = not otherwise specified, pPNET = peripheral primitive neuroectodermal tumor, SEER =

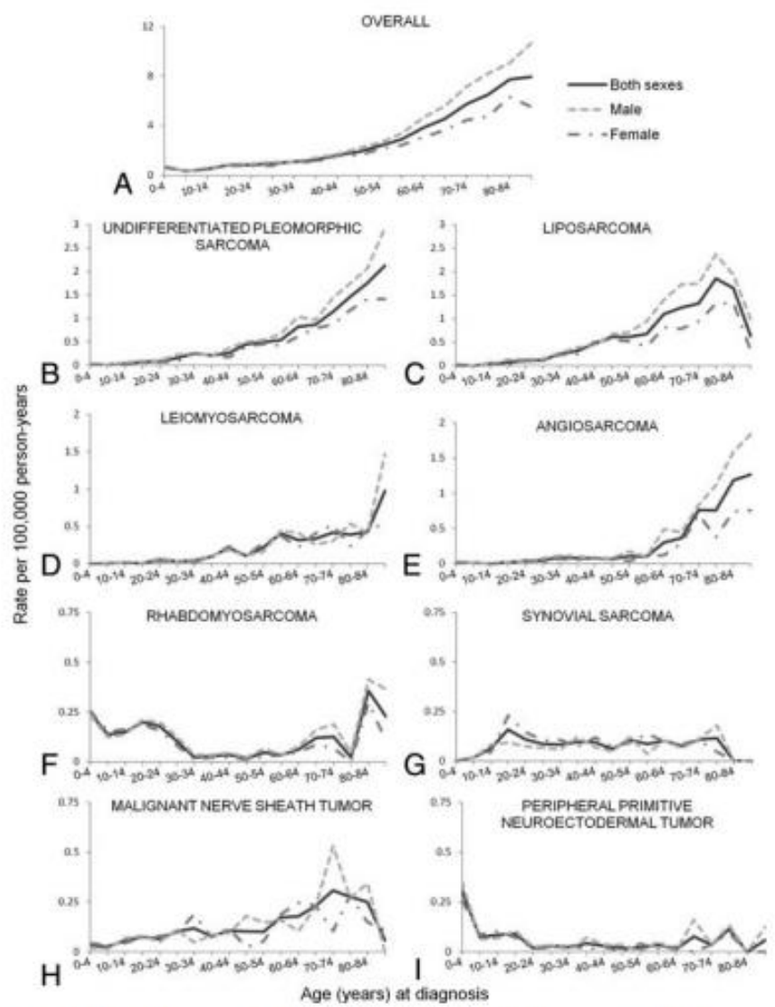


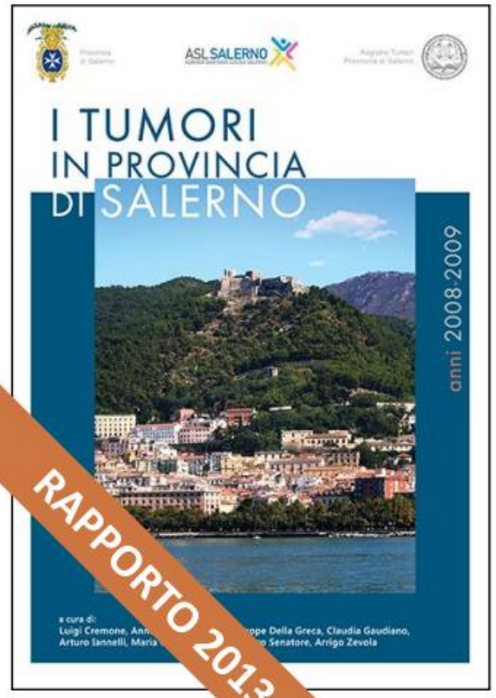
FIGURE 1. Incidence rates of primary soft tissue cancers in 5-year age groups with histologic subtypes and by sexes in Taiwan during 2003 to 2011.

Bone and Soft Tissue Sarcomas

UK Incidence and Survival: 1996 to 2010

In 2010 there were 531 new diagnoses of bone sarcoma and 3,298 new diagnoses of soft tissue sarcoma in the UK. The age-standardised incidence of bone sarcoma remained constant at around 7.9 per million between 1996 and 2010. Soft tissue sarcoma incidence rates increased significantly from 39 per million to 45 per million during the same time period. This increase may reflect improved diagnostic techniques and reporting rather than a true increase in incidence.

The incidence of soft tissue sarcomas increased significantly with increasing age. The age specific



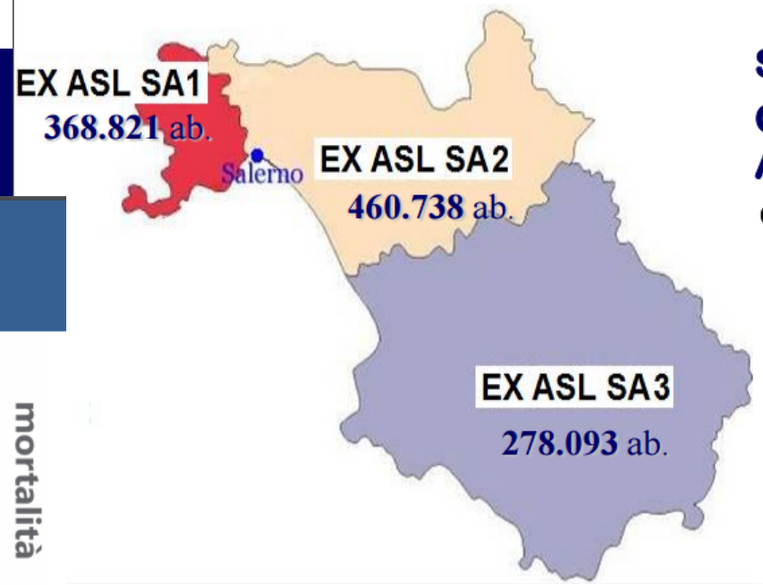
I TUMORI IN PROVINCIA DI SALERNO

A cura di:

Luigi Cremone, Anna Luisa Caiazzo, Giuseppe Della Greca, Claudia Gaudiano, Arturo Iannelli, M… Grazia Panico, Gennaro Senatore, Arrigo Zevola

PROVINCIA DI SALERNO

ASSETTO AMMINISTRATIVO-SANITARIO



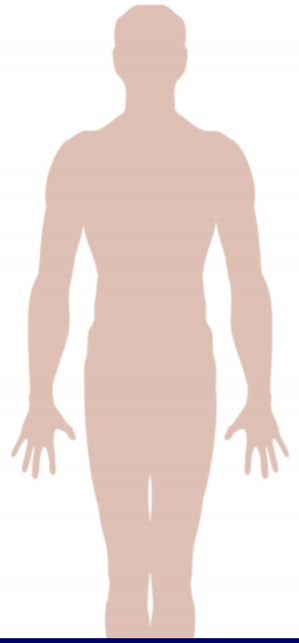
SUPERFICIE : 4.922 Kmq
COMUNI: 158
ABITANTI: 1.107.652 (al 2009)

CARATTERISTICHE SANITARIE:

1	ASL
1	AZIENDA OSPEDALIERA
15	OSPEDALI
8	CLINICHE PRIVATE
4	SERV. DI ANATOMIA PATOLOGICA
2	DIVISIONI DI ONCOLOGIA
2	UN. OP. DI ONCO-EMATOLOGIA
1	UN. OP. DI RADIOTERAPIA

I tumori più frequenti. Uomini

incidenza			mortalità	
Testa e collo	4,1%		3,1%	Testa e collo
Encefalo e SNC	1,6%		3,1%	Encefalo e SNC
Tiroide	1,4%		0,3%	Tiroide
Polmone	16,1%	←	27,8%	Polmone
Fegato	4,7%		7,8%	Fegato
Pancreas	2,2%		4,2%	Pancreas
Rene	2,8%		1,9%	Rene
Vescica	12,5%	←	7,5%	Vescica
Stomaco	4,0%		5,2%	Stomaco
Colon e retto	12,7%	←	10,0%	Colon e retto
Prostata	18,1%	←	9,7%	Prostata
Melanoma	1,7%		0,9%	Melanoma
Linfomi	4,3%		3,0%	Linfomi
Mieloma	1,0%		1,5%	Mieloma
Leucemie	3,1%		4,0%	Leucemie
Altri	9,7%		10,0%	*Altri*



ORIGINAL ARTICLE

Second opinion and discrepancy in the diagnosis of soft tissue lesions at surgical pathology

Muhammad Ashraf Sharif, Syed Naeem Raza Hamdani

Armed Forces Institute of Pathology, Rawalpindi, Pakistan

INDIAN JOURNAL OF PATHOLOGY AND MICROBIOLOGY - 53(3), JULY-SEPTEMBER 2010

lesion. **Results:** During the study period, 34 cases of soft tissue lesions were received for review and second opinion. The mean age of the patients was 39 ± 22 years and immunohistochemistry was performed in 21 (62%) of 34 cases. Concurrence between the review and initial diagnosis was seen in 18 (53%) cases (category A). Discrepancy in the diagnosis at review and initial consultation was seen in 16 (47%) cases. There were four (11.8%) cases that were placed in category B as the diagnosis of benign and malignant remained the same but the specific diagnostic entity was changed. Category C included eight (23.5%) cases where the review diagnosis changed the therapeutic modality despite the benign or malignant category remaining unchanged. All the cases in this category required immunohistochemistry as diagnosis of metastatic carcinoma was changed to sarcoma in two cases and diagnosis of sarcoma was changed to carcinoma in three cases. There was only one (2.9%) case in category D where a benign diagnosis was changed to malignant on review and three (8.8%) cases reported as malignant had a revised diagnosis of benign lesion, placing them in category E. **Conclusion:** In the absence of a quality assurance regulatory body to monitor and overlook the professional competence of practicing surgical pathologists, a mandatory review and second opinion should be undertaken whenever a major therapeutic endeavor is to be undertaken, regardless of the cost for the ultimate benefit of the patient.

Clinical Epidemiology

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ORIGINAL RESEARCH

Population-based Aarhus Sarcoma Registry: validity, completeness of registration, and incidence of bone and soft tissue sarcomas in western Denmark

This article was published in the following Dove Press journal:
Clinical Epidemiology
5 March 2013
Number of times this article has been viewed

Katja Maretty-Nielsen[1,2]
Ninna Aggerholm-Pedersen[1–3]

Background: The aim of the present study was to validate the data in the Aarhus Sarcoma Registry (ASR), to determine if this registry is population-based for western Denmark, and to examine the incidence of sarcomas using validated, population-based registry data.

Cancer Registry. The overall World Health Organization age-standardized incidence of sarcoma in the trunk or extremities in western Denmark in the period 1979–2008 was 2.2 per 100,000, being 0.8 for bone sarcomas and 1.4 for soft tissue sarcomas.

Original Article

Cancer. 2012 Nov 1;118(21):5339-48. doi: 10.1002/cncr.27555. Epub 2012 Apr 19.

Incidence of Soft Tissue Sarcoma and Beyond

A Population-Based Prospective Study in 3 European Regions

Giuseppe Mastrangelo, MD[1]; Jean-Michel Coindre, MD[2]; Françoise Ducimetière, PhD[3]; Angelo Paolo Dei Tos, MD[4]; Emanuela Fadda, BSc, PhD[5]; Jean-Yves Blay, MD, PhD[6]; Alessandra Buja, MD, PhD[1]; Ugo Fedeli, MD, MSc[7]; Luca Cegolon, MD, MSc, FFPH[1,8]; Alvise Frasson, MD[9]; Dominique Ranchère-Vince, MD[10]; Cristina Montesco, MD[11]; Isabelle Ray-Coquard, MD, PhD[6]; and Carlo Riccardo Rossi, MD[5]

FUNDING SOURCES

This work was funded by a grant of the Commission of the European Communities—Research Directorate General (contract LSHC-CT-2005-018806), called CONective TIssue CAncer NETwork (CONTICANET), a network of excellence to integrate European experience.

METHODS: Cases of sarcomas regardless of primary site (except bone and joints) were collected during 2 years in 3 European regions totaling approximately 26,000,000 person-years. The sources used were pathology reports and hospital discharges forms. Diagnoses were reviewed by expert sarcoma pathologists and were classified according to 2002 World Health Organization criteria. Soft tissue sarcomas (STS) were considered those located in arms, legs, trunk, head, neck, and retroperitoneum; visceral sarcomas (VS) were considered those that arose in internal organs. Rates were age standardized using the European (ASR E) and the USA standard population. The rate of coexistence of VS and

RESULTS: There were 1558 sarcomas, 968 STS, and 590 VS.

CONCLUSIONS: Compared with the incidence of STS, VS incidence made up an additional 41% in males and 77% in females. Because the shape of age-specific curves for some histotypes was similar to that of breast cancer, the authors concluded that sex hormones (plus many chemicals that act as endocrine disruptors) may be involved in carcinogenesis. This evidence could pave the way to investigate alternative treatments and to explore etiology. Cancer 2012. © 2012 American Cancer Society.