

Slide Seminar Soft Tissue and Bone Pathology: curious,
enigmatic and
gorgeous bone and soft tissue lesions

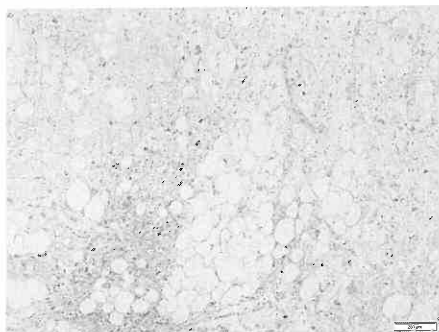
CASE 1

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European Congress of Pathology, 2-6 September 2017, Amsterdam, The Netherlands

Case 1: clinical information

- 64y-old male patient
- Presents with a not painfull and recently enlarged nodule on the left ellbow (diameter 6,0 cm)
- No important clinical history
- The patient wants it removed

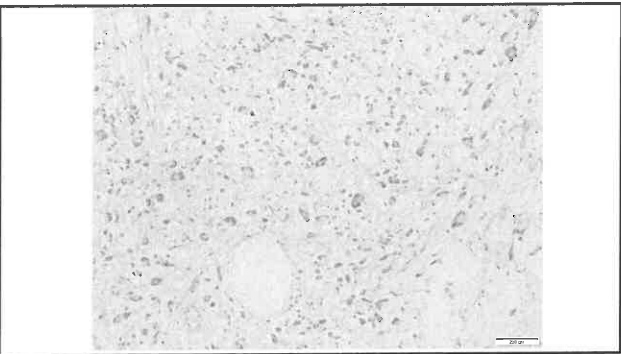


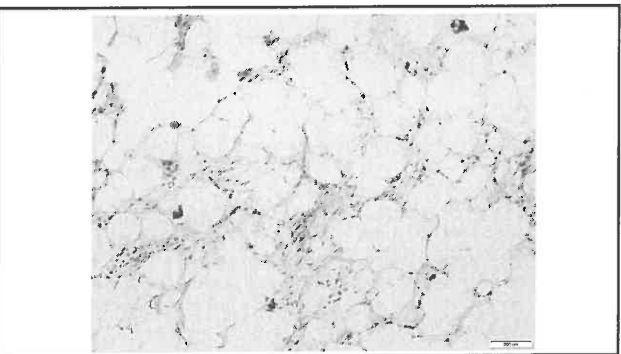


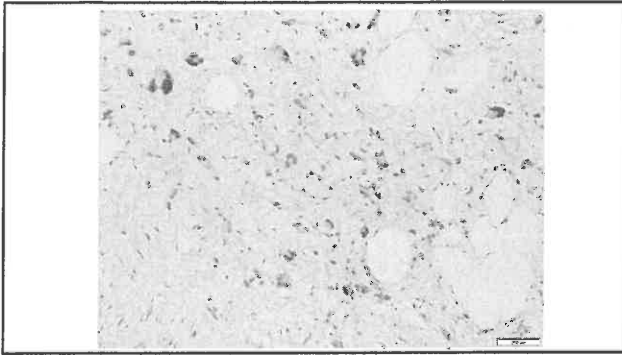


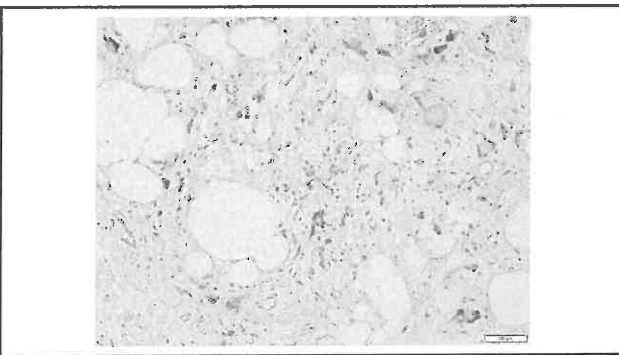


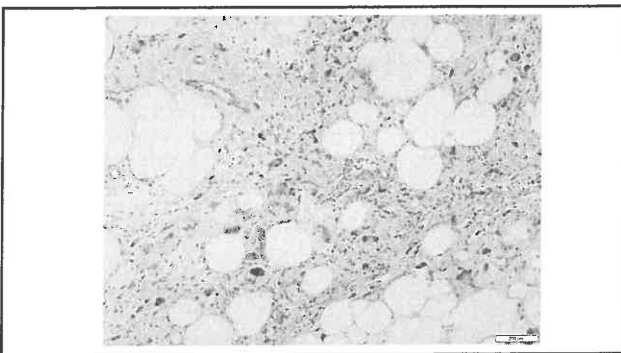








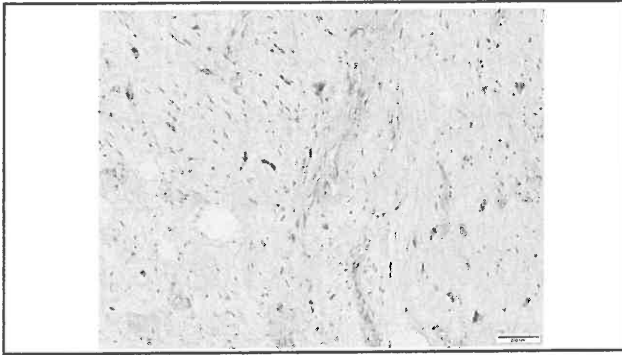


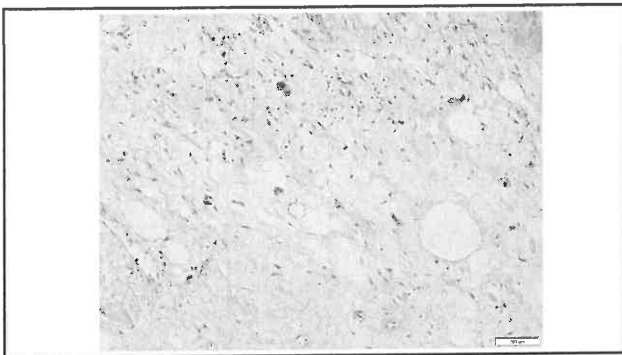






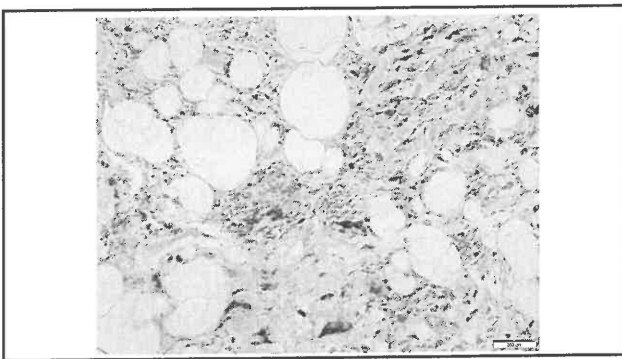






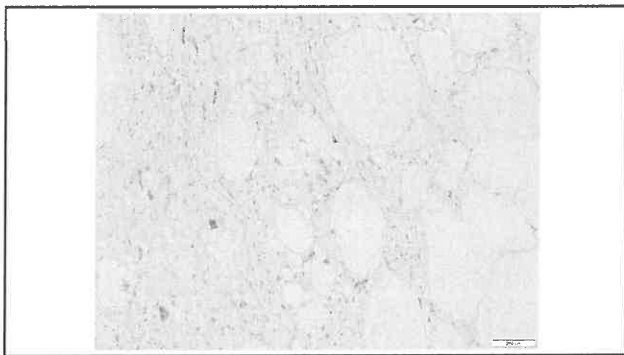


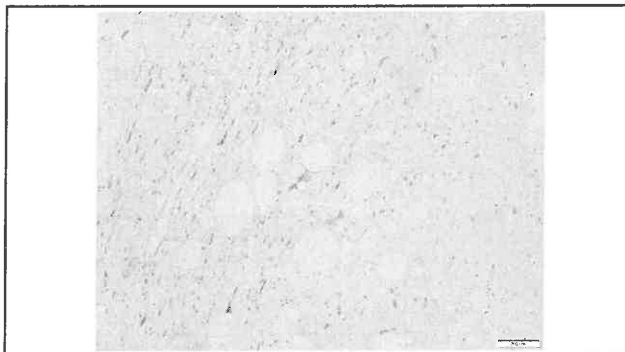








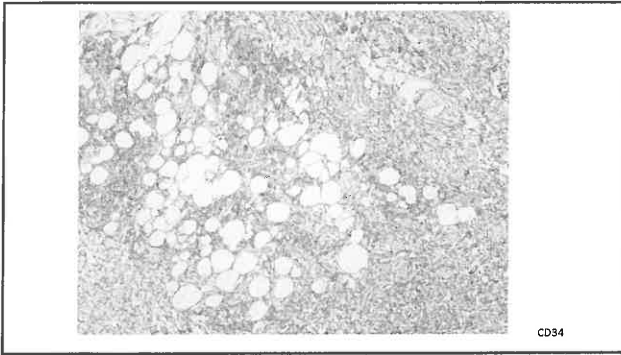




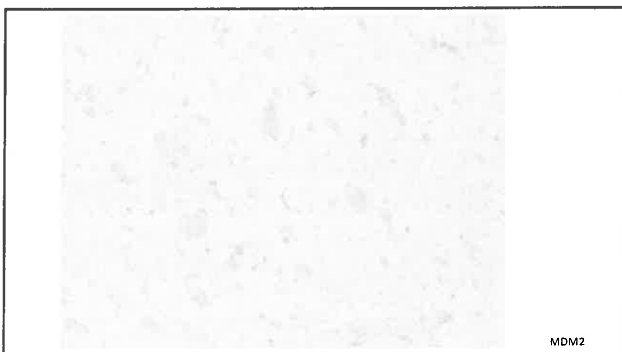


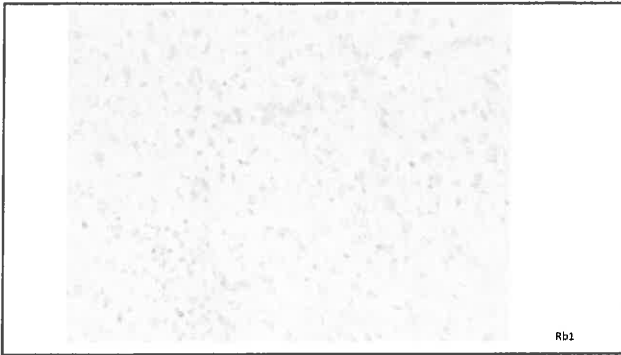


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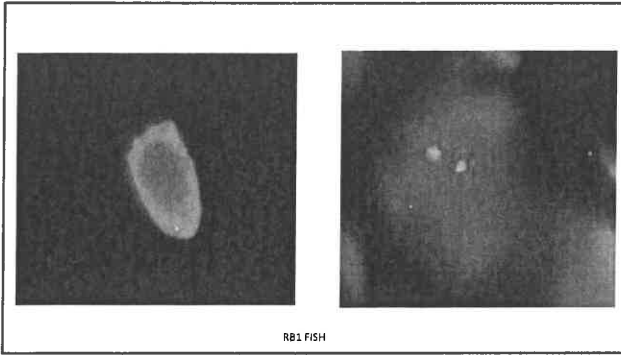






MOLECULAR DIAGNOSTICS

- No amplification of *MDM2* or *CDK4* gene (FISH)
- No rearrangement of *FUS*, *EWSR1* or *DDIT3* genes (FISH)
- Deletion of *RB1* gene (FISH and MLPA)



'atypical' pleomorphic lipomatous tumor ('atypical spindle cell/pleomorphic lipomatous tumor')

Report 15/11/17

"Atypical" Pleomorphic Lipomatous Tumor
A Clinicopathologic, Immunohistochemical, and Molecular Study of 21 Cases, Emphasizing Its Relationship to Atypical Spindle Cell Lipomatous Tumor and Supporting a Morphologic Spectrum (Atypical Spindle Cell/Pleomorphic Lipomatous Tumor)

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'atypical' pleomorphic lipomatous tumor (APLT) ('atypical spindle cell/pleomorphic lipomatous tumor')

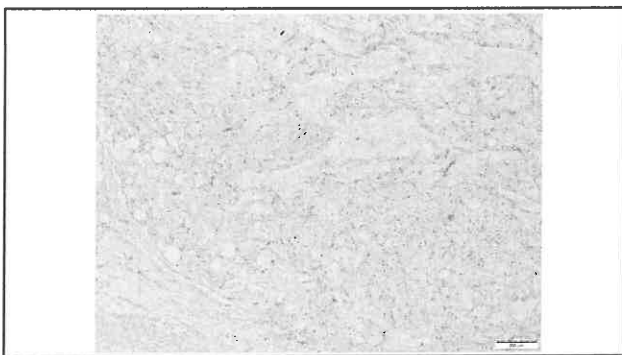
- The 21 APLT cases originated from 17 male and 4 female patients, aged between 28 to 81 years (mean, 63 years; median, 64 years).
- The tumors were located in the upper arm (n=5), shoulder (n=4), lower arm/elbow (n=2), neck (n=3), back/neck (n=1), back (n=2), gluteal region (n=1), and thigh (n=3). Tumor size ranged from 2 to 10 cm (mean, 6.4 cm).
- APLTs arose in the subcutis (67%) more frequently than in the deep (subfascial) soft tissues (33%).
- With a median follow-up of 42 months, recurrences were documented in 2 out of 12 APLTs for which a long enough follow-up was available

'atypical' pleomorphic lipomatous tumor (APLT) ('atypical spindle cell/pleomorphic lipomatous tumor'): DIAGNOSTIC CRITERIA

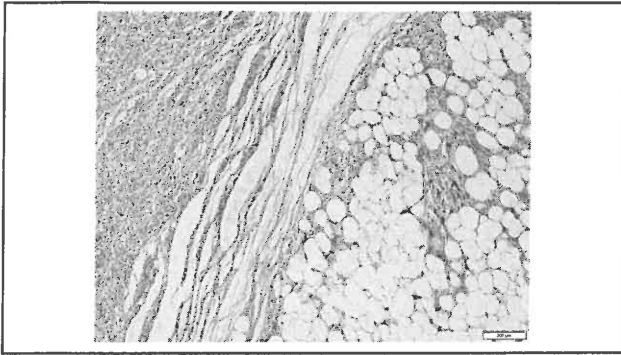
- Pleomorphic lipoma-like morphology with floret-like multinucleated cells (at least focally)
- The presence of atypical (hyperchromatic) spindle cells
- Pleomorphic (multinucleated) cells
- Pleomorphic uni- and plurivacuolated lipoblasts
- Adipocytic component showing atypical adipocytes with variation in size and shape
- Variably myxoid or collagenous stroma
- IHC: CD34+, p16+, Rb1 loss, MDM2-, STAT6-
- Molecular: loss of RB1 and its flanking genes *RC3TB2*, *ITM2B* and *DLEU1*, no *MDM2/CDK4* amplification
- APLTs can exhibit a wide range of microscopic appearances, depending on the varying cellularity, as well as the proportion and the aspect of the extracellular matrix, which can be myxoid or more collagenous

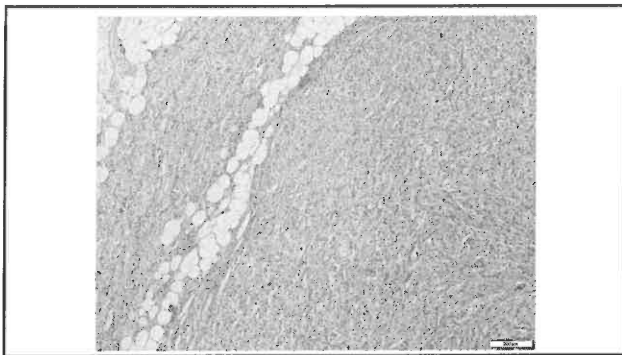


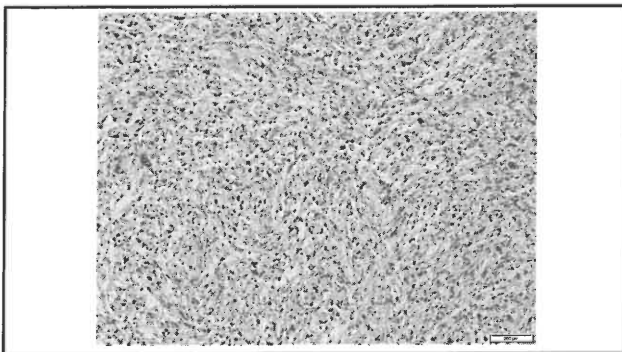


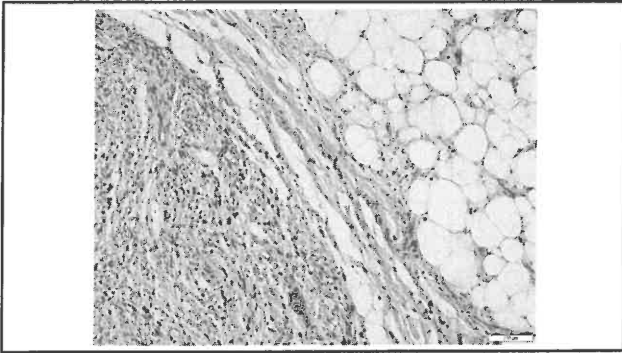




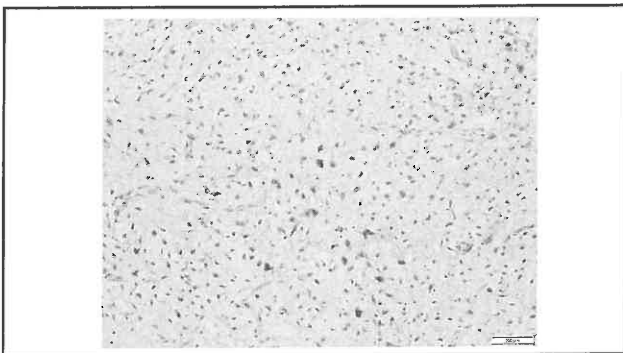


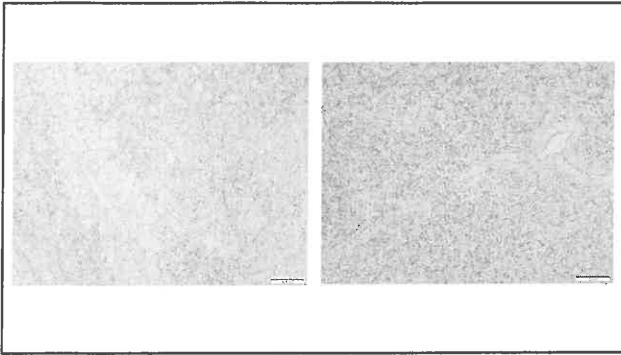


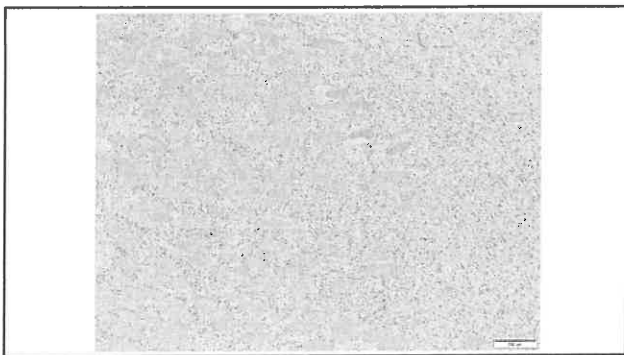












Differential diagnosis (1):
pleomorphic/spindle cell lipoma

- Features of classical spindle cell/pleomorphic lipoma, including ropy collagen and/or floret-like multinucleated cells, are classically present in APLT
- APLTs, however, are characterized by a broader anatomic distribution (also locations outside neck and shoulder region), occurrence in older patients, a larger size and recurrences
- Pleomorphic and spindle cell lipoma **do not show** infiltrative growth, atypical spindle cells, 'bizarre' pleomorphic (multinucleated) cells, pleomorphic lipoblasts or mitotic activity

Lipoblasts in spindle cell and pleomorphic lipomas: a closer scrutiny

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Abstract

Background

Conclusion

Keywords

Introduction

Discussion

References

Footnote

Correspondence

Received

Accepted

Published

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Differential diagnosis (2): pleomorphic liposarcoma

- Some overlapping morphological, immunohistochemical and genetic features between pleomorphic liposarcoma and APLT: infiltration, pleomorphism including pleomorphic lipoblasts, RB1 loss and its flanking genes *RC3TB2*, *ITM2B* and *DLEU1*
- Pleomorphic liposarcoma can be differentiated from APLT by
 - a larger tumor size
 - a more frequent location in deep (subfascial) soft tissues
 - a higher degree of pleomorphism
 - high mitotic activity
 - tumor necrosis
 - the absence of a pleomorphic lipoma-like component
 - more complex chromosomal losses and gains (aCGH)
 - an aggressive behavior with metastatic potential

Figure 1

Figure 2

Figure 3

Figure 4

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Figure 97

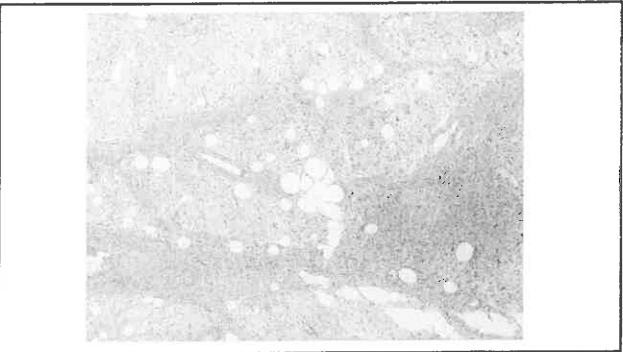
Figure 98

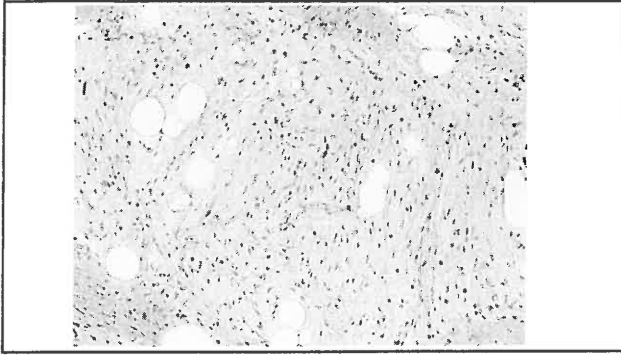
Figure 99

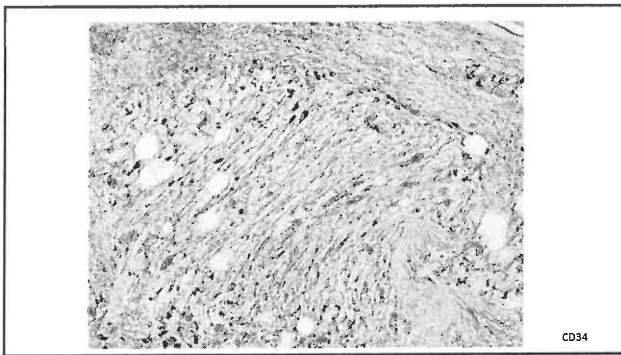
Figure 100

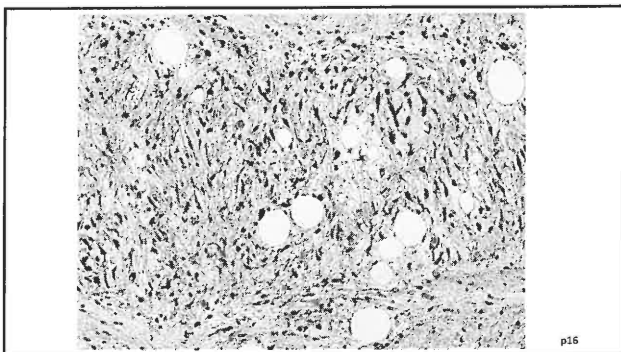
Entity	Location	Age	Gender	Immunohistochemistry	Genetics	Pathogenesis	Prognosis
Atypical lipomatous tumor (ALT)	Subcutaneous	50-70	Male	CD11b, CD68, CD34	MDM2/CDK4 amplification	Clonal expansion of pleomorphic lipoblasts	Low grade, low metastatic potential
Dedifferentiated liposarcoma	Subcutaneous	50-70	Male	CD11b, CD68, CD34	MDM2/CDK4 amplification	Clonal expansion of pleomorphic lipoblasts	High grade, high metastatic potential
Myxoid liposarcoma	Subcutaneous	40-60	Male	CD34, CD11b, CD68	FUS-DDIT3 fusion	Clonal expansion of lipoblasts	Low grade, low metastatic potential
Soft tissue angiolipoma	Subcutaneous	30-50	Male	CD34, CD11b, CD68	None	Clonal expansion of lipoblasts	Low grade, low metastatic potential
Solitary fibrous tumor (lipomatous variant)	Subcutaneous	40-60	Male	CD34, CD11b, CD68	None	Clonal expansion of lipoblasts	Low grade, low metastatic potential

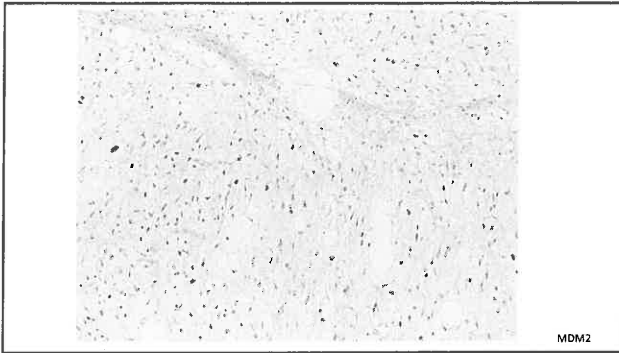
- ### Other differential diagnoses (4)
- **Atypical lipomatous tumor (ALT)**
→ pleomorphic lipoblasts less common; MDM2/CDK4 overexpression/amplification
 - **Dedifferentiated liposarcoma**
→ pleomorphic lipoblasts extremely uncommon ('homologous' lipoblastic); MDM2/CDK4 overexpression/amplification
 - **Myxoid liposarcoma** (in cases with prominent myxoid stroma, chickenwire vasculature and/or mucine pools)
→ no pleomorphism; rearrangement of DDIT3
 - **Soft tissue angiolipoma** (in cases with prominent branching capillary network)
→ absence of nuclear atypia; absence of (pleomorphic) lipoblasts; rearrangement of NCOA2
 - **Solitary fibrous tumor (lipomatous variant)** (in cases with staghorn-like (HPC-like) vessels; CD34+)
→ more 'patternless' pattern; STAT6 nuclear positivity; no RB1 deletion

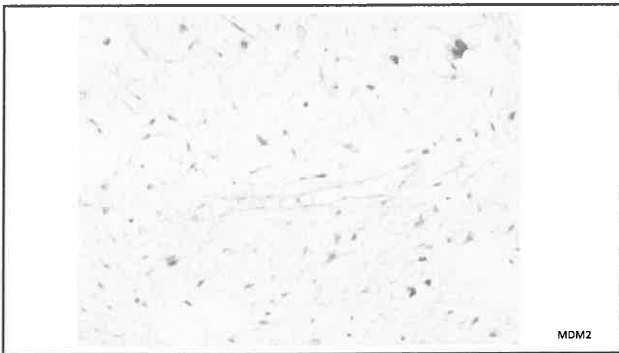












'atypical' pleomorphic lipomatous tumor (APLT): conclusion

- Importance of strict diagnostic criteria
- However, wide range of microscopic appearances (and differential diagnoses)
- APLT is different from classical spindle cell/pleomorphic lipoma
- Despite some overlapping (morphological, immunohistochemical and genetic features) between APLT and pleomorphic liposarcoma, APLT can be differentiated from pleomorphic liposarcoma
- Based on similar genetic and morphologic observations, one could suggest a morphologic spectrum with atypical spindle cell lipomatous tumor ('atypical spindle cell/pleomorphic lipomatous tumor')
