7th MASTERCLASS of SARCOMA and RARE CANCERS

December 13-15 2024
American School of
Classical Studies
Athens, Greece

Organized by
Hellenic Group of Sarcoma and Rare Cancers

Secretariat SCEP Scientific | Cultural Events and Publications www.scep.gr

Multidisciplinary meeting

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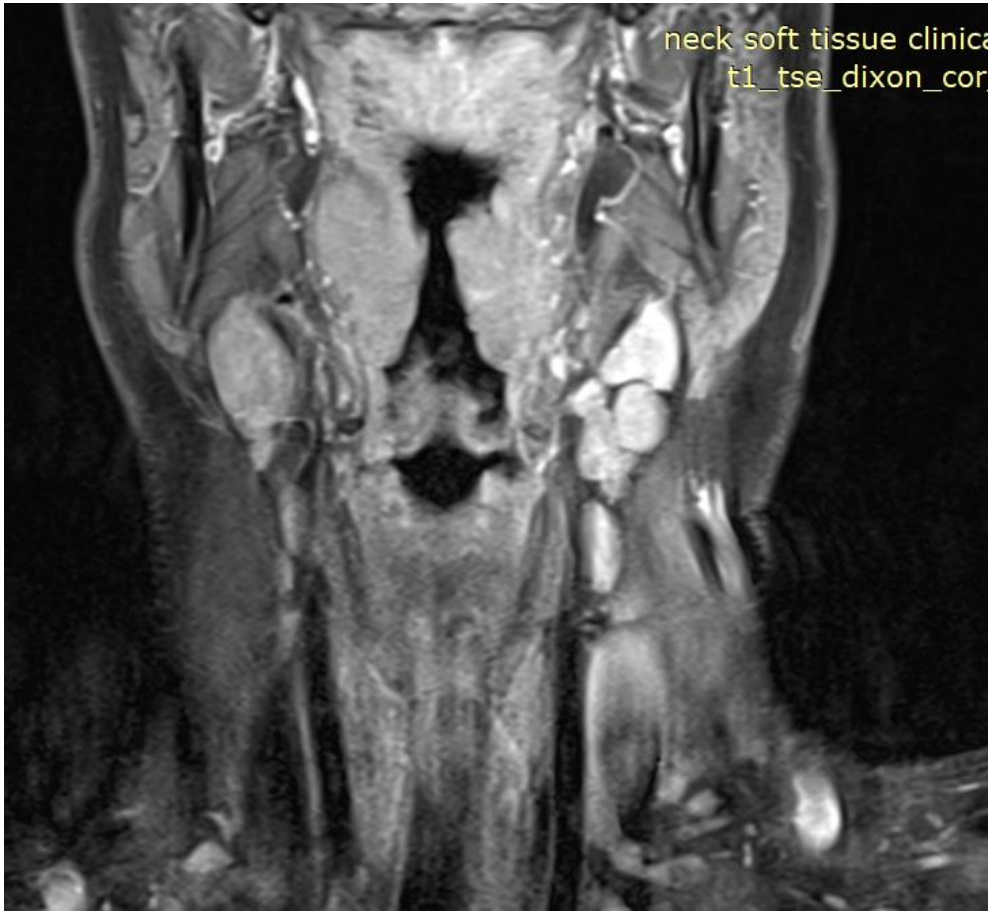
HISTORY

- Female
- 18 y. o.
- “Mass with block of lymph nodes” at the L cervical area
- Sample: excised lymph node

CASE 1


neck soft tissue
t2_tse_dix


neck soft tissue clinica
t1_tse_dixon_cor

CASE 1

D. DIAGNOSIS:

- Myxoid liposarcoma
- Myxofibrosarcoma
- Leiomyosarcoma
- OTHER?

IHC: S100(+),

AE1/AE3, EMA, SMA, desmin (-)

MOLECULAR TESTING

FUS-EWSR1::DDIT3 negative on FISH

NGS negative

Diagnosis:

High grade myxoid sarcoma favoring pleomorphic myxoid liposarcoma

Treatment

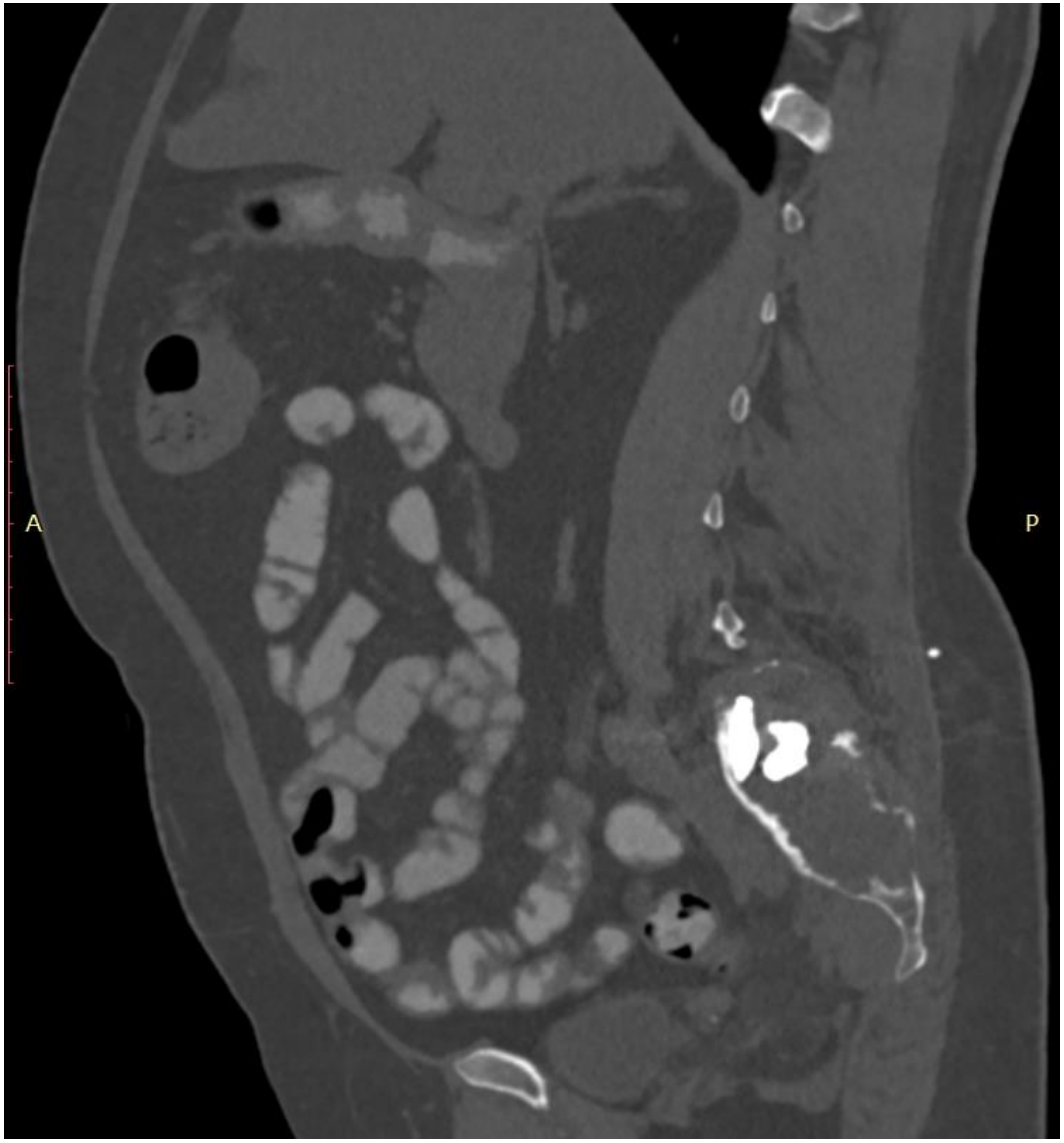
- Surgical excision of the main mass and lymph node resection

CASE 2

HISTORY

- Female
- 54 y. o.
- Painful lytic lesion at the sacrum
- Initially diagnosed as a “spindle cell neoplasm low grade, NOS”
- 2nd opinion: meningioma grade 2 involving bone

CASE 2



CASE 2

D. DIAGNOSIS:

- Metastasis
- Meningioma
- OS low grade
- Dedif. ChS
- Dedif. chordoma
- DDLPS primary (?) or metastatic
- Ependymoma
- OTHER?

IHC: Vimentin(+), SATB2(+), MDM2(+), CDK4(+), H3K27ME3(+), INI-1(+)

AE1/AE3, EMA, PR, SSTR2a, GFAP, T-brachyury, S100, SMA, desmin, LCA, pSTAT6 (-)

Ki67~10%

MOLECULAR TESTING

MDM2 and CDK4 amplification on FISH

NGS negative

FINALLY:

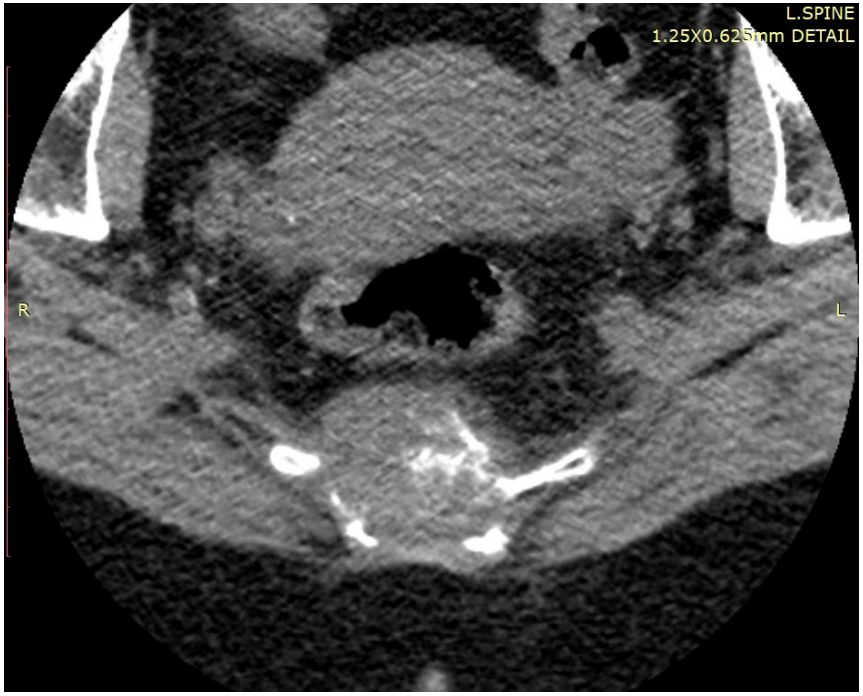
Spindle cell sarcoma favoring low grade intramedullary OS

CASE 3

HISTORY

- Female
- 71 y. o.
- Recent history of breast carcinoma
- Mass at the sacrococcygeal region

CASE 3



HISTOLOGICAL FINDINGS

CASE 3

D. DIAGNOSIS:

- Metastasis
- Myxopapillary ependymoma
- ChS high grade
- OTHER?

IHC: GATA3(-)

S100(+), AE1/AE3(+), EMA(+), T-brachyury(+)

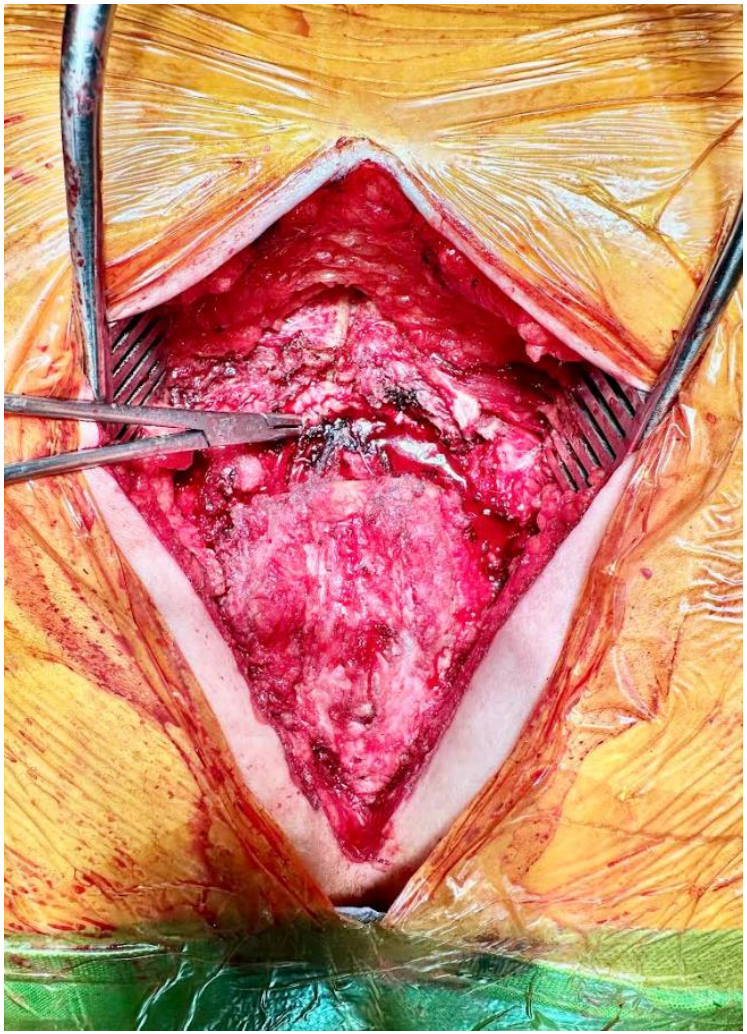
Diagnosis:

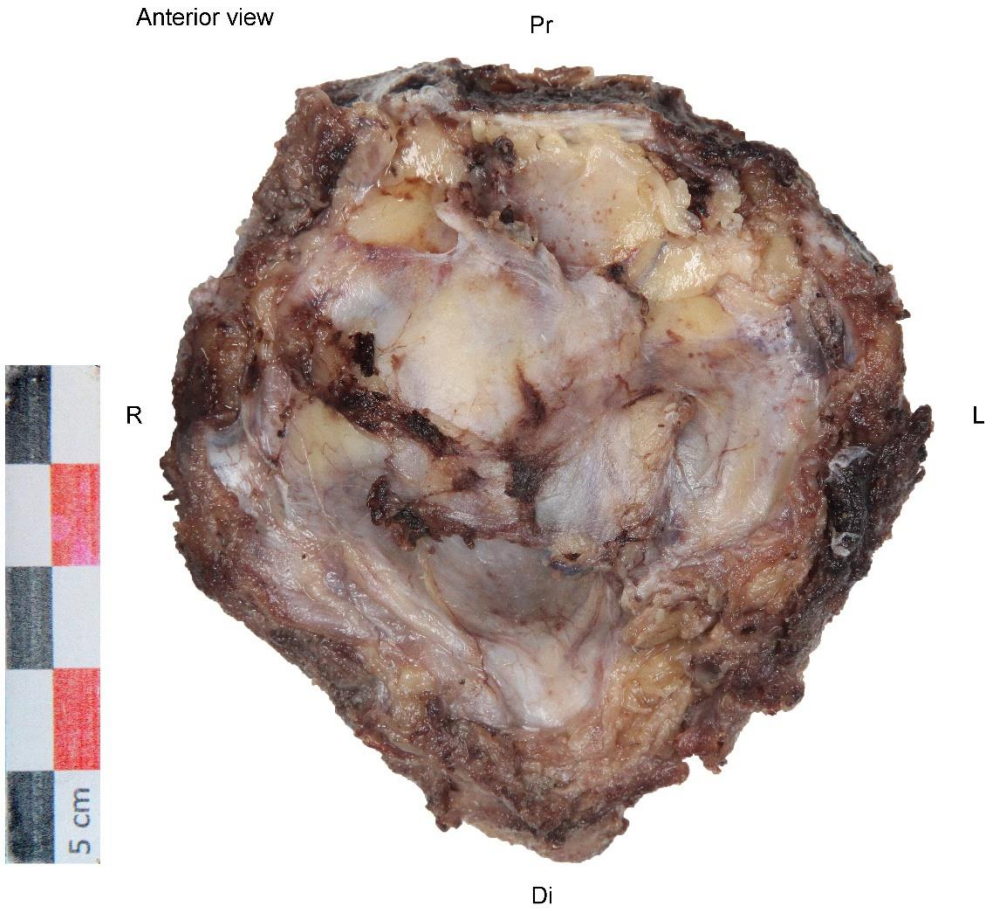
Chordoma

CASE 3

Treatment

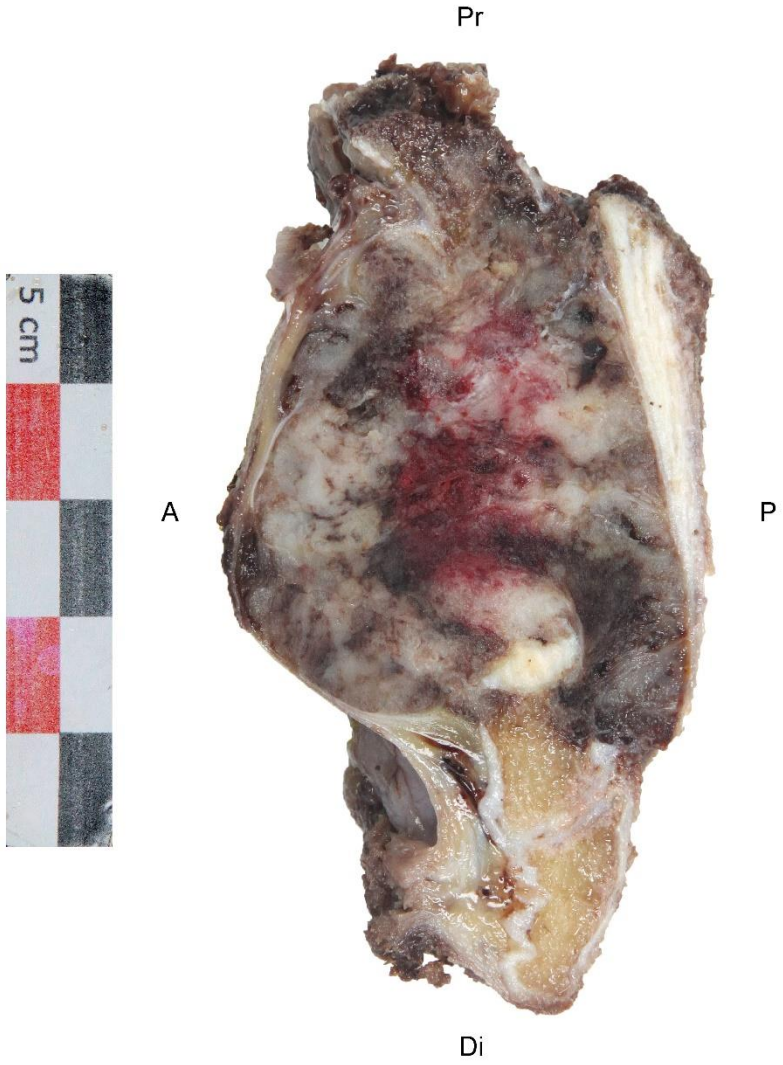
- Surgical excision

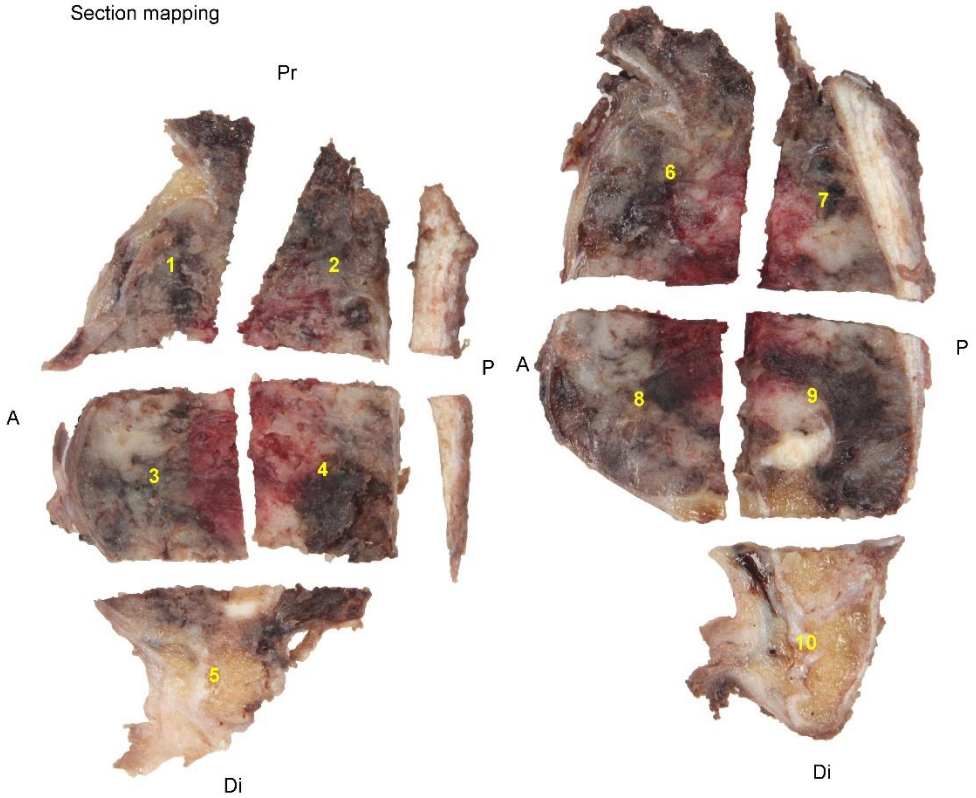




CASE 3

Longitudinal sectioning plane

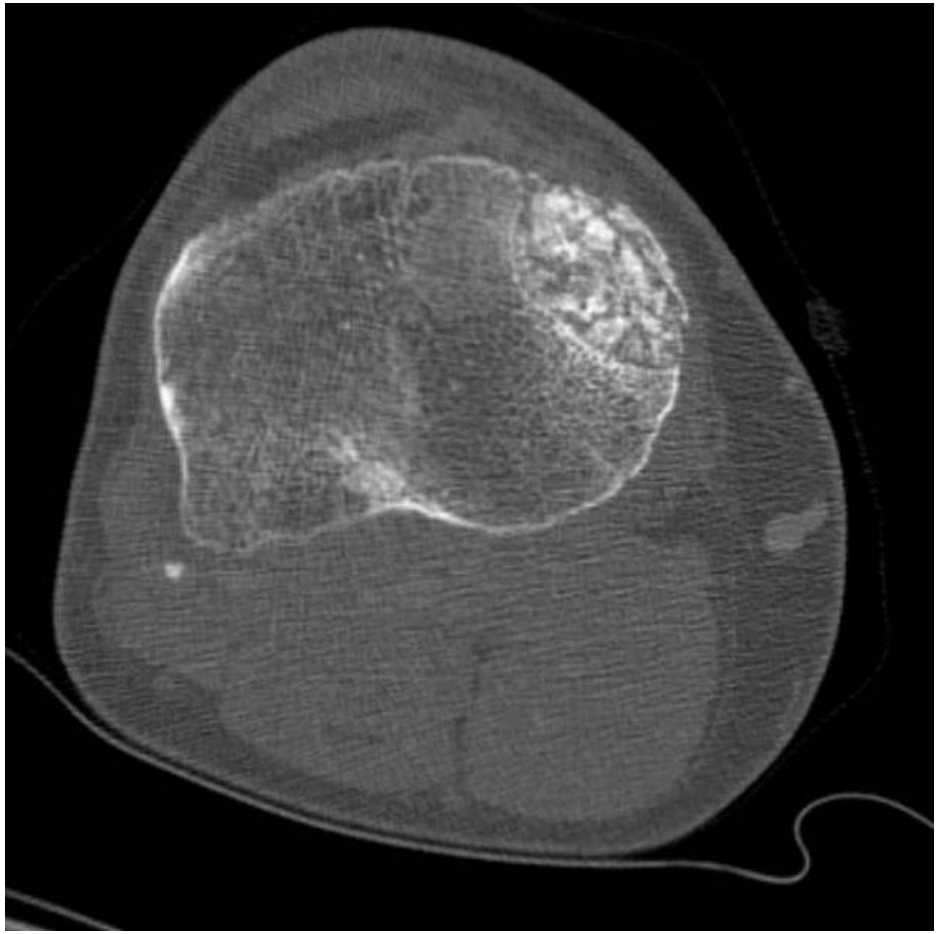




HISTORY

- Male
- 45 y. o.
- Painless tumor, incidental finding at the metaphysis of the R tibia

CASE 4



CASE 4

D. DIAGNOSIS:

- GCT
- Fracture callus
- Chondroblastoma
- OS
- OTHER?

IHC: SATB2(+),CD68 focally (+), SATB2 focally(+), H3K36M(-)

MOLECULAR TESTING

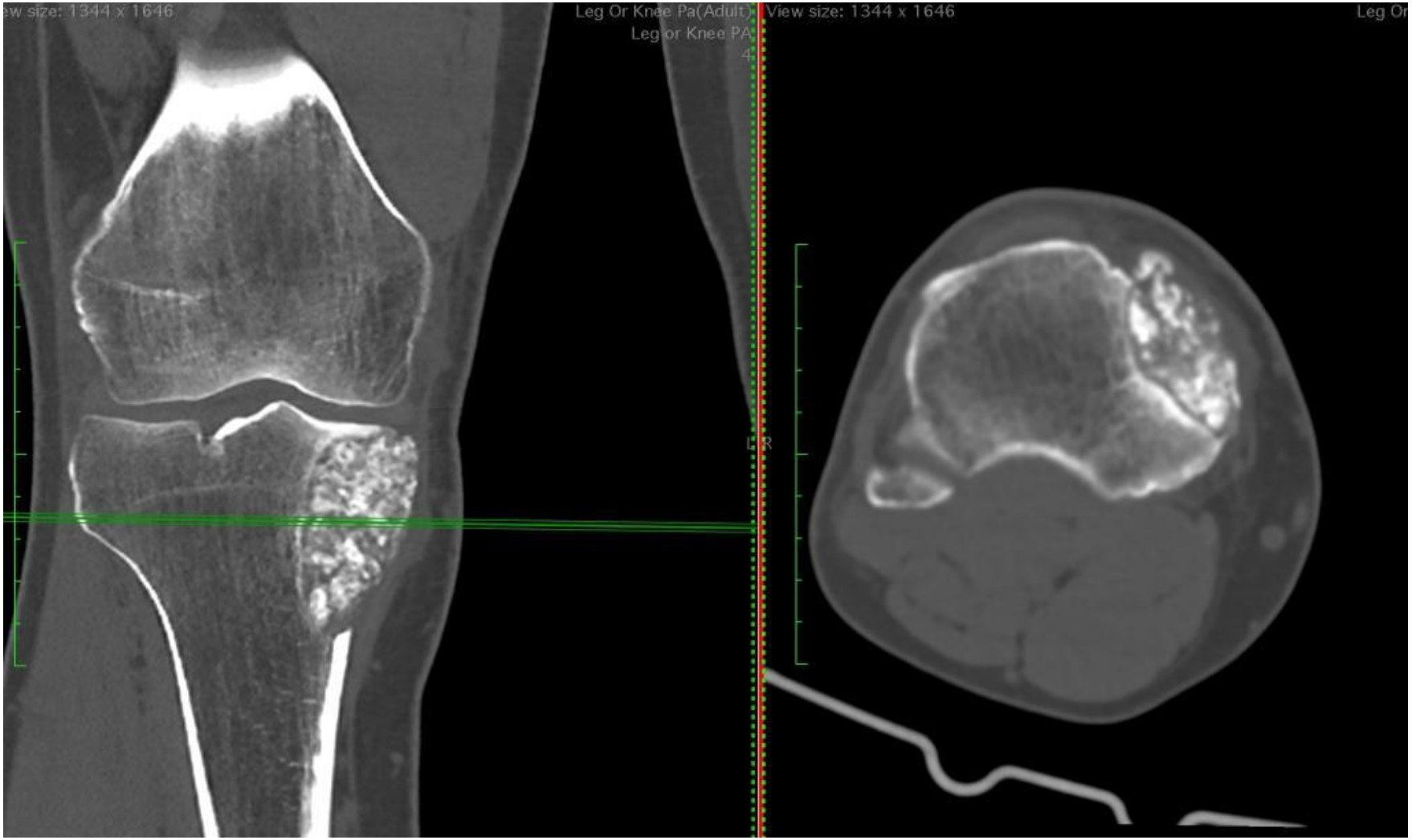
MDM2 amplification on FISH…

CASE 4

Diagnosis:

LUMC, Prof. J.V.M.G. Bovee: cellular round-to-spindle cell proliferation with extensive calcification and bone formation with *MDM2* amplification, most consistent with (parosteal) low grade osteosarcoma. However, due to the high cellularity progression towards an "intermediate' - high grade osteosarcoma can't be ruled out.

CASE 4


ew size: 1344 x 1646
Leg Or Knee Pa(Adult)
Leg or Knee PA
4
View size: 1344 x 1646
Leg Or

CASE 5

HISTORY

- Female
- 59 y. o.
- Chief Complaint: mild weight loss (~3kg over 4 months)
- Past Medical History ➔

➢ total hysterectomy with bilateral salpingo-oophorectomy for multiple leiomyomas (10 years ago)

➢ multiple neurofibromas (NF1)

➢ surgical excision of left brachial neurofibroma (30 years ago), histology not available

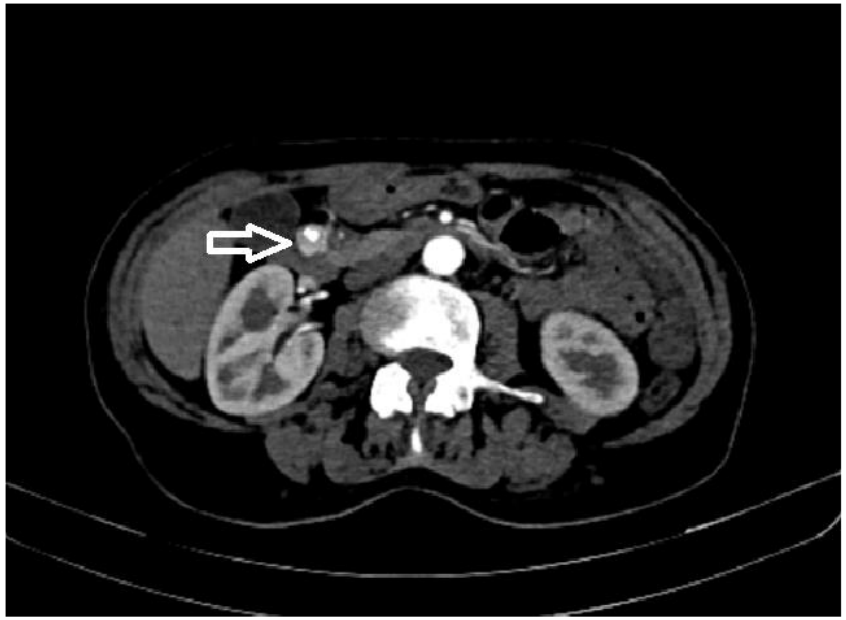
CASE 5

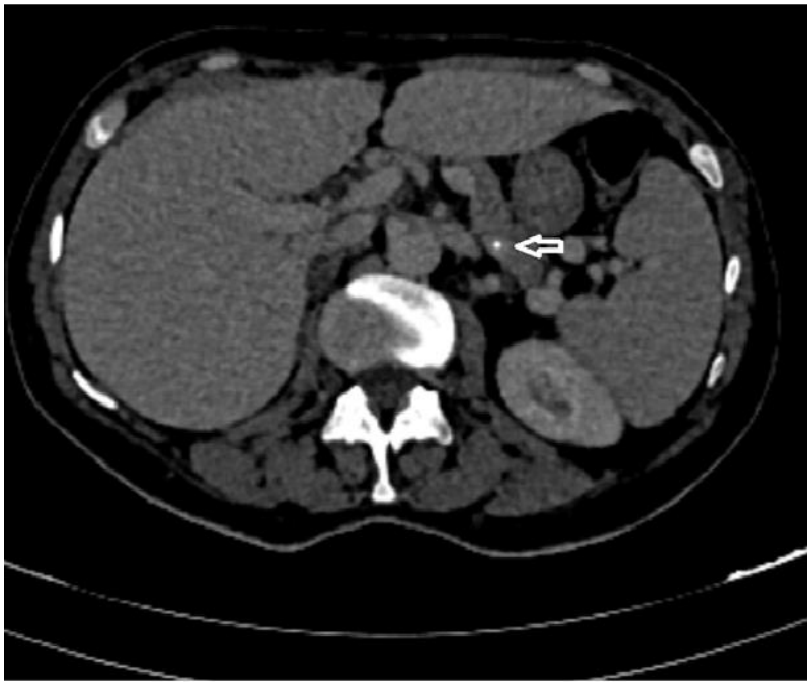
Initial Laboratory Tests (07/06/2024)

ΓΕΝΙΚΗ ΕΞΕΤΑΣΗ ΑΙΜΑΤΟΣ (Ολικό Αίμα)	Φυσ. Τιμές	Μονάδες	07/06/24 14:57
ΓΕΝΙΚΗ ΕΞΕΤΑΣΗ ΑΙΜΑΤΟΣ			OK
ΕΡΥΘΡΑ ΑΙΜΟΣΦΑΙΡΙΑ (RBC)	3,80-4,80	10^6/μL	4,66
Αιμοσφαιρίνη (HGB)	12,00-15,00	g/dL	14,18
Αιματοκρίτης (HCT)	36,0-46,0	%	42,7
MCV	83,0-101,0	fL	91,8
MCH	27,0-32,0	pg	30,5
MCHC	31,5-34,5	g/dL	33,2
RDW-CV	11,6 - 14,0	%	15,1 ▲
ΛΕΥΚΑ ΑΙΜΟΣΦΑΙΡΙΑ (WBC)	4,00-10,00	10^3/μL	8,95
NEU Ουδετερόφιλα %	42,20-75,20	%	84,32 ▲
LYM Λεμφοκύτταρα %	20,50-51,10	%	7,74 ▼
MONO Μεγάλα Μονοκύτταρα %	1,70-9,30	%	6,37
EOS Ηωσινόφιλα %	0,00-5,00	%	1,12
BASO Βασεόφιλα %	0,00-1,00	%	0,45
NEU Ουδετερόφιλα #	2,00-8,00	10^3/μL	7,54
LYM Λεμφοκύτταρα #	1,20-3,40	10^3/μL	0,69 ▼
MONO Μεγάλα μονοπύρηνα #	0,11-0,59	10^3/μL	0,57
EOS Ηωσινόφιλα #	0,00-0,40	10^3/μL	0,10
BASO Βασεόφιλα #	0,00-0,20	10^3/μL	0,04
ΑΙΜΟΠΕΤΑΛΙΑ (PLT)	140-440	10^3/μL	529 ▲
MPV	7,4-9,4	fL	6,9 ▼
NRBC%		%	0
NRBC#		x10^3/μL	0,00
UWBC		%	8,9
RDW-SD	36-48	%	47,7

CASE 5

CT Chest and Abdomen (07/06/2024)





1. Duodenum:
    - Round lesion in second portion
    - Size: 14mm
    - Characteristics: Calcifications and heterogeneous enhancement

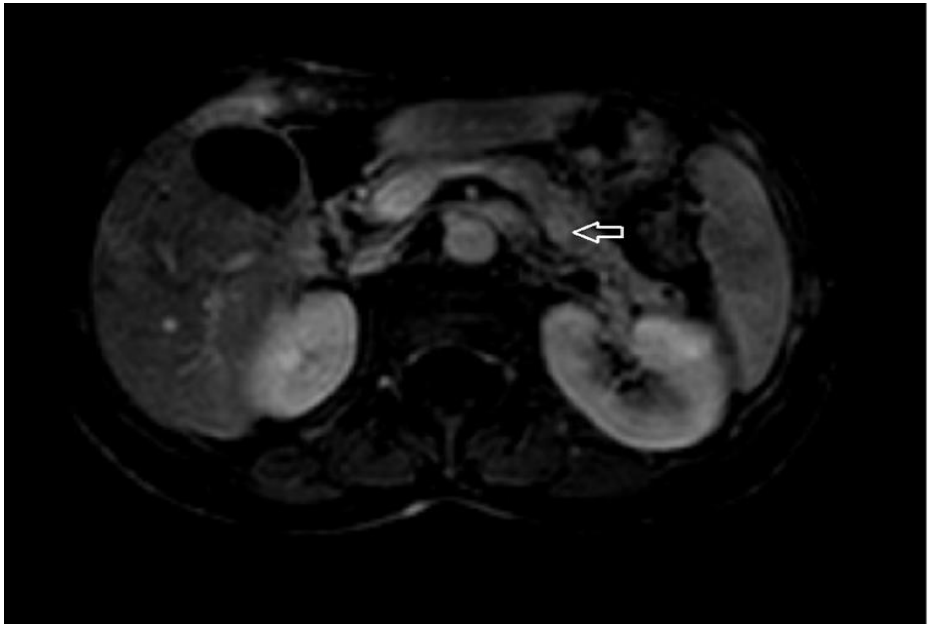
2. Pancreas:
    - Location: Junction of body and tail, posterior surface
    - Size: 9mm
    - Features: Central calcification

CASE 5

3. Jejunum:
    - Two exophytic lesions
    - Sizes: 1.1cm and 2.0cm
    - Location: Between and in contact with jejunal loops

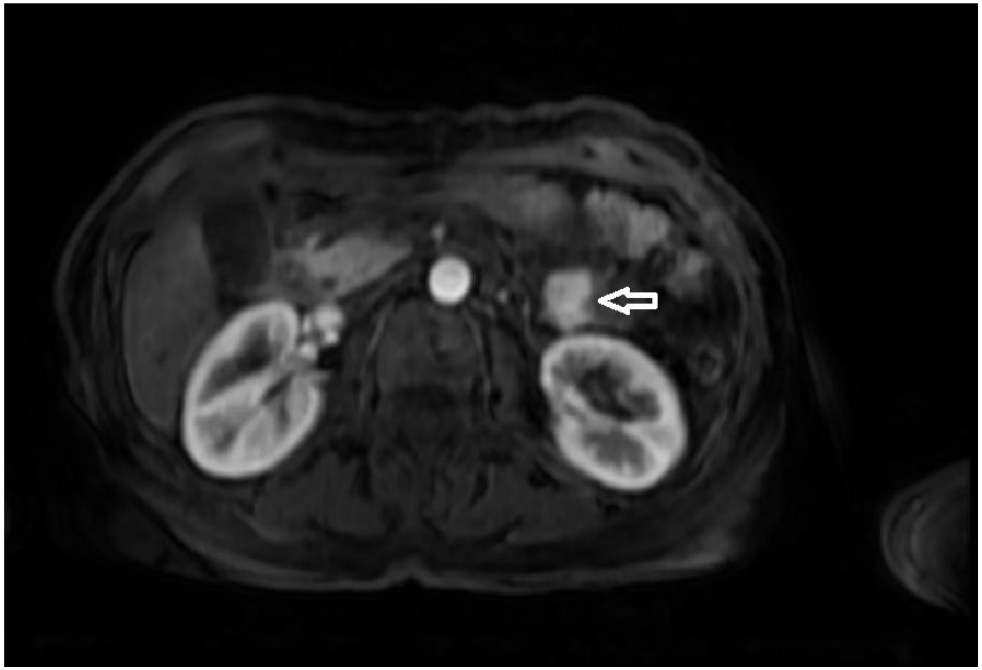
CASE 5

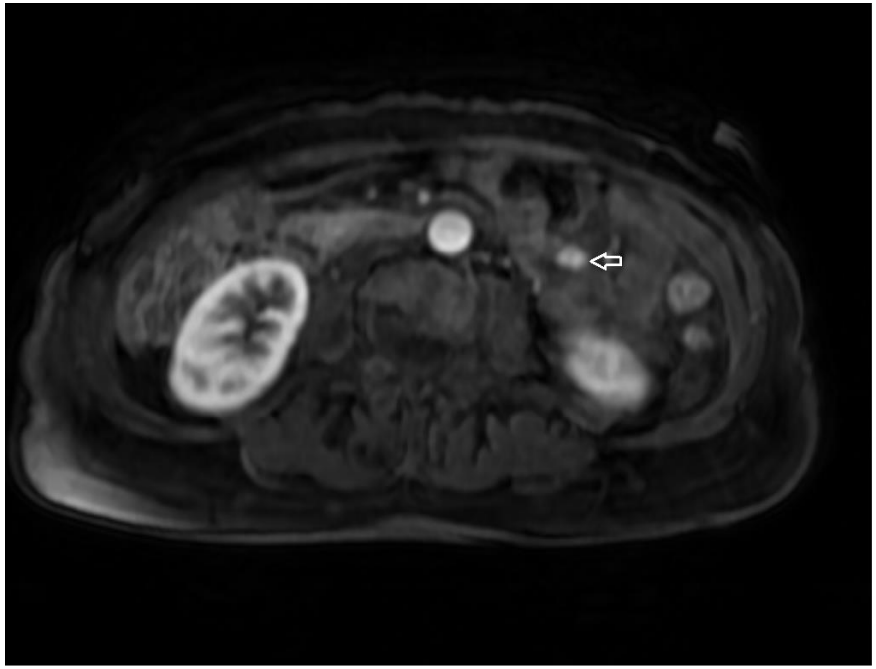
MRI Upper Abdomen (10/06/2024)



1. Duodenal Region:
    - Mass between duodenal bulb and pancreatic head
    - Maximum diameter: 1.3cm
    - Characteristics:
        - Central area with low magnetic signal
        - Corresponding to CT-identified calcifications
        - Strong contrast enhancement

CASE 5





2. Pancreas:
    - Normal size
    - Mass at body-tail junction, posterior margin
    - Size: 1.0cm maximum diameter
    - Incidental finding: Small cystic lesion in tail
        - Size: ~5mm
        - No contrast enhancement

D. DIAGNOSIS:

- Neurofibromas
- GISTs
- IPMN
- Neuroendocrine lesions

Nuclear Medicine Studies (11/06/2024)

F-18 FDG PET-CT:

- Previously described lesions: No significant uptake
- Incidental finding: Increased uptake in right proximal humerus (SUV: 5.5)

Ga-68 DOTATOC PET-CT:

- Significant uptake in pancreatic body-tail junction lesion (SUV: 16.5)

CASE 4


CURRENT
14/6/2024
T1W_TSE_Cor
latest
STUDY ID 758096842
9:47:25 πμ
701 IMA 14
ARH
2D
SL 3,0
SPC 3,3
CURRENT
14/6/2024
eSTIR_TSE_Cor
latest
STUDY ID 758096842
9:43:08 πμ
602 IMA 14
ARH
2D
SL 3,0
SPC 3,3

CASE 5

Endoscopic Ultrasound with FNB

1. Duodenal Mass:
   - Immunohistochemistry:
     - DOG1: Positive
     - SMA: Negative
     - Synaptophysin: Negative
     - Ki67: ~1%
   - Conclusion: **Consistent with Gastrointestinal Stromal Tumor (GIST)**

2. Pancreatic Mass:
   - No definitive lesion identified

CASE 5

Further Workup for Humeral Lesion (15/06/2024)

Hematological Studies:

- Serum kappa light chains: 70.8mg/L (Reference: <22.4mg/L)
- Kappa/lambda ratio: 4.16
- Urine Bence-Jones protein: Positive

Bone Marrow Biopsy (Iliac wing and right humerus):

- 15% monoclonal CIg/κ plasma cell infiltration
- Diagnosis: Kappa light chain **multiple myeloma**
- Additional finding: Hypercellular marrow with reactive changes
- Note: Elevated platelets suggest possible concurrent myeloproliferative neoplasm

CASE 5

Treatment

- Radiation therapy to right humerus
- Total dose: 30.00 Gy □
- Ig(κ) and Ig(λ) levels unchanged

Molecular testing for possible therapy

primeDX

1. Περίληψη έκθεσης αποτελέσματος

1021	Γονίδια (**38** αναδιατάξεις) αναλύθηκαν	2	Κλινικά σημαντικές γενωμικές αλλοιώσεις που ανιχνεύθηκαν στον όγκο
0	Εγκεκριμένες θεραπείες που σχετίζονται με Βιοδείκτες για την ένδειξη	2	Θεραπείες με πιθανό όφελος που σχετίζονται με Βιοδείκτες
4	Θεραπείες με πιθανή αντίσταση που σχετίζονται με Βιοδείκτες	4	Κλινικές μελέτες που σχετίζονται με Βιοδείκτες

2. Βιοδείκτες με κλινική σημασία*

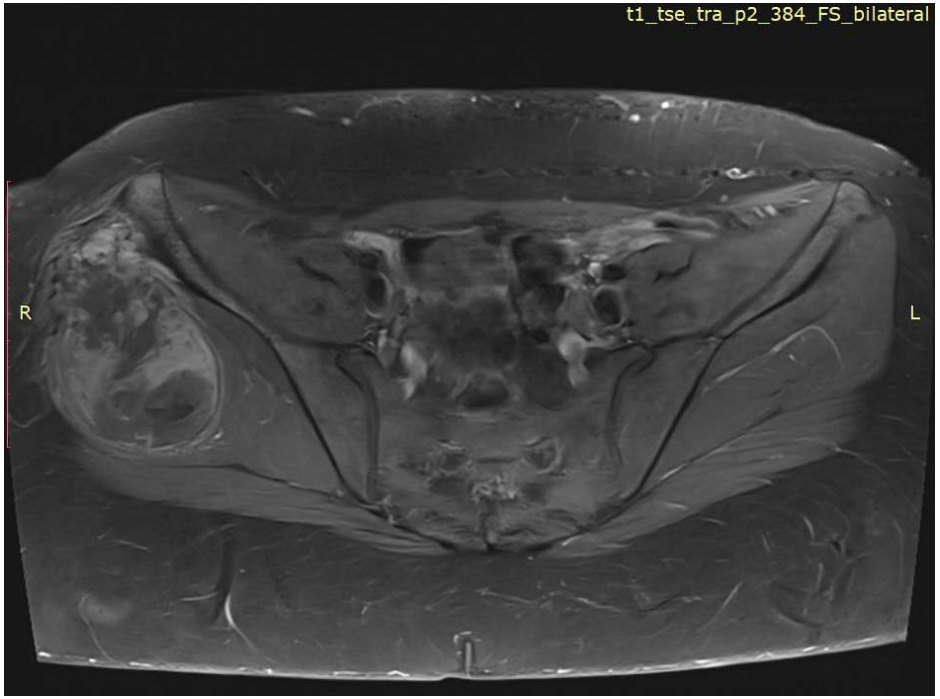
Βιοδείκτης	Αποτέλεσμα	Εγκεκριμένες θεραπείες για την ένδειξη	Θεραπείες με πιθανό όφελος	Θεραπείες με πιθανή αντίσταση/τοξικότητα	Κλινικές μελέτες
JAK2	Exon 14 c.1849G>T (p.V617F)	-	-	Pembrolizumab (2D) Nivolumab (2D) Atezolizumab (2D) Durvalumab (2D)	
NF1	Exon 35 c.4756delT (p.Y1586Ifs*17)	-	Cobimetinib (2C.1) Trametinib (2C.1)	-	ναι
Μικροδορυφορική Αστάθεια (MSI)	χωρίς μικροδορυφορική αστάθεια (MSS)	-	-	-	-
Συνολικό Φορτίο Μεταλλαγών του όγκου (TMB)	1.65 Muts/MB	-	-	-	-

CASE 6

HISTORY

- Female
- 39 y. o.
- Mass at the R buttock

CASE 6



CASE 6

D. DIAGNOSIS:

- UPS
- Dedif. ChS
- OS
- OTHER?

IHC: SATB2(+),

AE1/AE3, EMA, SMA, desmin (-)

MOLECULAR TESTING

MDM2 negative on FISH

FINALLY:

Sarcoma with signs of bone formation favoring periosteal OS

CASE 6

Treatment

- Neoadjuvant C/T
- Excision

CASE 6

Periosteal OS, facts:

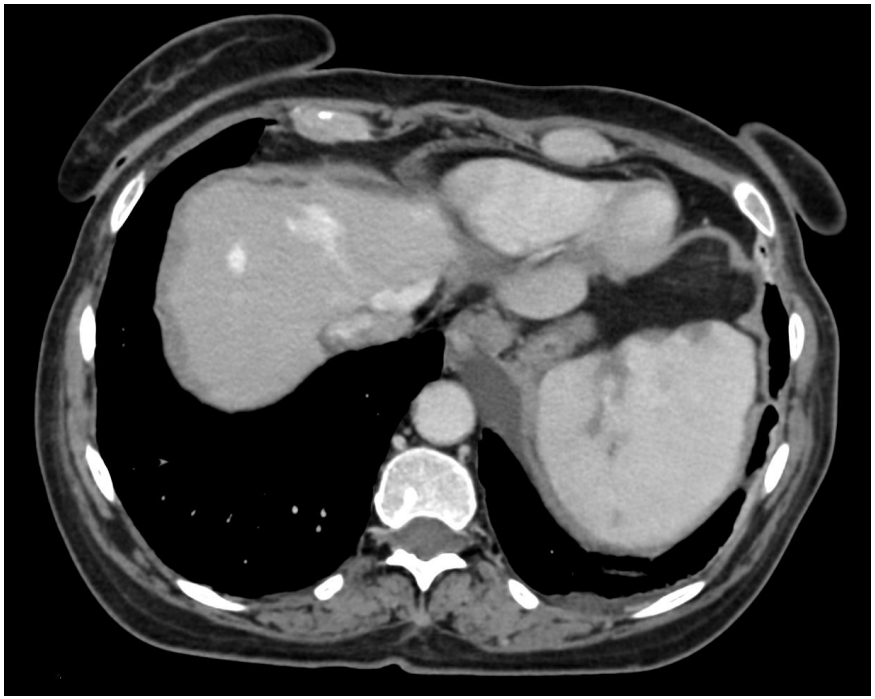
- Neoadjuvant C/T does not seem to affect the survival, although commonly used
- The percentage of necrosis does not seem to correlate with prognosis
- Prognosis is better than conventional OS, 60-75% 10 y. overall survival

CASE 7

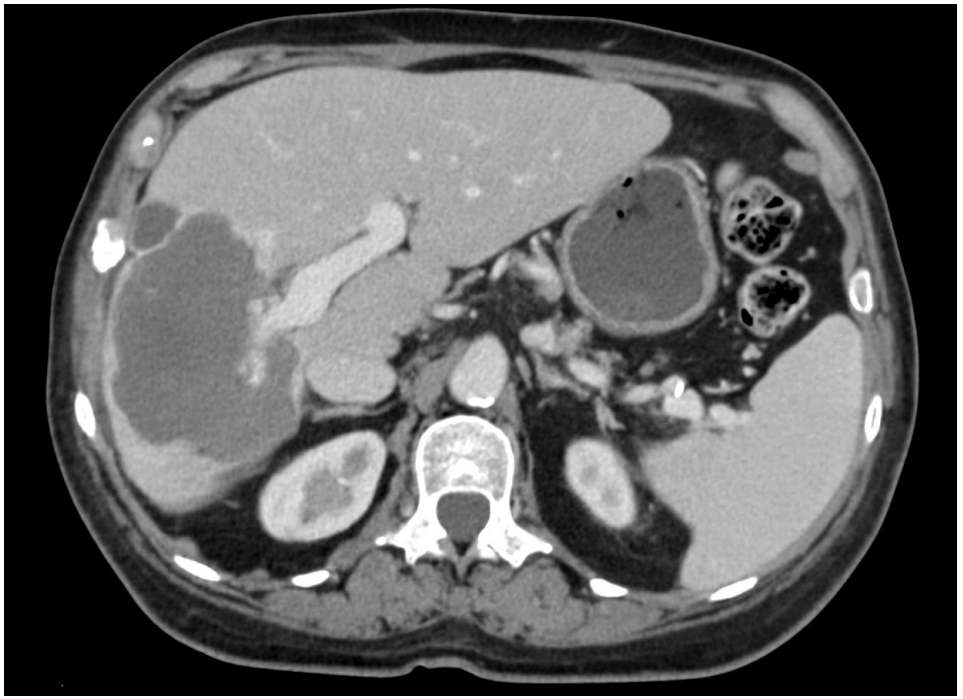
HISTORY

- Female
- 77 y. o.
- Liver mass

CASE 7



The two bright spots are two hypervascular metastases, the one more laterally is smaller, the other one bigger.



Dominant tumor.

CASE 7

D. DIAGNOSIS:

- Metastasis
- Poorly differentiated HCC
- Poorly differentiated cholangioCa
- Undifferentiated sarcoma
- EHE
- Angiosarcoma
- OTHER?

IHC: initially➔ AE1/AE3(+), CD34(-), SMA(-), desmin (-), HepPar1(-), Glipican3(-)

Following: CD31(+), Fli1(+), ERG(+), Ki67>50%

MOLECULAR TESTING

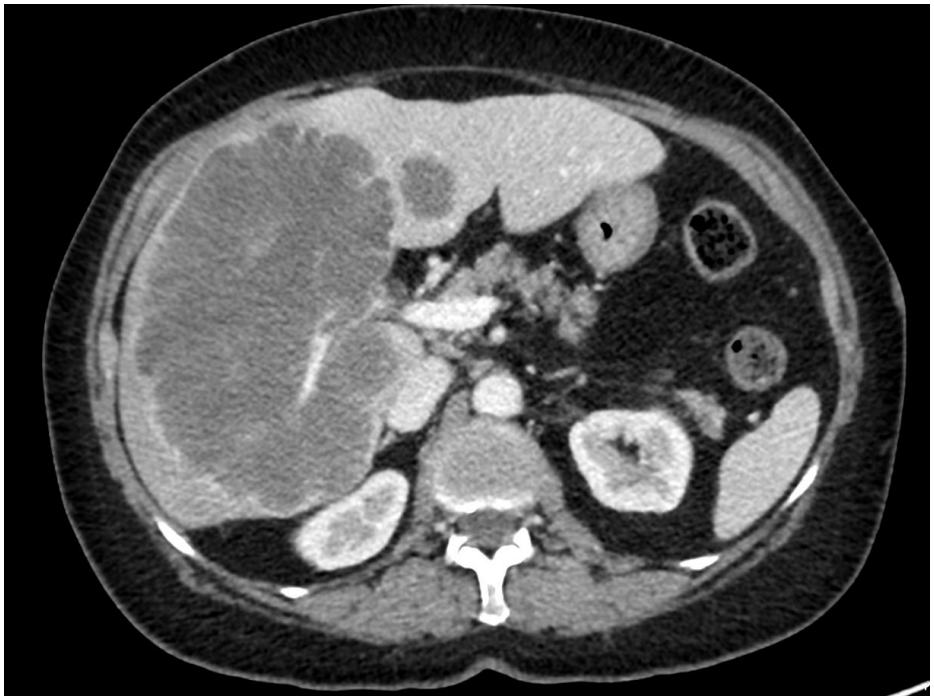
YAP1::TFE3, WWTR1::CAMTA1 negative on FISH

FINALLY:

Angiosarcoma of the liver

CASE 7

Neoadjuvant C/T



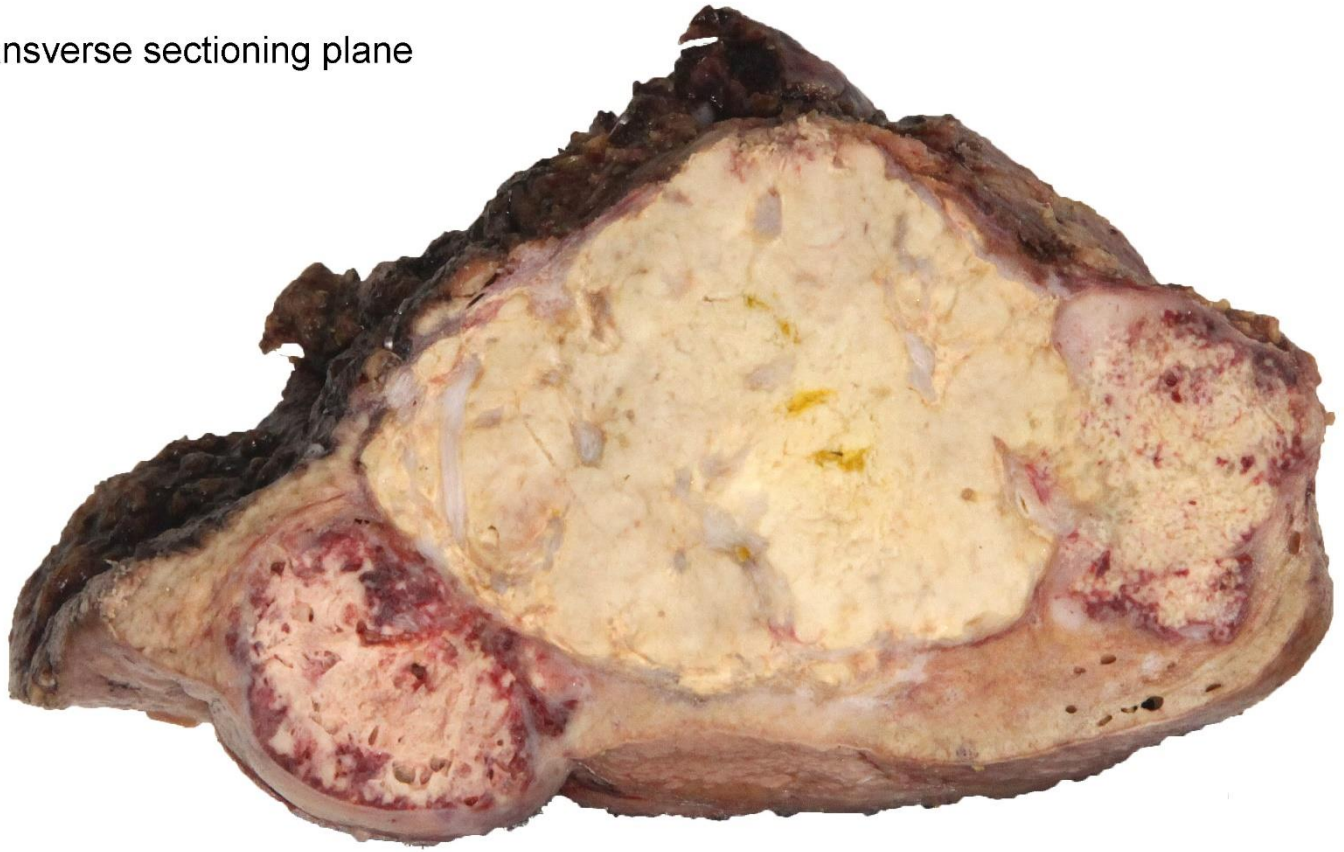
Now it looks reversed, lateral lesion has grown, the more medial one has shrunk.

Dominant metastasis has increased from 8.8 cm to 14.1 cm - a 60% increase so per RECIST would be progression of disease

Treatment

- Neoadjuvant C/T
- Surgical excision

Transverse sectioning plane



CASE 8

HISTORY

- Female
- 64 y. o.
- Painless mass at the L inguinal region
- History of MM at the area of the L buttock 18 years ago

CASE 8

D. DIAGNOSIS:

- Metastatic MM according to history
- Spindle cell sarcoma
- Vascular lesion
- Poorly differentiated Ca
- OTHER?

IHC: EMA(+), CK 8/18 focally(+), INI-1(+), vimentin(+)

MelanA, HMB45, S100, SOX10, PRAME1, SSX, CD31, CD34, SALL4, chromogranin, synaptophysin, MDM2, CDK4, C-KIT (-)

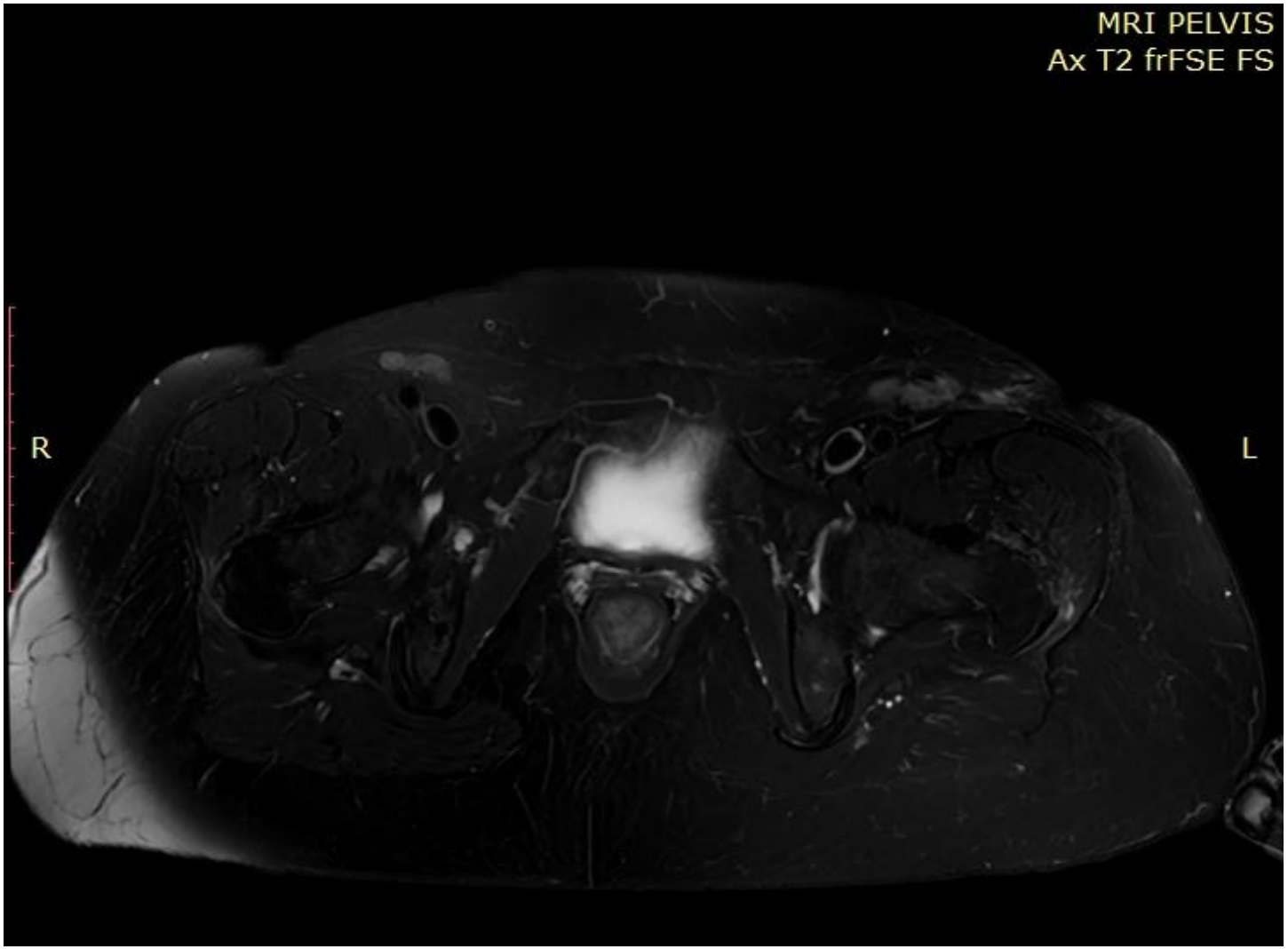
MOLECULAR TESTING

NGS negative

FINALLY:

Undifferentiated spindle cell sarcoma grade 2

CASE 8



EXCISION

Treatment

- Local recurence - surgical excision

CASE 8

IHC: S100(+), SOX10 (+), PRAME1(?),

MelanA, HMB45 (-)

MOLECULAR TESTING

Mutation in *BRAF exon 15*, c.1799 T>A [p.Val600Glu (p.V600E), COSM 476]*BRAF* V600E (+)

FINALLY:

Malignant melanoma that underwent almost total dedifferentiation, losing the common markers of melanocyte differentiation

The major clues to the diagnosis of DDM

(1) Presence of minimal well-differentiated clone in DDM

(2) Prior history of melanoma in cases of metastasis

(3) Undifferentiated histology that does not fit any defined entity

(4) Locations at sites that are unusual for undifferentiated/unclassified pleomorphic sarcoma (axilla, inguinal, neck, digestive system, etc.)

(5) Unusual multifocal disease typical of melanoma spread

(6) Detection of a melanoma-compatible gene mutation

Dartmouth-Hitchcock | GEISEL SCHOOL OF MEDICINE AT DARTMOUTH

Shabnam Momtahen, MD
Assistant Professor of Pathology and Laboratory Medicine

CASE 9

HISTORY

- Male
- 17 y. o.
- Painful tumor, at the metadiaphyseal area of the distal R fibula

CASE 9

HISTOLOGICAL FINDINGS

CASE 9

D. DIAGNOSIS:

- Epithelioid hemangioendothelioma
- Epithelioid sarcoma
- OS
- OTHER?

IHC: AE1/AE3(+), EMA(+), SMA(+), desmin focally (+), SATB2 focally (+), Fli-1 weakly(+), CD34(+), D2-40(+), INI-1(+)

ERG, CD31, LCA, CD30, myogenin, myoD1, S100 (-)

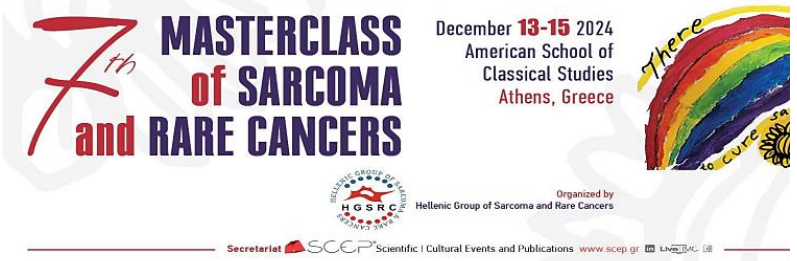
MOLECULAR TESTING

YAP1::TFE3, WWTR1::CAMTA1 negative on FISH

FINALLY:

Angiosarcoma of the liver


Organized by
Hellenic Group
of Sarcoma
and Rare Cancers
ΕΟΣΣΟ
ΕΛΛΗΝΙΚΗ ΟΜΑΔΑ ΣΑΡΚΩΜΑΤΩΝ ΚΑΙ ΣΠΑΝΙΩΝ ΟΓΚΩΝ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December 13-15 2024
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Classical Studies
Athens, Greece
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Thank you!