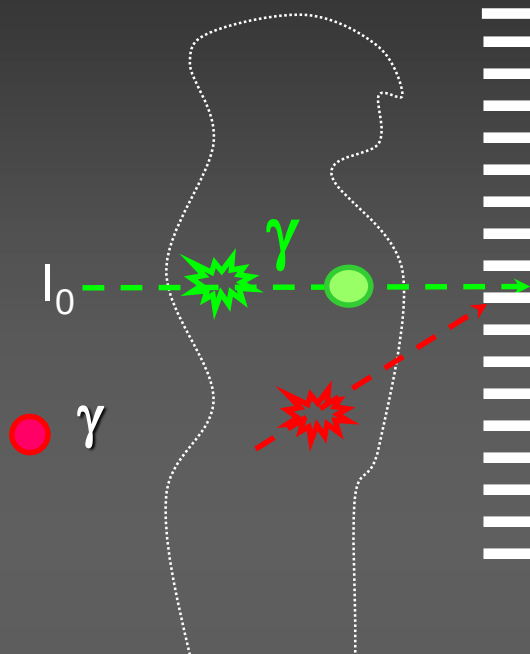


IMAGERIE SCINTIGRAPHIQUE

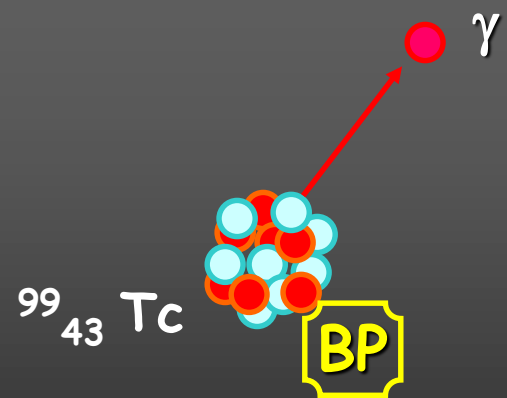
OSTEO-ARTICULAIRE

Service de médecine nucléaire
CHRU de Montpellier

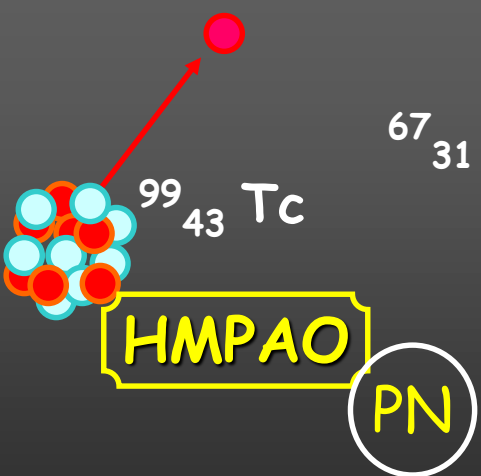
RAPPELS : SPECT (γ)



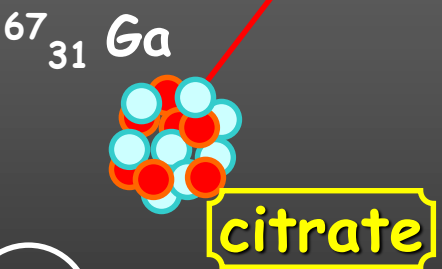
BP



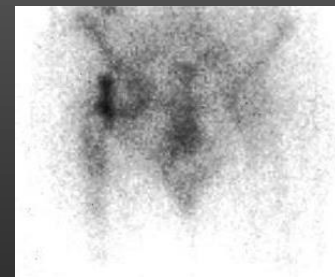
Acti. ostéoblastique



Infection

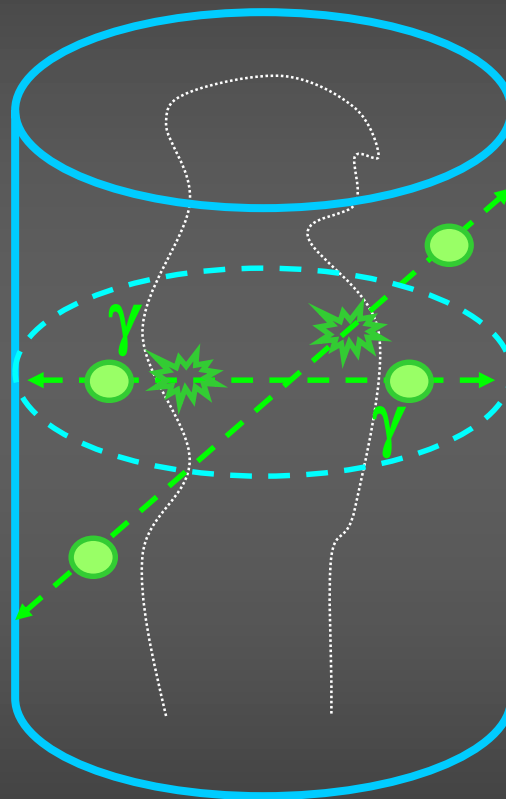
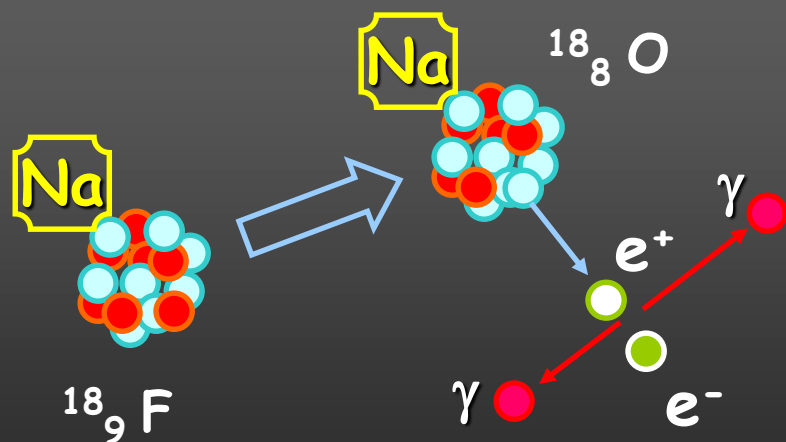


Inflammation



Ga

RAPPELS : PET (β^+)



18-FNa

Activité ostéoblastique

RAPPELS : SPECT-CT & PET-CT



SPECT(BP)-CT



PET(FDG)-CT

Déroulement d'un examen

SPECT-BP



Consultation

IV*

TARDIVE : METABOLISME

2-3 h

$\frac{1}{2}$ h acquis.

DYNAMIQUE
VASCULAIRE

PRECOCE
INFLAMMATION

5 mSv
+ CT nd 5 mSv

TEP-FDG



Consultation

IV*

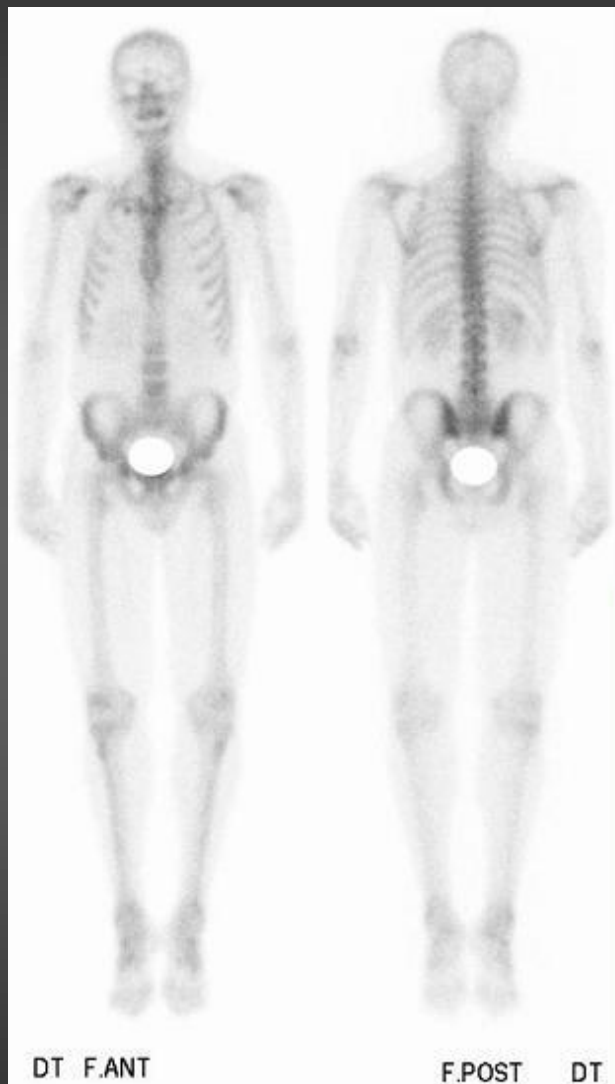
1 h repos

$\frac{1}{2}$ h acquis.

5 mSv
+ CT nd 5 mSv

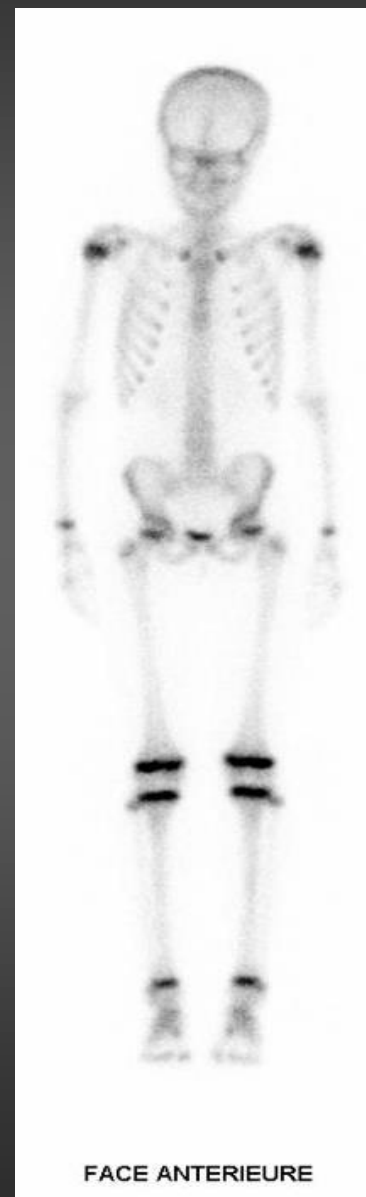
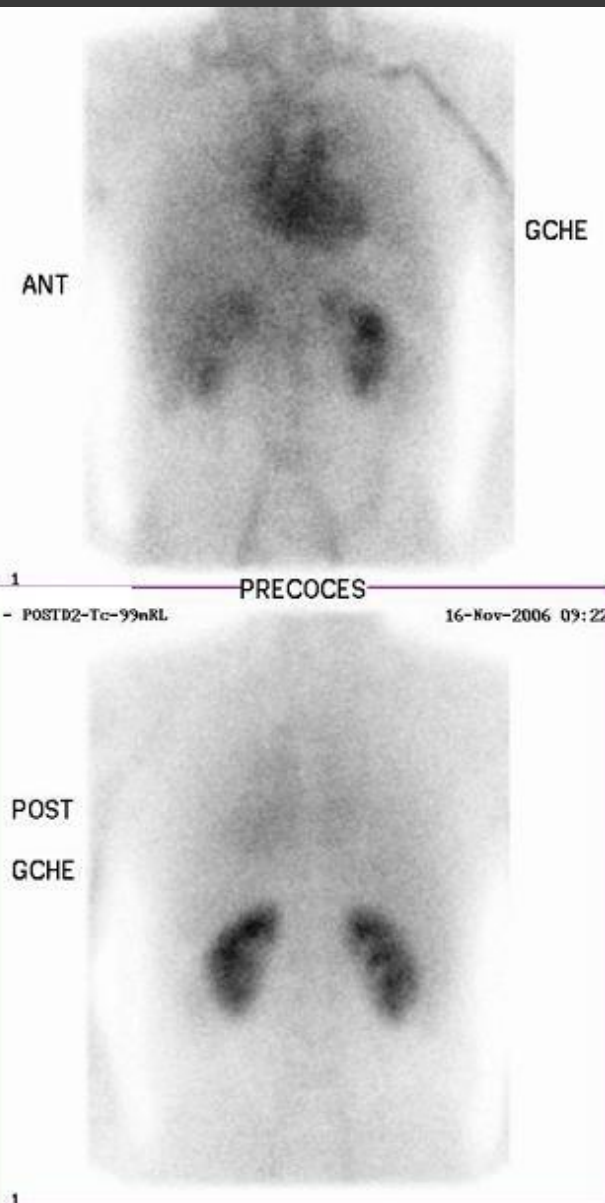
Pour comparaison, CT diagnostique : 10-20 mSv / acquisition

SCINTIGRAPHIE NORMALE

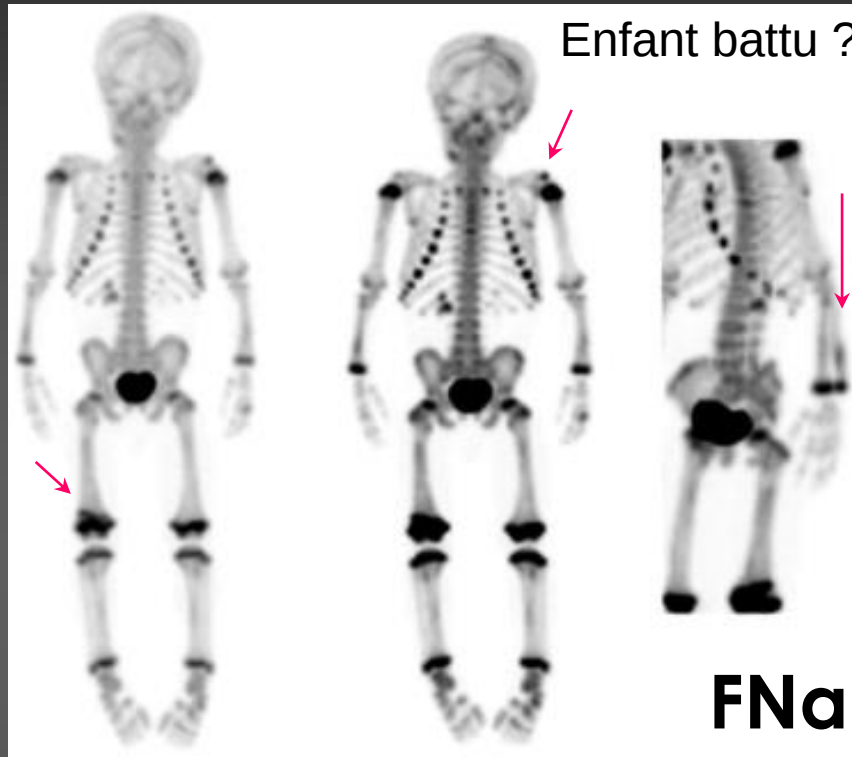


SCINTIGRAPHIE OSSEUSE

MEDECINE NUCLEAIRE LAPEYRONIE MONTPELLIER



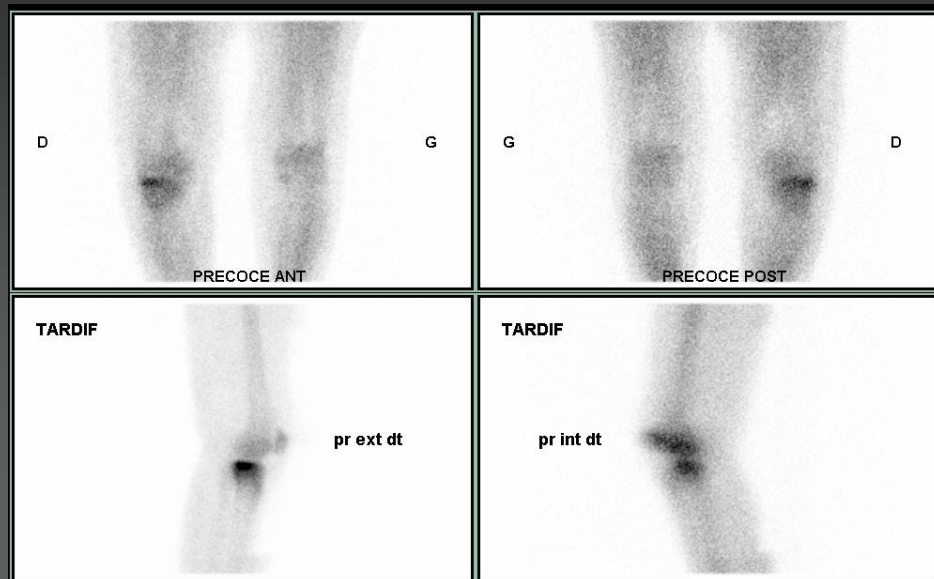
FRACTURES



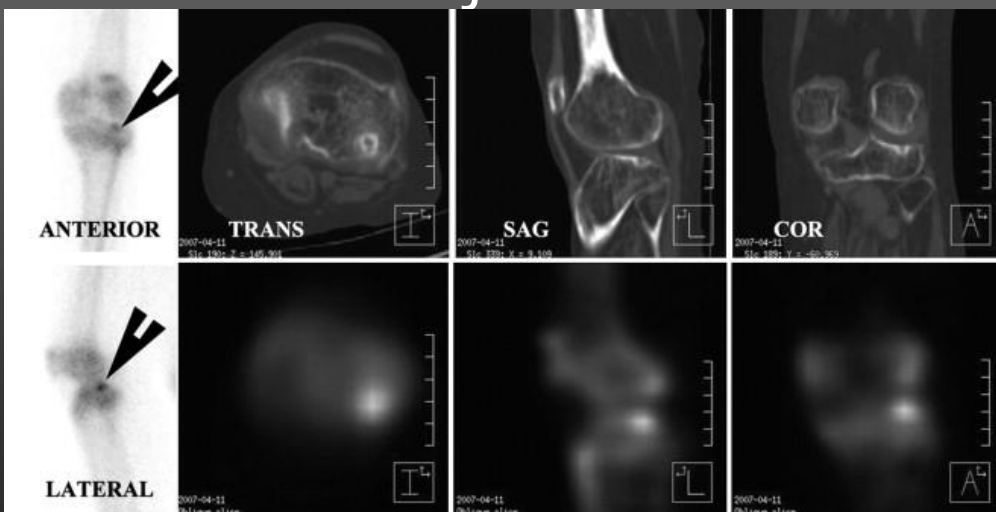
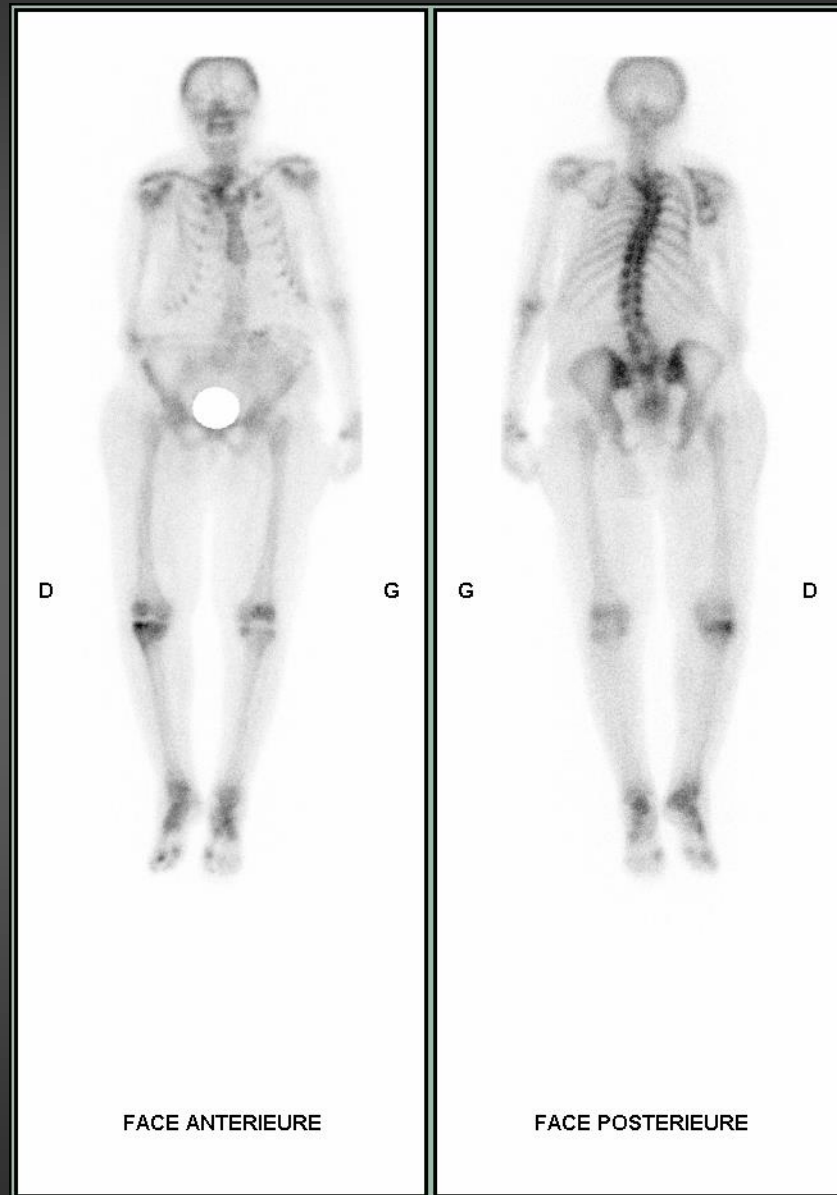
ostéoporose



FRACTURE DU PLATEAU TIBIAL EXT



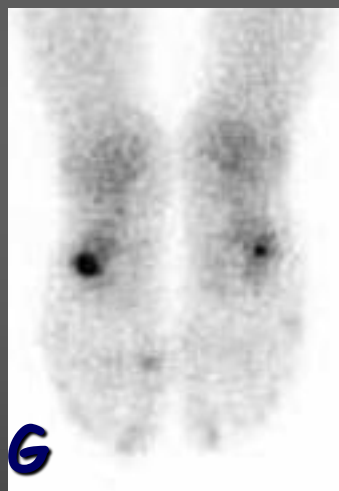
65 ans, chute : # omoplate D
Douleur jambe droite



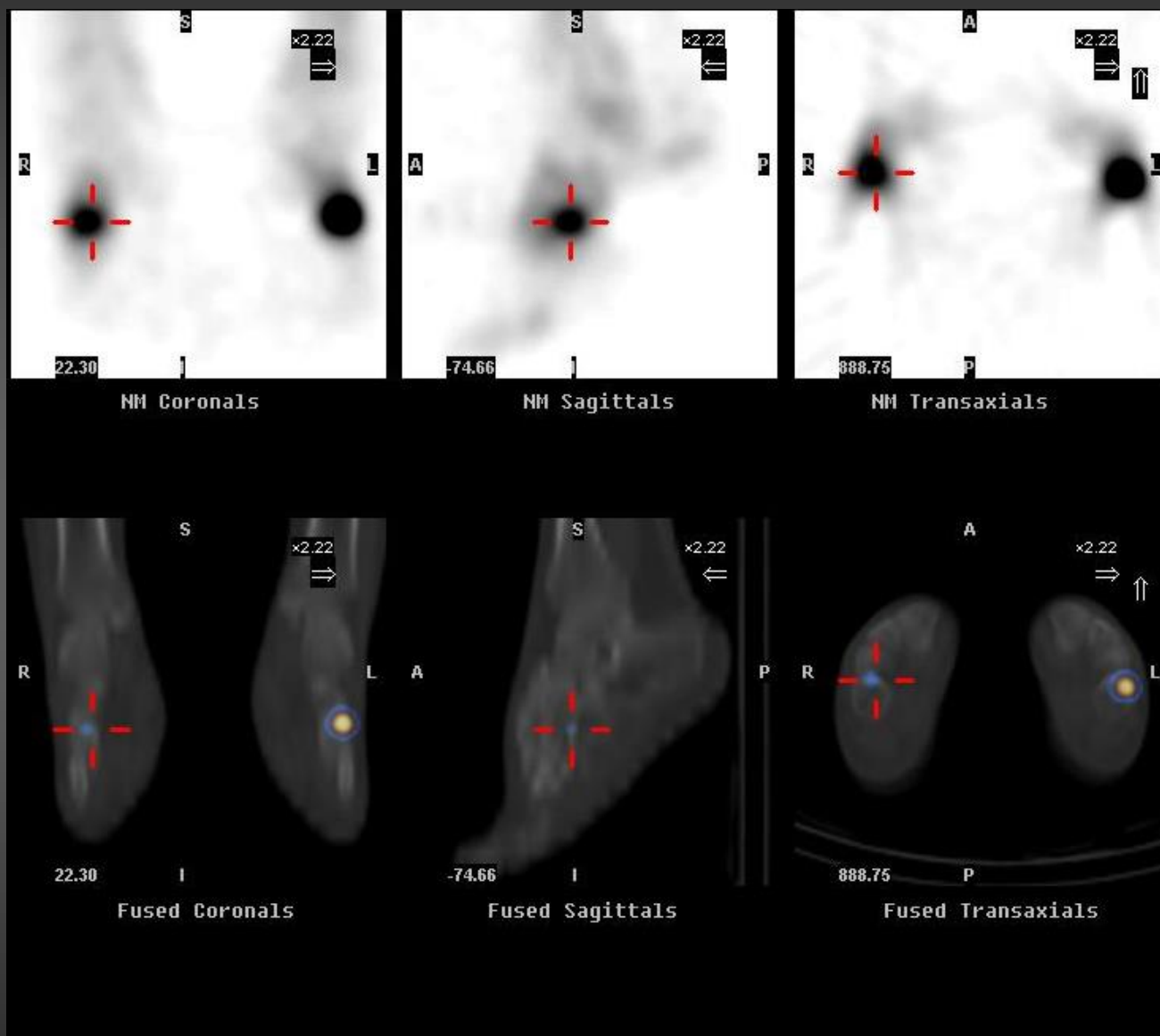
FRACTURE DE STRESS DU CUBOÏDE



Précoces



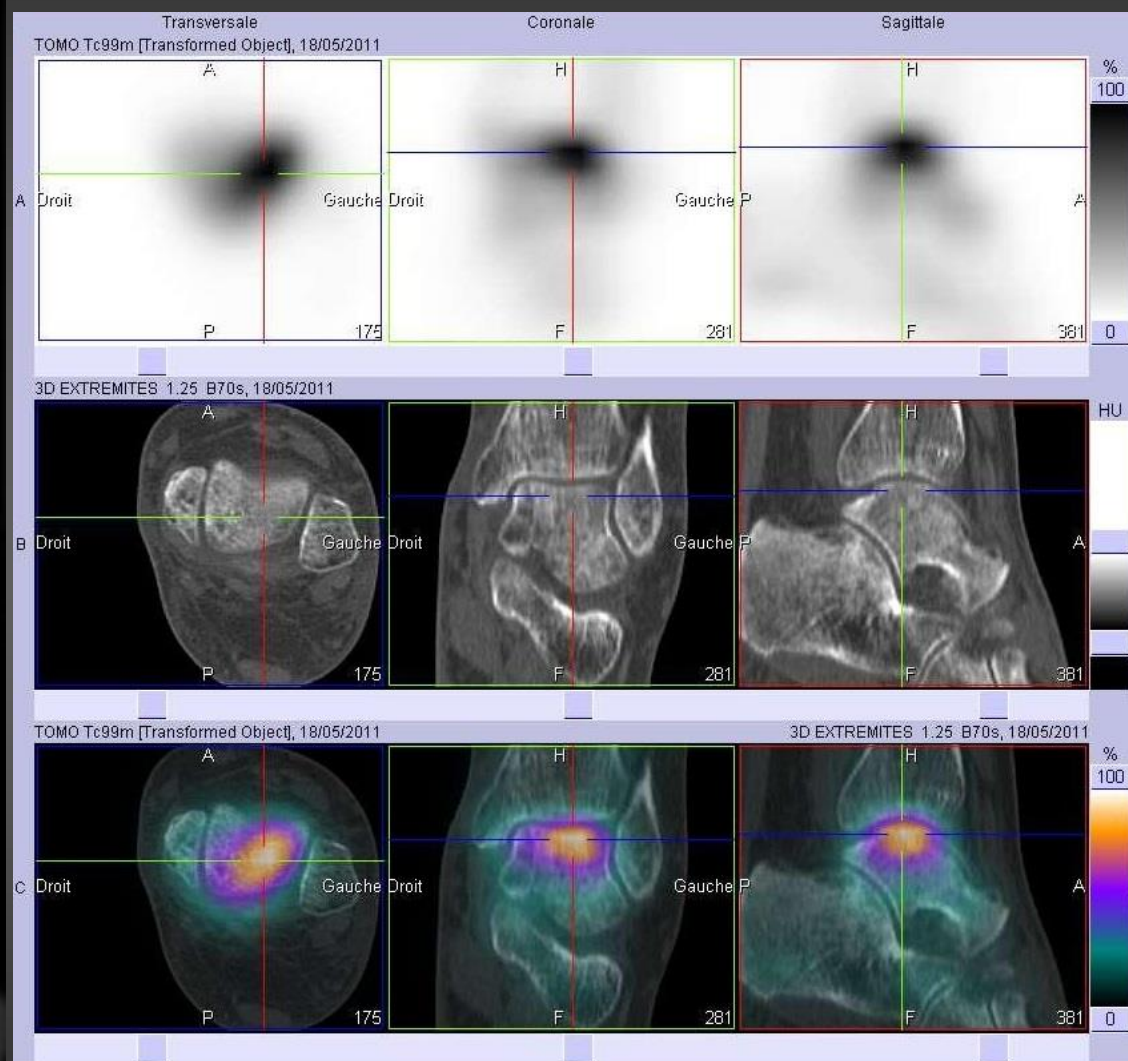
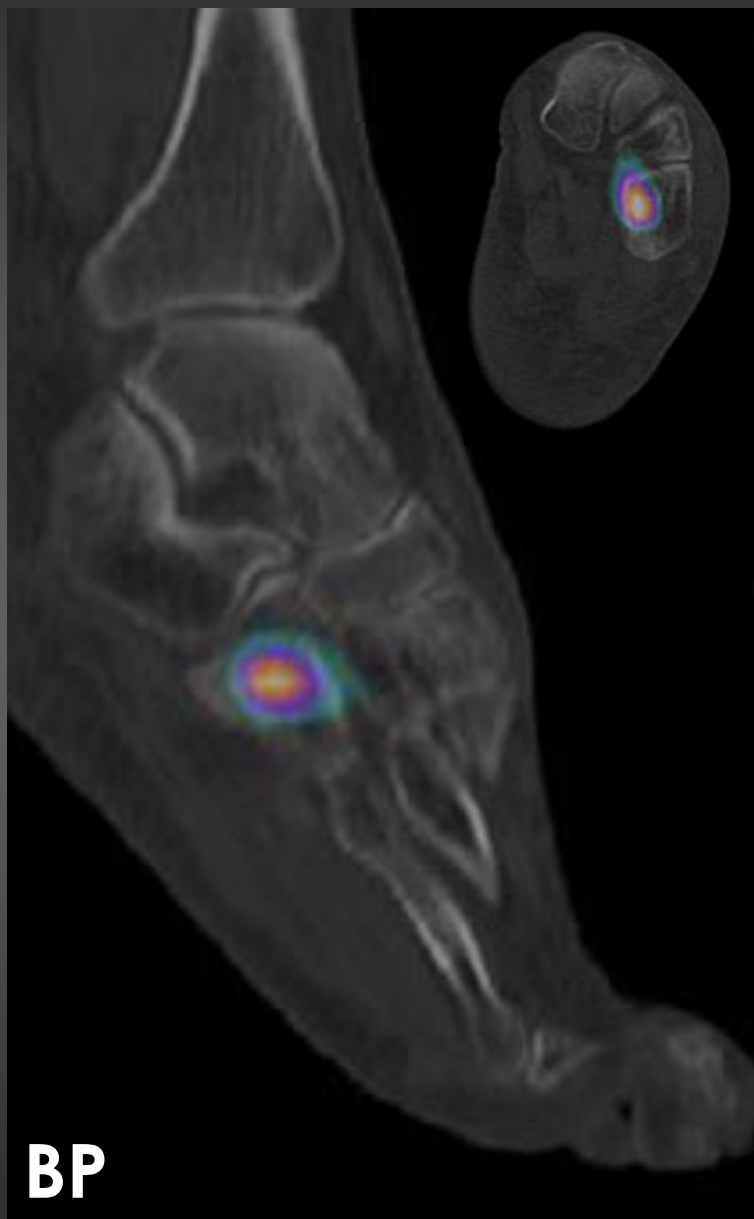
Tardifs



Fracture de stress du cuboïde G
arthropathie cuboïde-cunéiforme latéral D

Douleur pied G
chez un marcheur

STRESS CUNEIFORME MEDIAL / ASTRAGALE



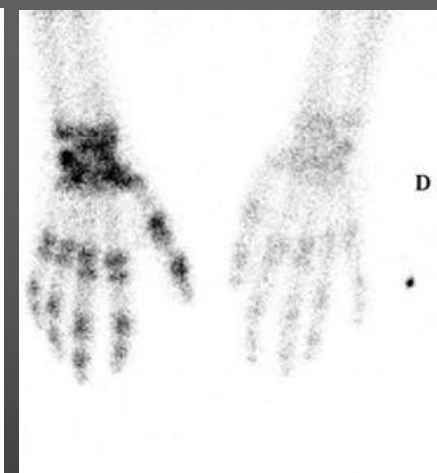
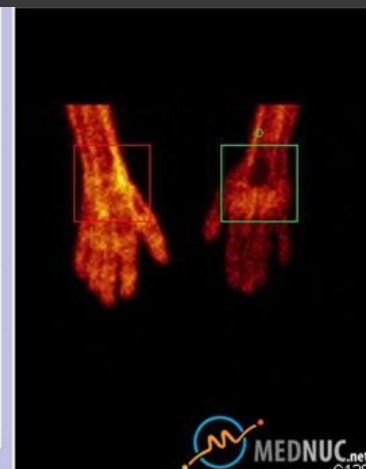
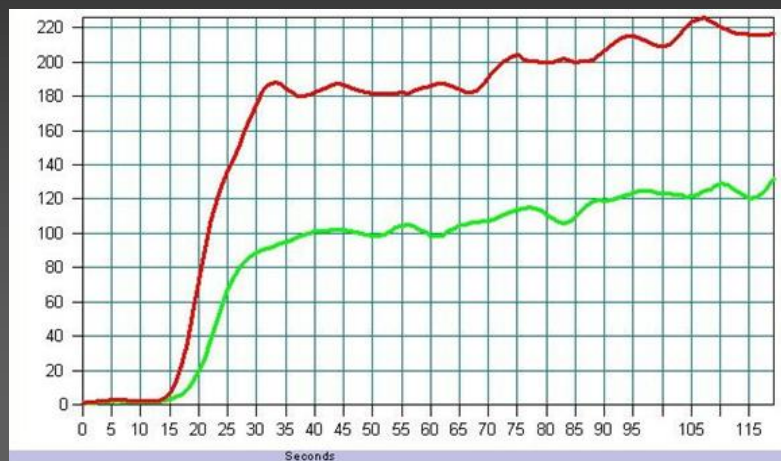
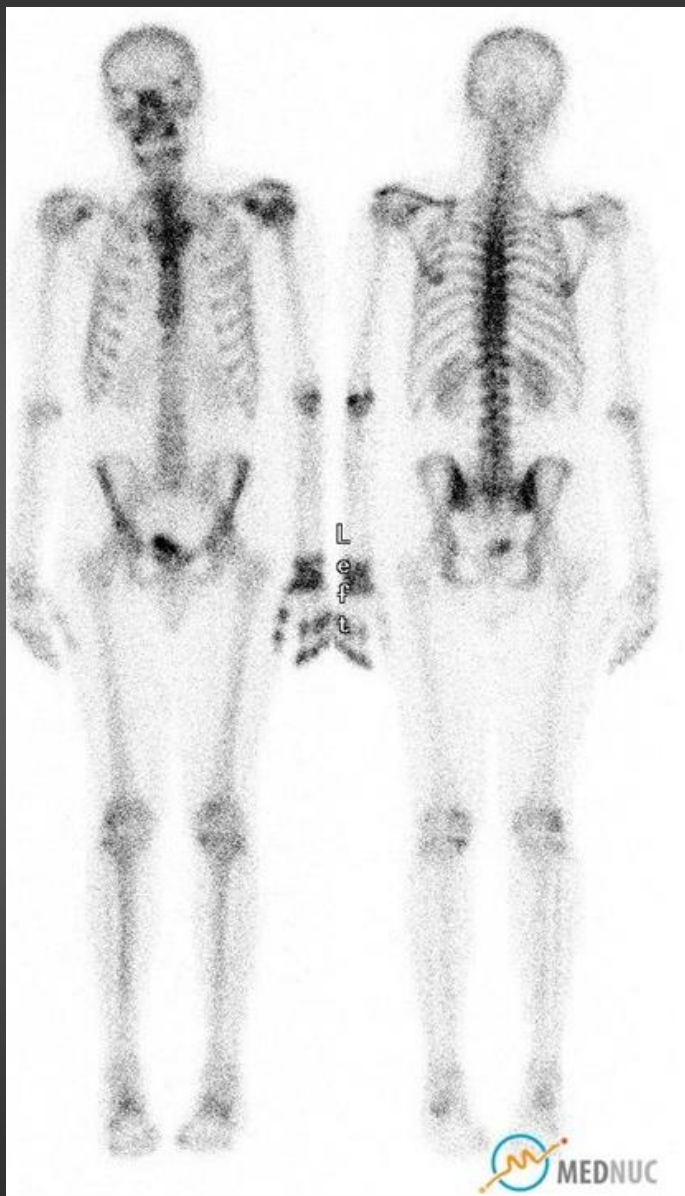
SYNTHESE SUR LES FRACTURES

- Sensibilité = 100 %
- Spécificité > 80 % (ostéonécroses)
 - Améliorée par la SPECT-CT
- Devant toute suspicion clinique à Rx normale.
 - Fracture de stress : 80 % de radio normales
 - Silvermann : + 25 à 50 % de fractures versus la radiologie
 - Pour éviter douleur chronique et algodystrophie

ALGODYSTROPHIE

Se = 96 %

Sp = 98 %



fracture non déplacée du scaphoïde gauche il y a 4 mois

OSTEONECROSE

Se = $87 \pm 3 \%$ $\approx$ IRM

Sp = $90 \pm 10 \%$ = IRM

Tête ou condyle fémoral interne

Plateau tibial interne

Talus, calcaneus

Semi-lunaire

Extrémité interne de la clavicule



douleur hanche gauche,
sous corticothérapie.



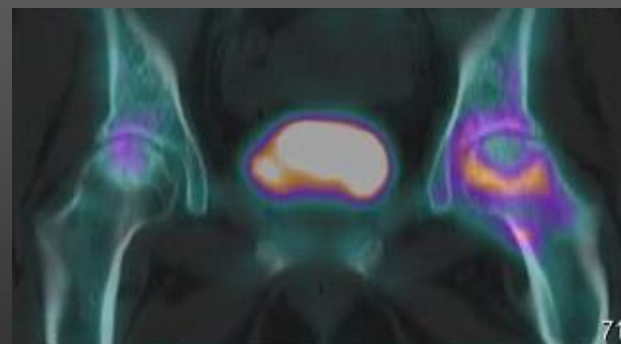
BP



T2



T1



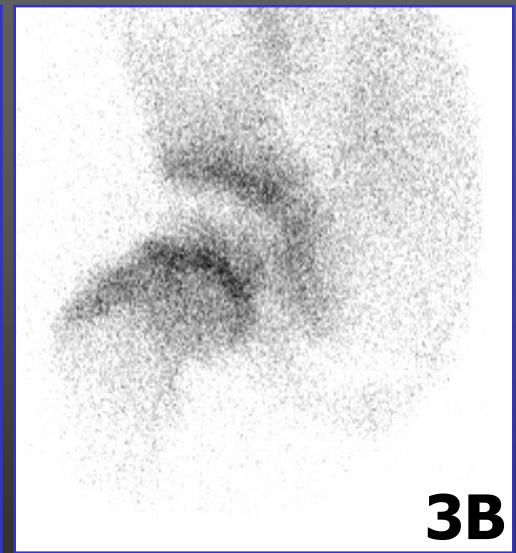
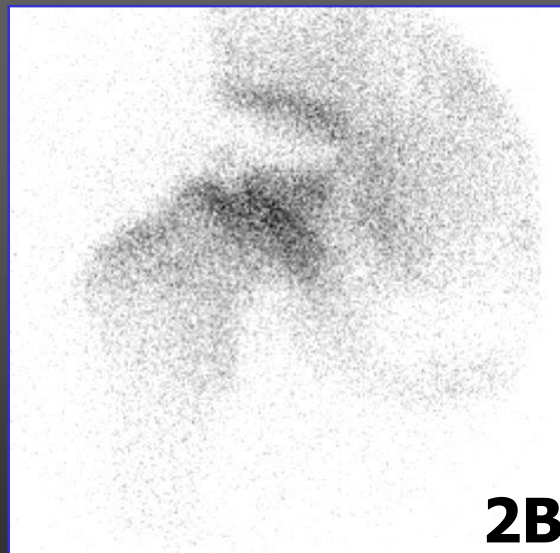
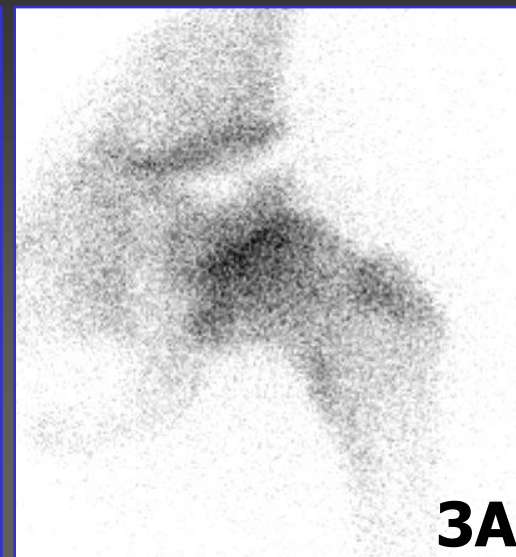
71

douleur genou, contexte OH

BP

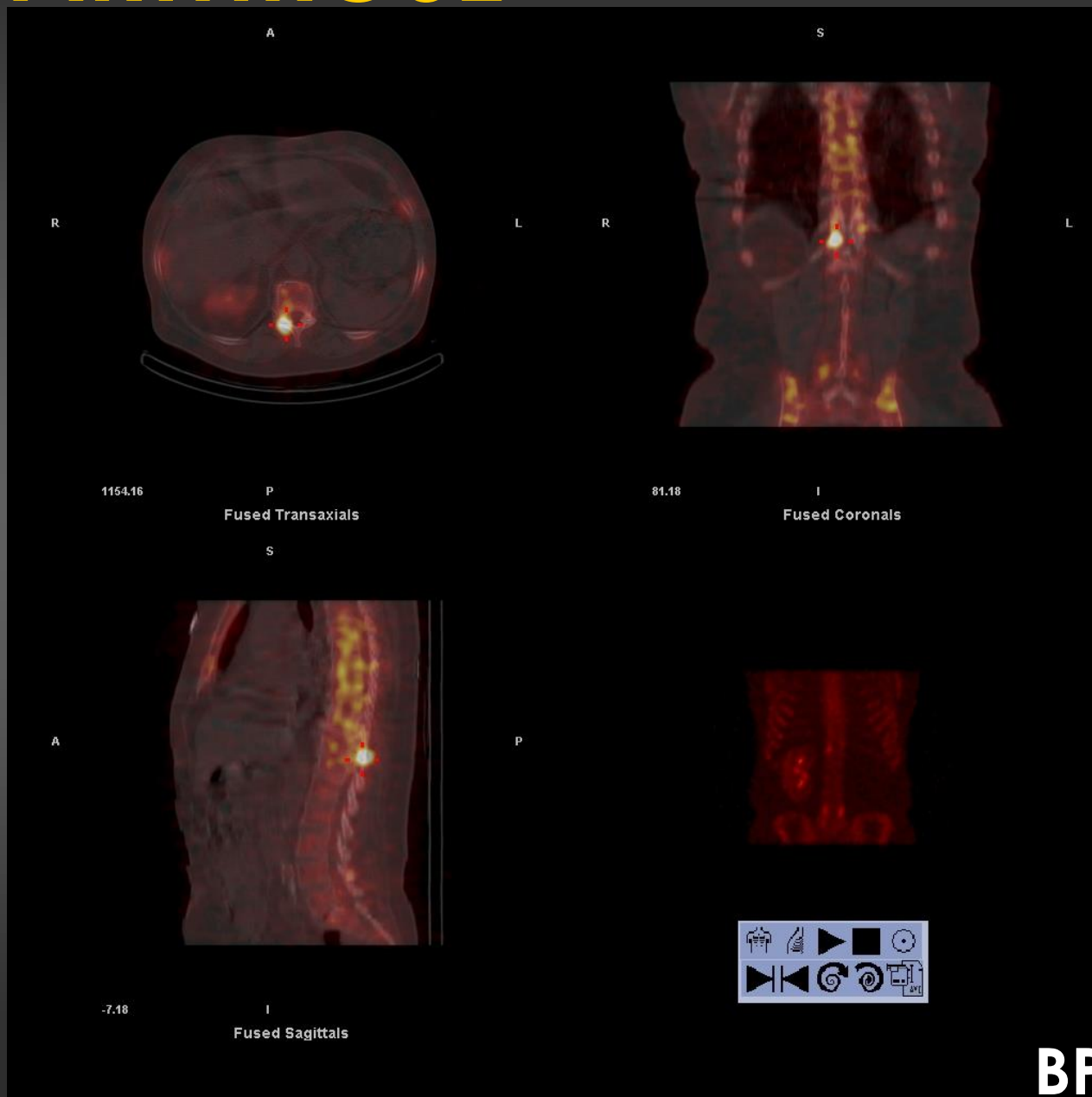
OSTEOCHONDRITE PRIMITIVE

Enfant 7 ans, boiterie



Se = Sp = 95 %
Pronostic
(J Nucl Med 2003; 44)

ARTHROSE



67 ans, dorsalgie

Acromégalie

Atcd: Spondylodiscite
L5-S1

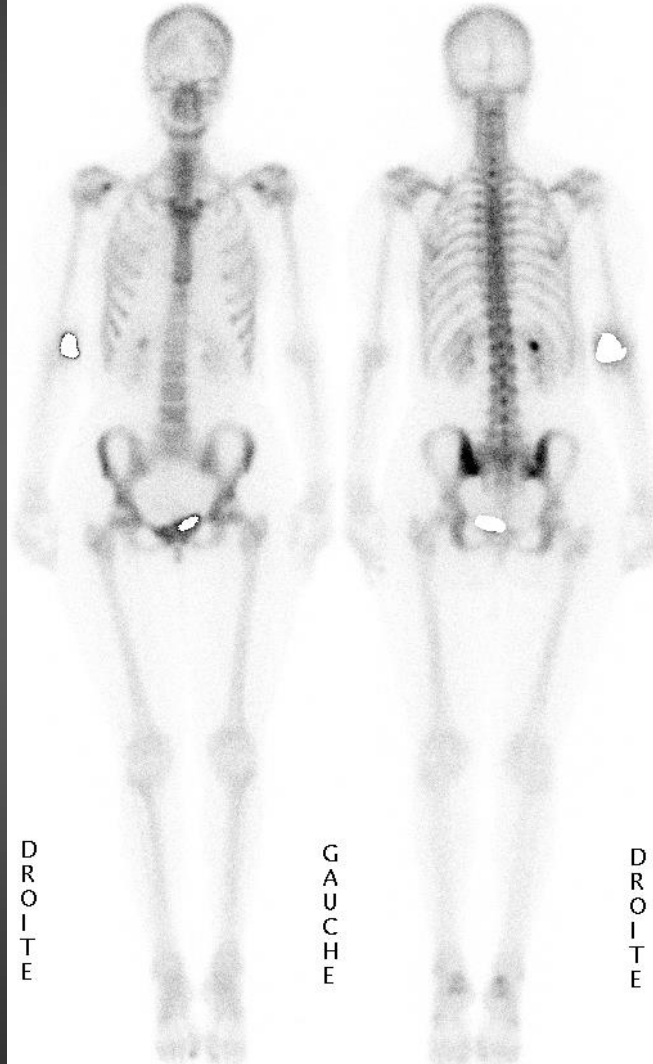
OSTEO-ARTHRITES

Douleur coude

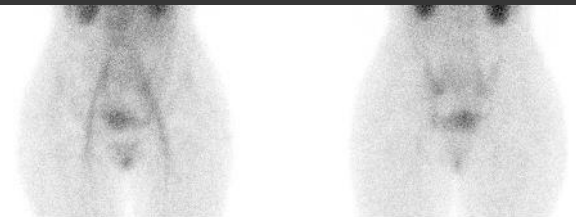


ostéo-arthrite
infectieuse

SCINTIGRAPHIE OSSEUSE
Douleurs diffuses



Maladie de Crohn



FA 5MN

FP 5MN

PRECOCE



FA 5MN

FP 5MN

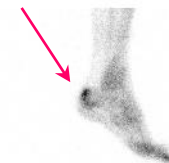
TARDIFS



FA

FP

TARDIFS



DT

GCHE

BP

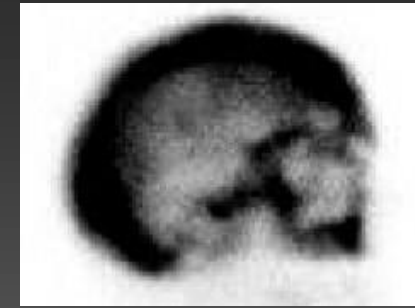
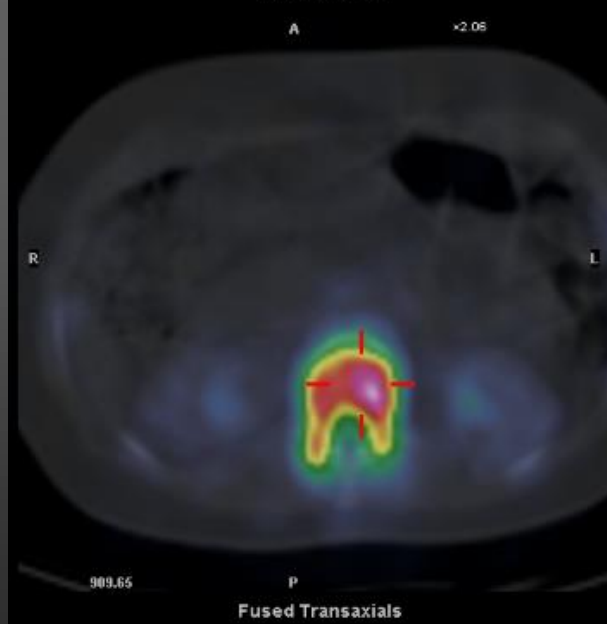
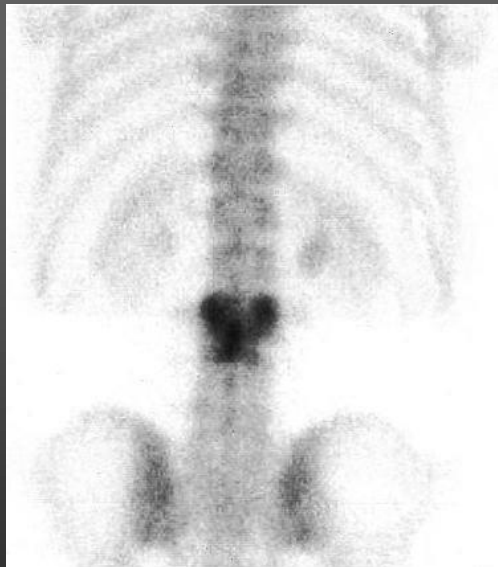
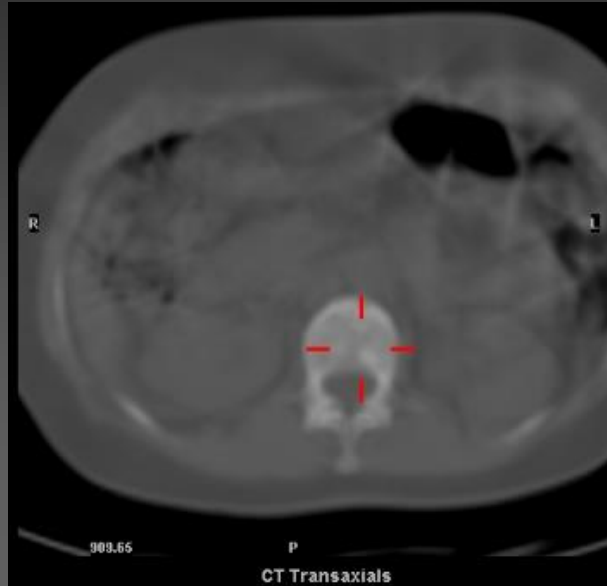
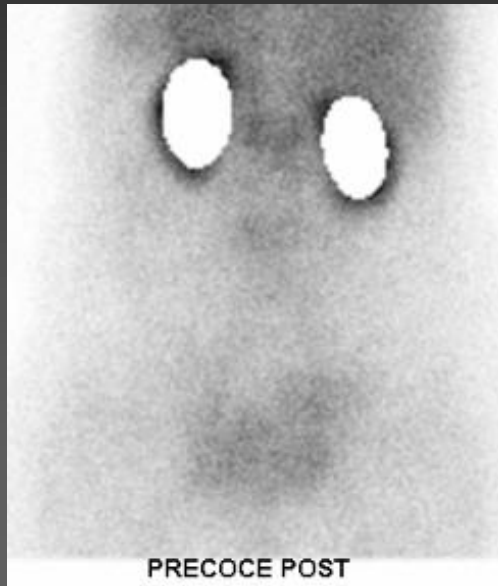
OSTEOARTHROPATHIE HYPERTROPHIANTE

Fumeur...



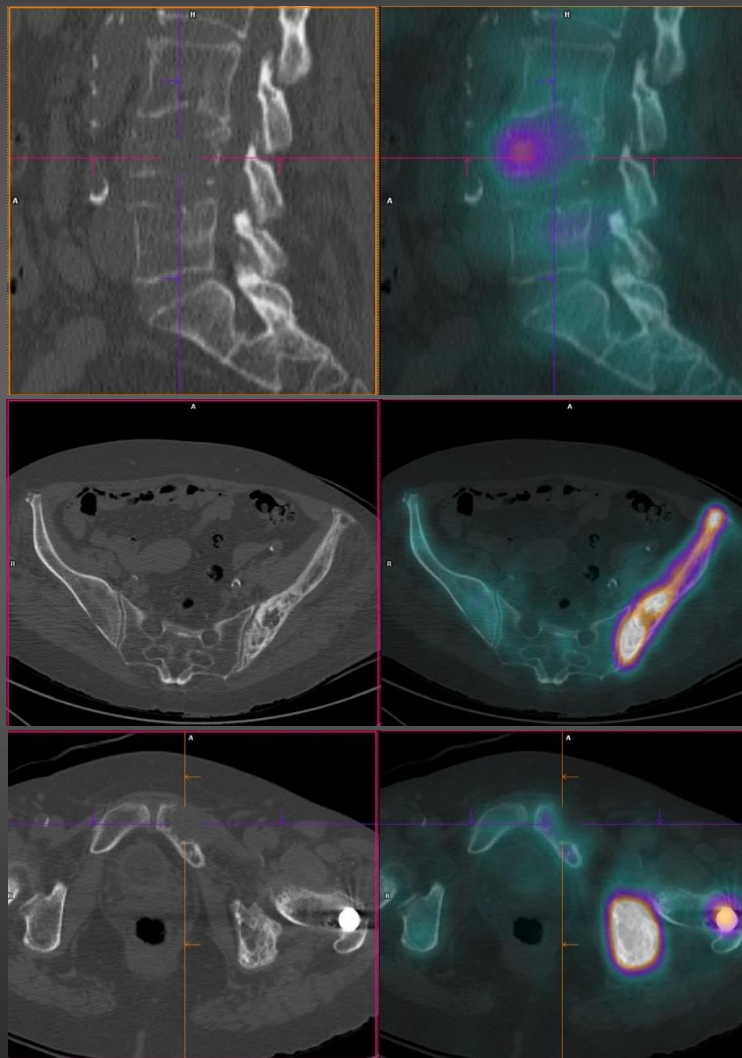
Douleurs osseuses, hypoacusie

PAGET

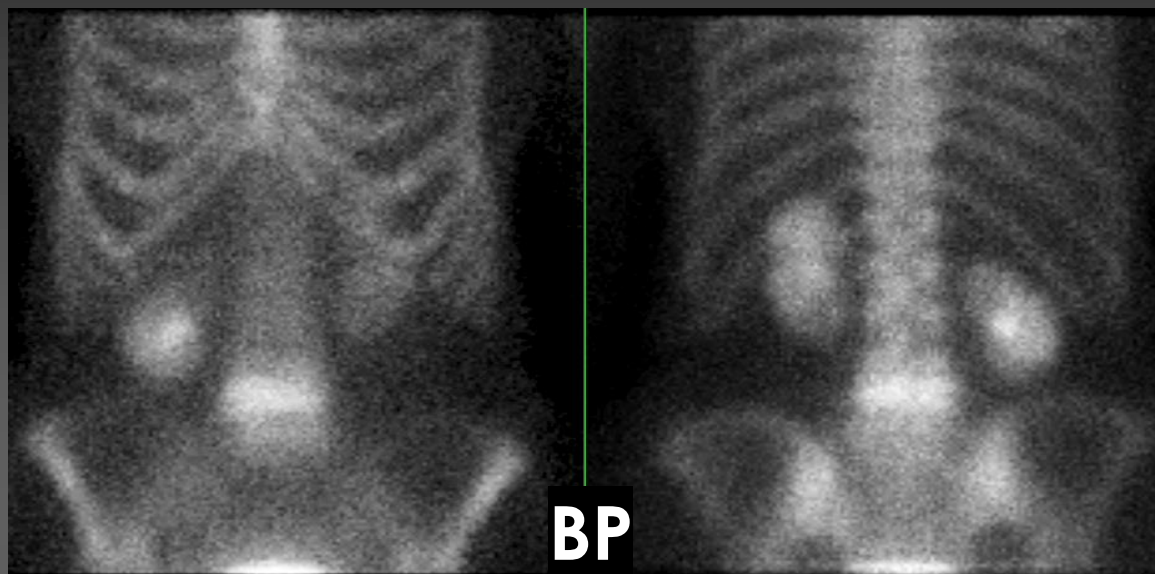


Femme 64 ans, CCI découvert
sur fracture pathologique
fémur G

PAGET + METAS LYTIQUES

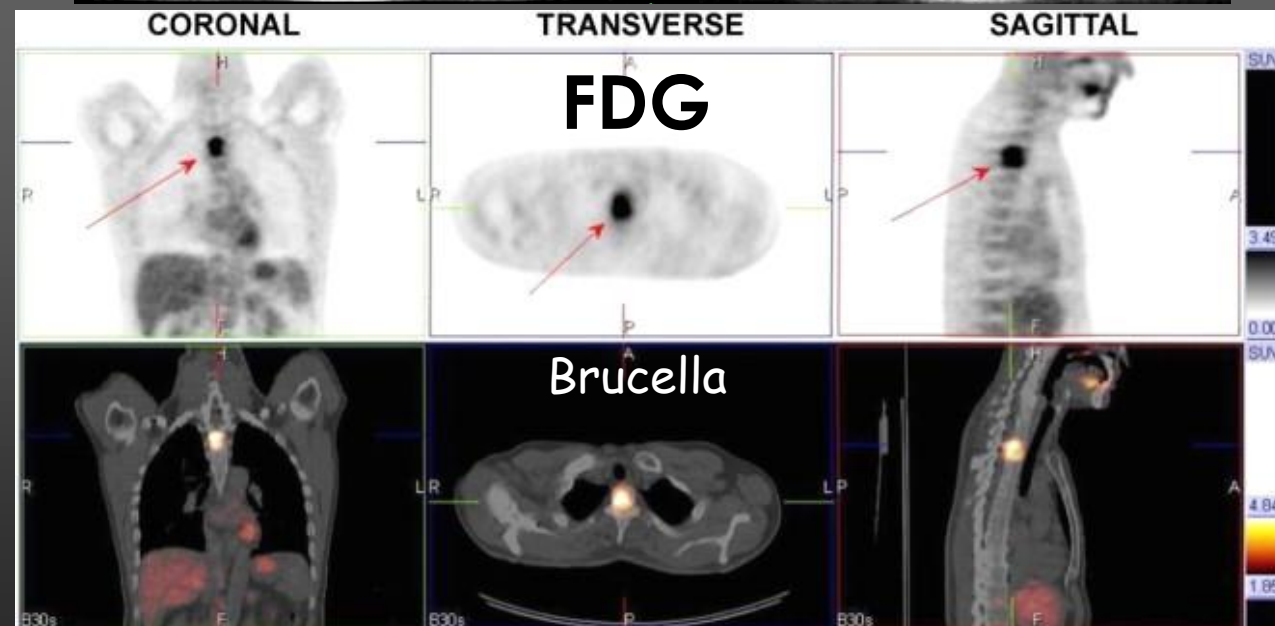


SPONDYLODISCITE ET SPONDYLITE



Syndrome infectieux

**Pas d'indication de PN
car
Se $\approx$ 50 %
MO + encapsulation**



Se = 100 %

**Sp = 75 % (Sdiscite)
Sp = 90 % (Site)**

**FDG > SPECT (Ga,BP)
FDG > IRM**

INFECTIONS DE PROTHESES

SPECT-CT: PN+Colloïdes

Se = 100%

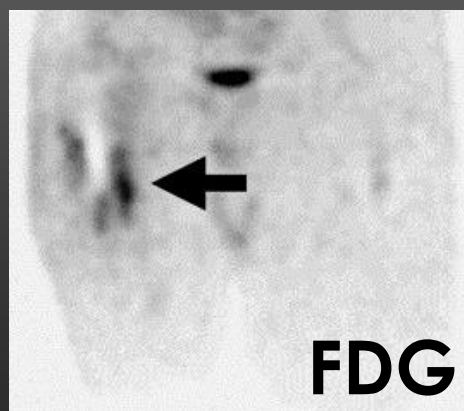
Sp = $96 \pm 4 \%$

PET-CT FDG: critères ?

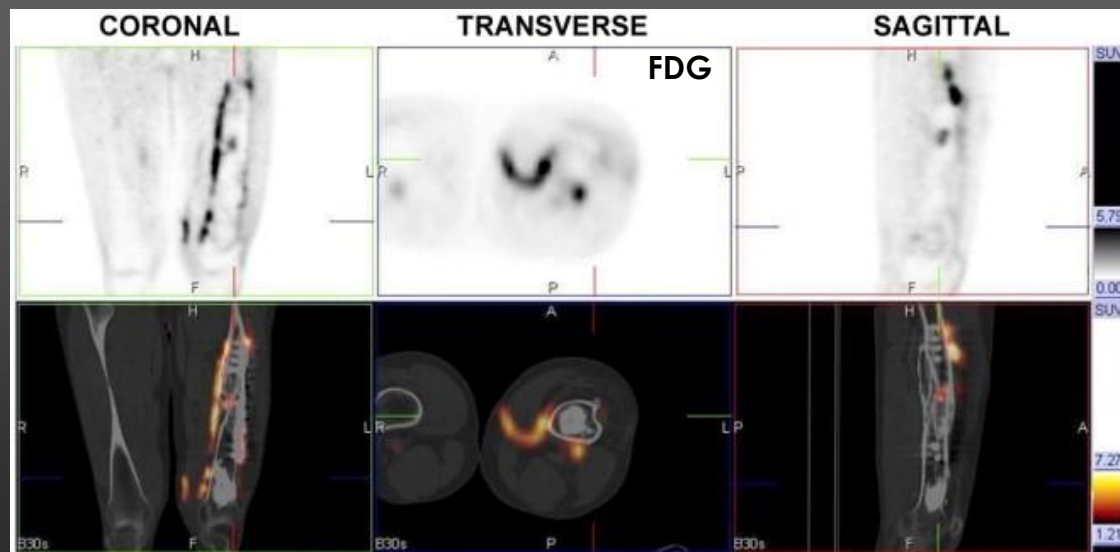
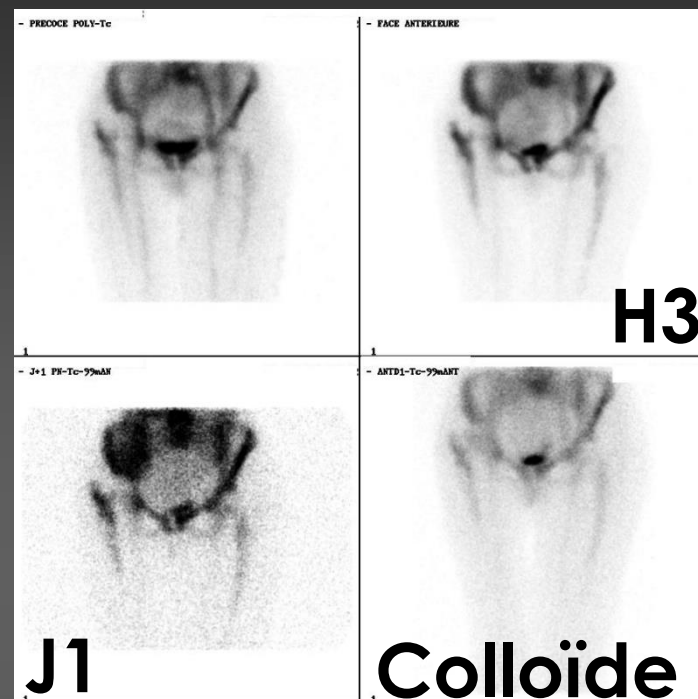
Se = 90%

Sp = 89 % (PTH)

Sp = 72 % (PTG)



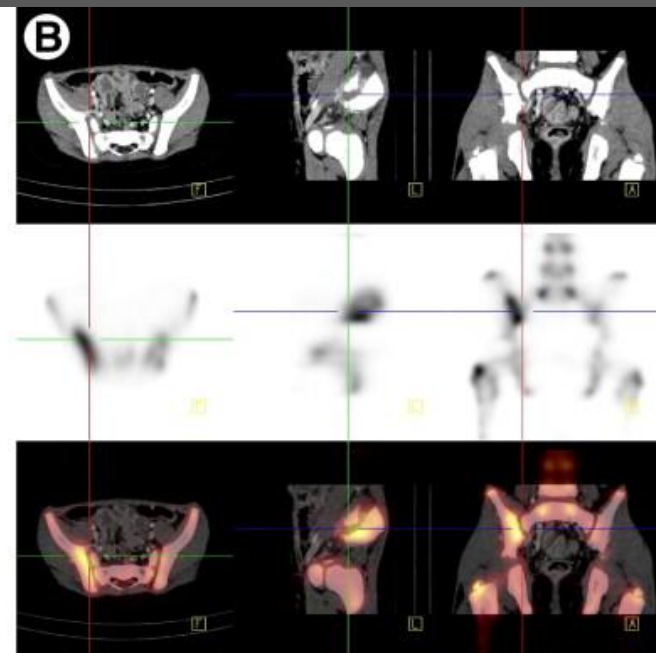
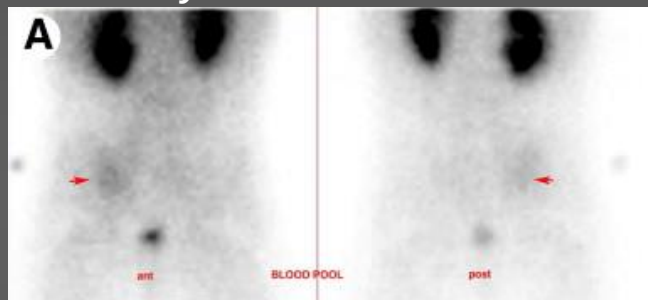
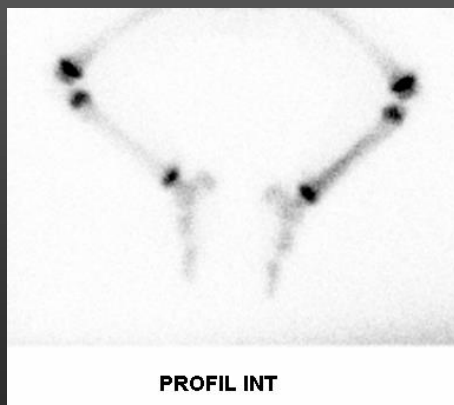
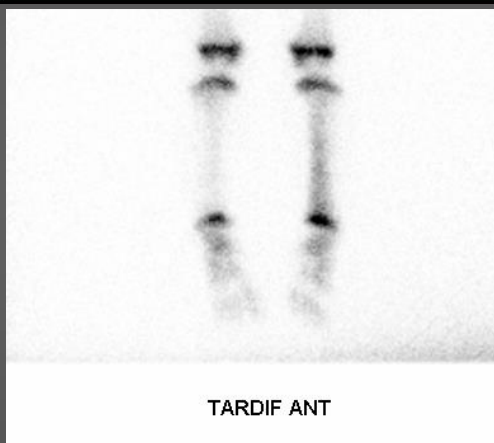
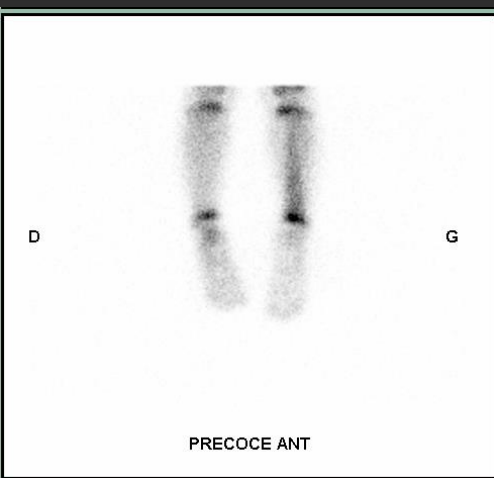
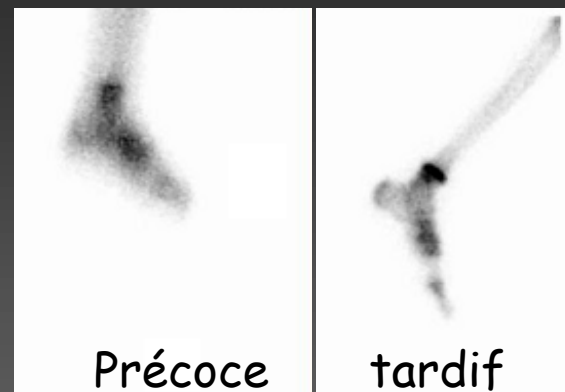
Prothèse
douloureuse



OSTEOMYELITIS

Se = $91 \pm 4 \%$
 Sp = 86 % avec CT
 Sp = 99 % avec PN
 Radio normale < M1

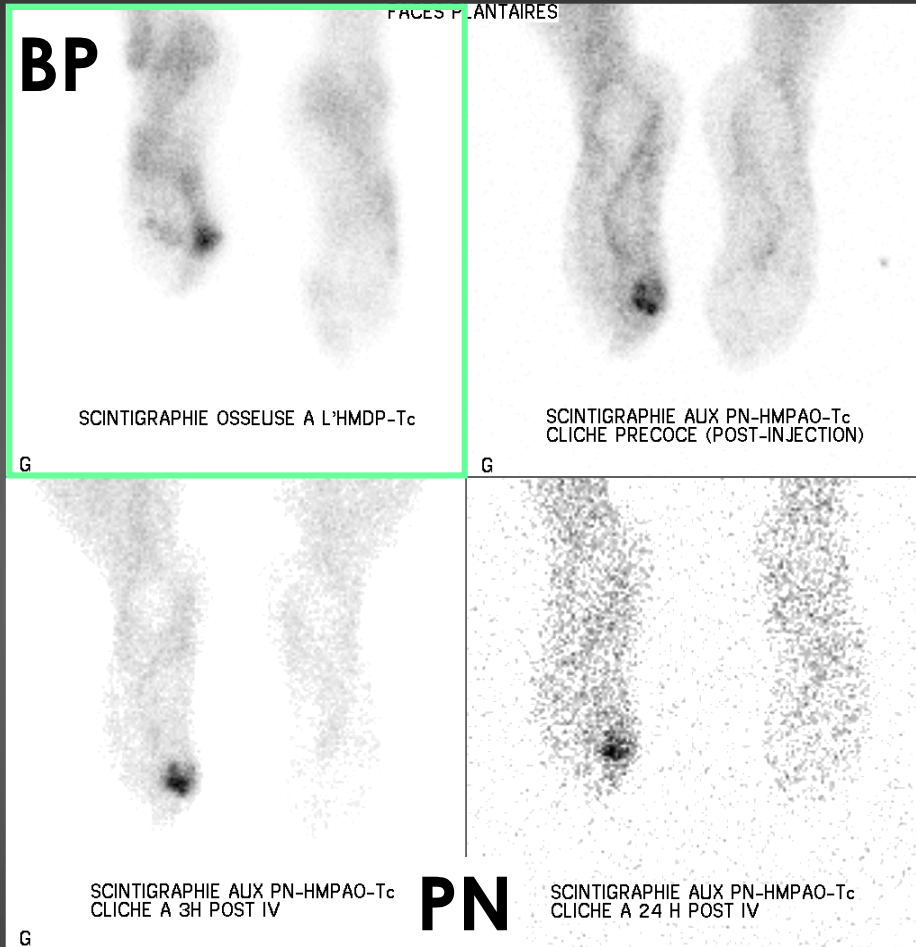
Syndrome infectieux



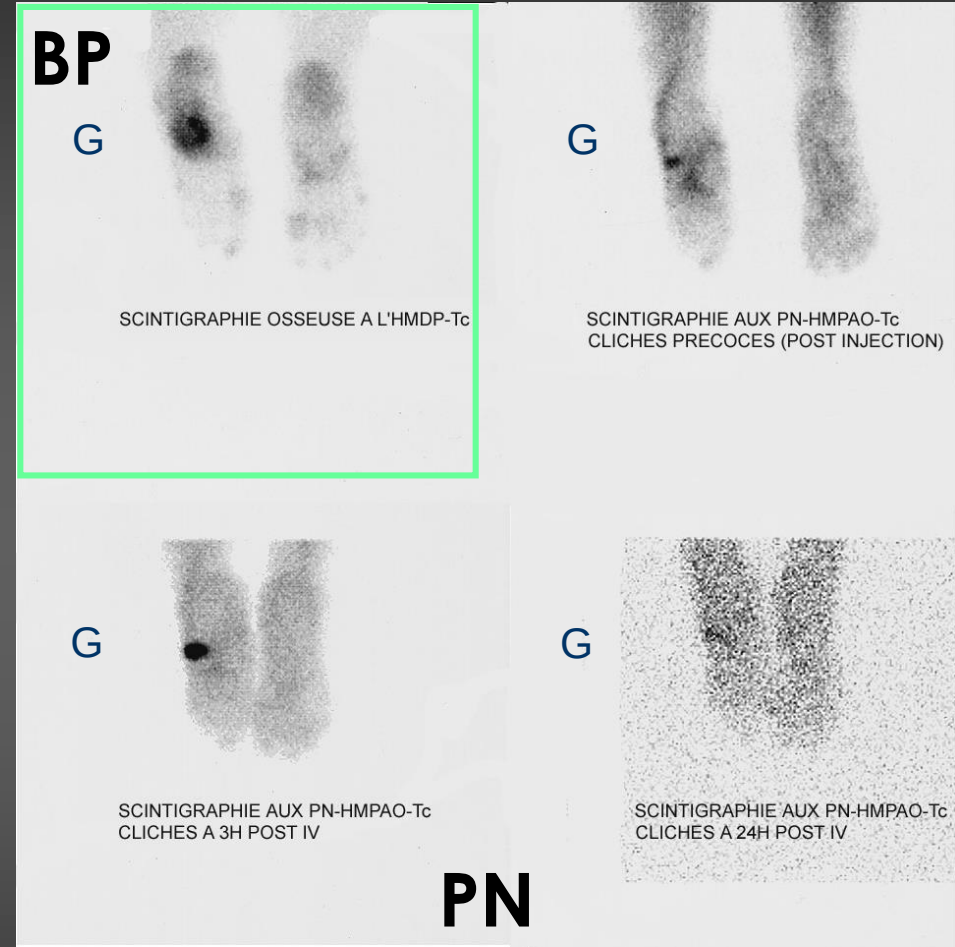
FDG-PET : { Se = $97 \pm 3 \%$
 Sp = $93 \pm 7 \%$

BP

OSTEOMYELITIS DU PIED DIABETIQUE



Ostéite de l'hallux gauche.



Neuroarthropathie

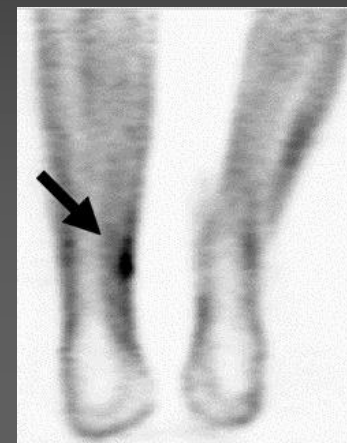
$$Se = 80 \pm 8 \%$$

$$Sp = 80 \pm 11 \%$$

OSTEOMYELITIS DU PIED DIABETIQUE



Ostéomyélite



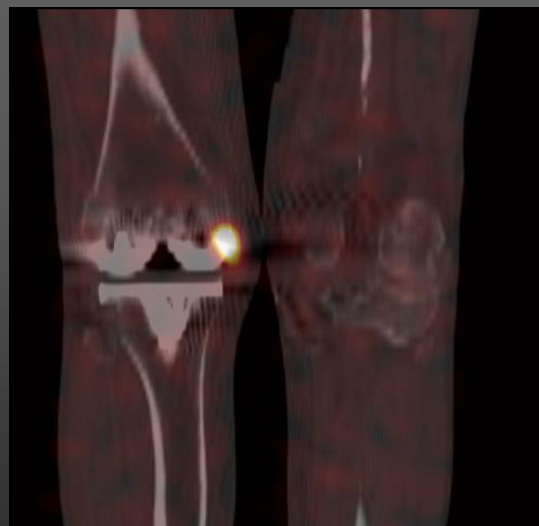
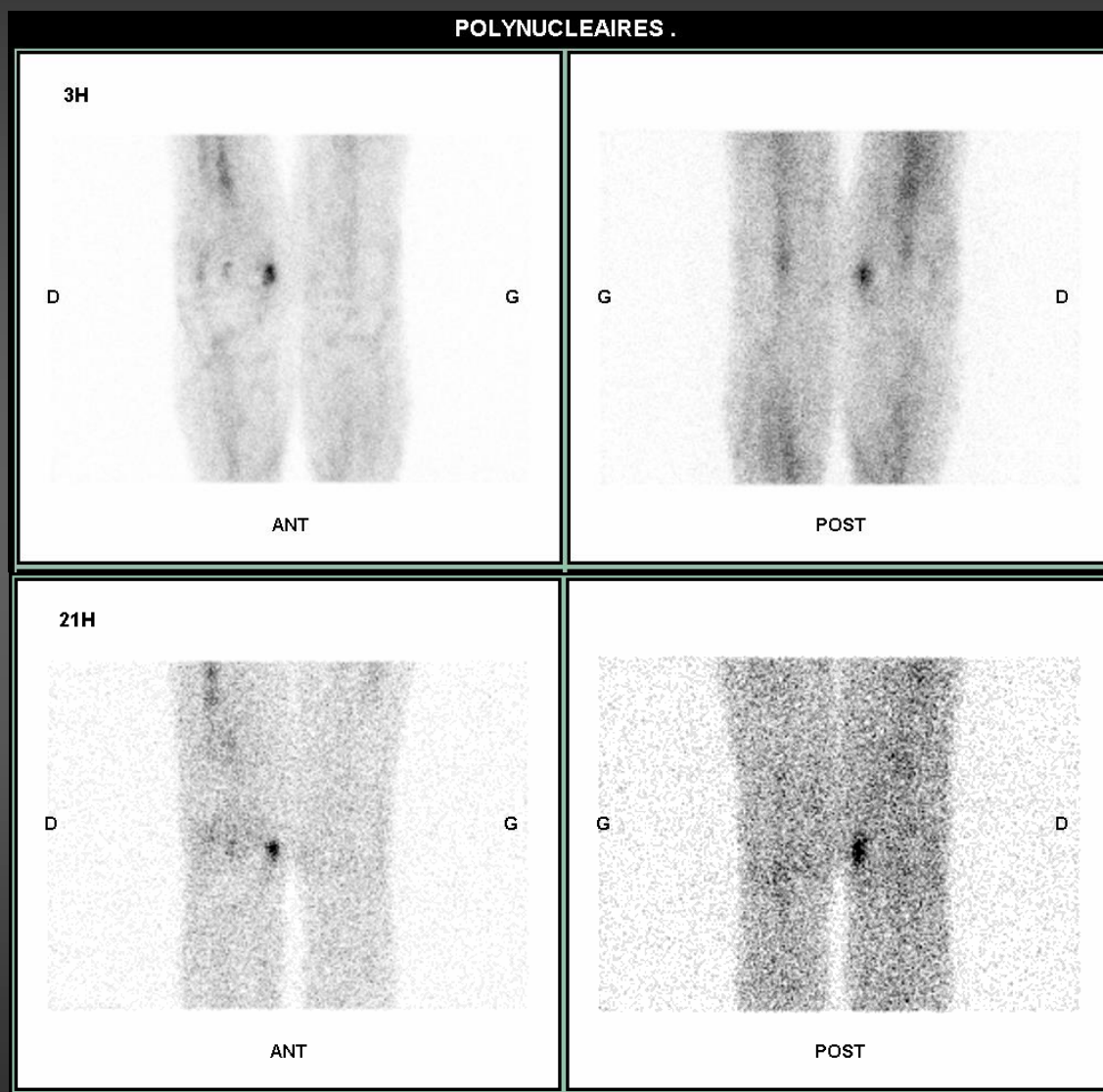
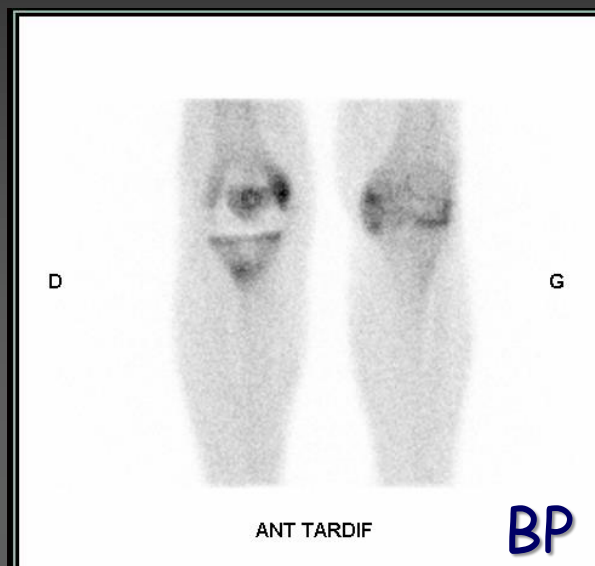
Cellulite

Se = 100 %

Sp = 86 %

- ✓ Moins sensible à l'activation médullaire: $FDG > DP+PN^*$
- ✓ Moins longtemps fixant sur fractures
- ✓ Meilleure résolution

INFECTION PTG D

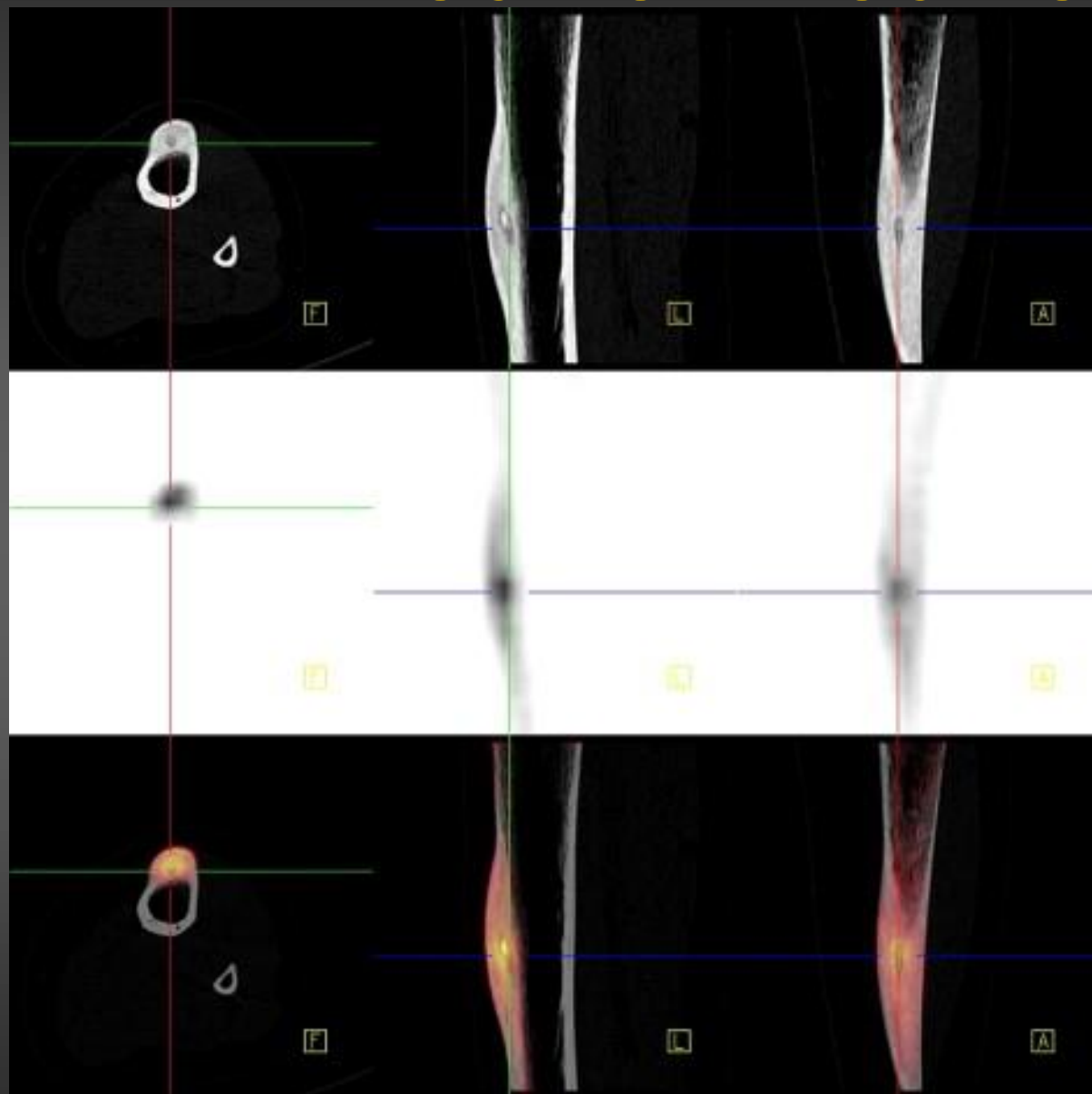


66 ans, PTG 9 ans, gonalgie 1 mois après érysipèle mb inf

SYNTHESE SUR LES INFECTIONS OSSEUSES

	Tc-HDP	Tc-PN	Tc-Colloïdes	Ga-Citrate	F-DG
SPONDYLITES	+	- -	-	+/-	++
SPONDYLODISCITES	++				+
INFECTION DE PROTHESE	++	++	++	-	+
OSTEOMYELITIS	++	++	++	+/-	++
PIED DIABETIQUE	+/-	+	+/-	-	++
SACRO-ILEITE	++	-	-	-	+/-

OSTEOME OSTEOIDE

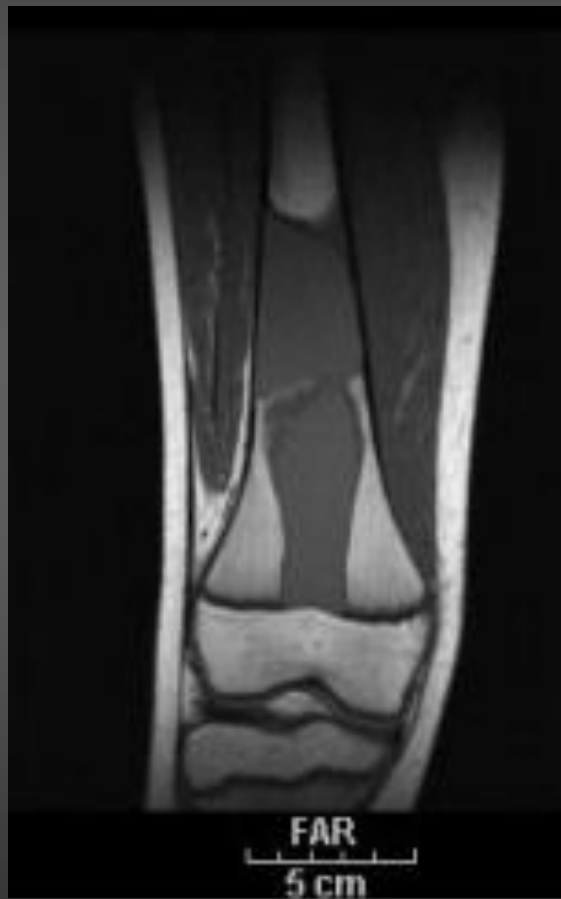


Jeune adulte,
douleurs nocturnes
calmées par l'aspirine

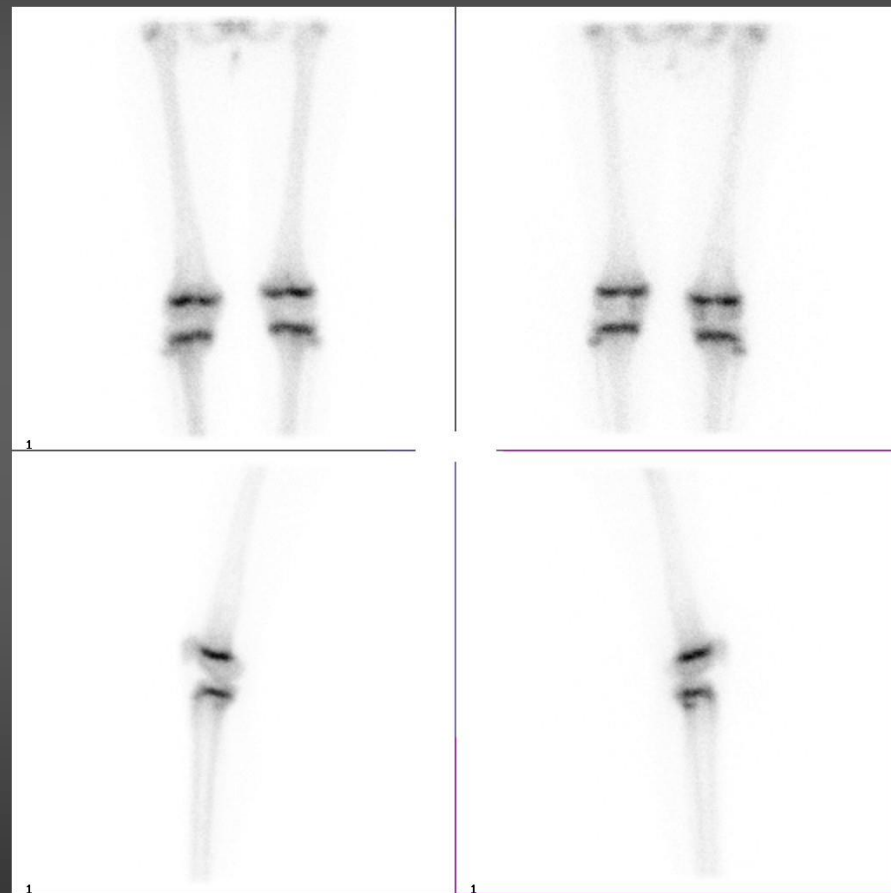
Se = 100 %
Sonde per-opératoire
Idem ostéoblastome

KYSTE OSSEUX

Fillette de 10 ans
douleurs du genou



IRM



BP

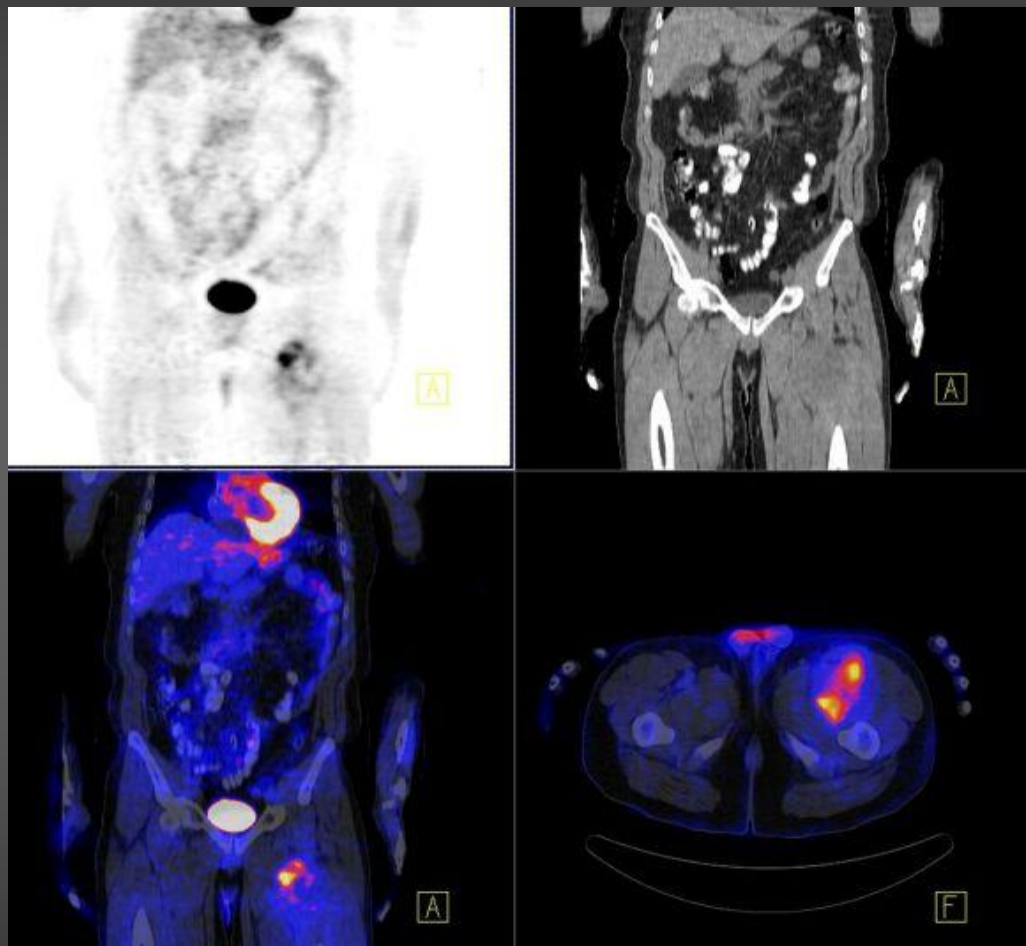
SARCOMES DES TISSUS MOUS

PET-CT au 18-FDG pour :

- Guidage de biopsies (B2)
- Recherche de récurrence locale (B2)

Se = 90 %

Sp = 80 %



liposarcome

SARCOMES OSSEUX

Diagnostic : clinique, radio, biopsie

FDG pronostique ?

Bilan d'extension métastatique :

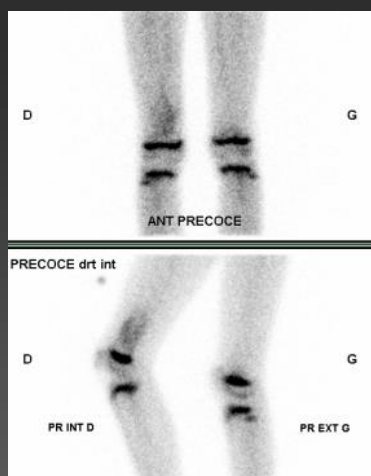
métastase pulmonaire: $Se(FDG) \leq CT$ (résolution)

Ewing : $Sp(FDG) > BP$

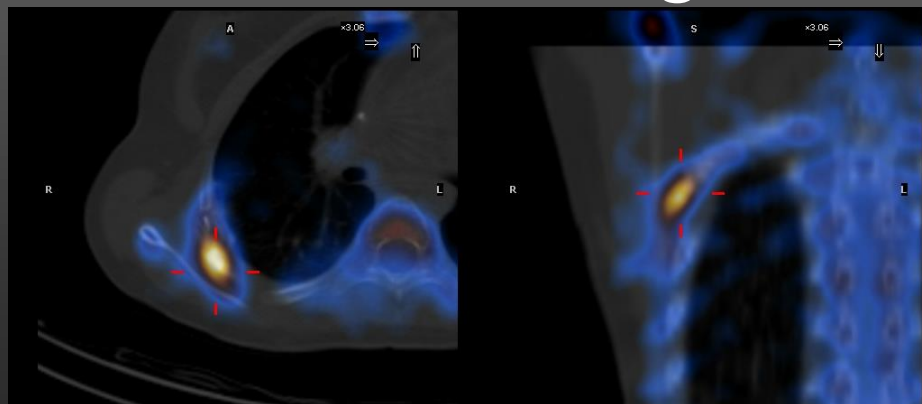
Ostéosarcome : $Se(BP) > FDG$?

Efficacité thérapeutique :

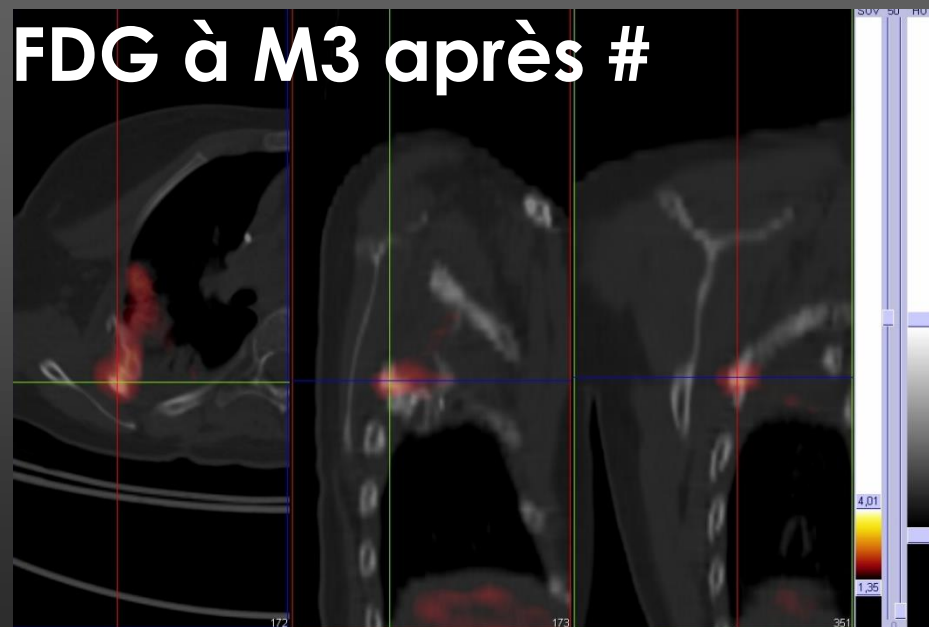
$FDG > BP$ (Flare), CT et IRM



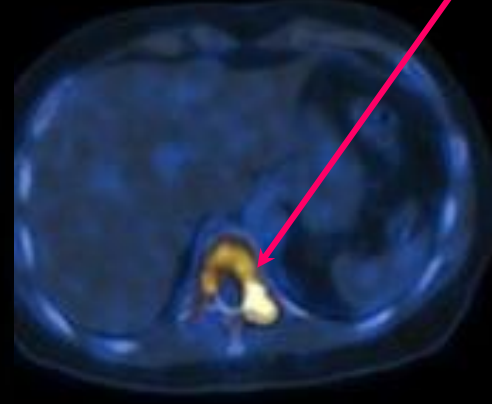
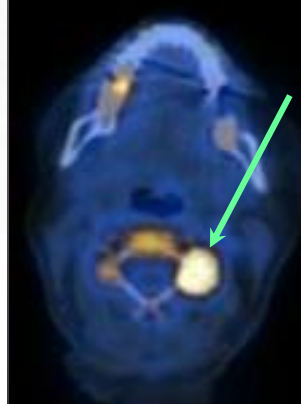
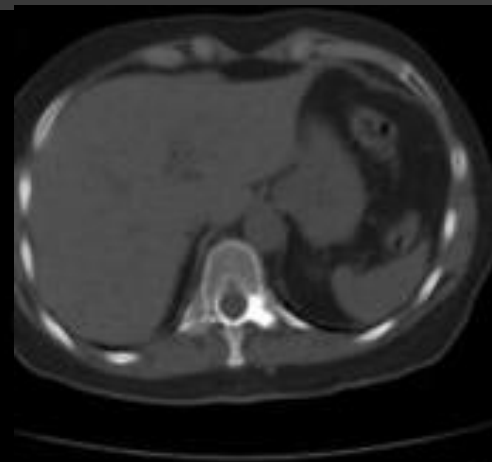
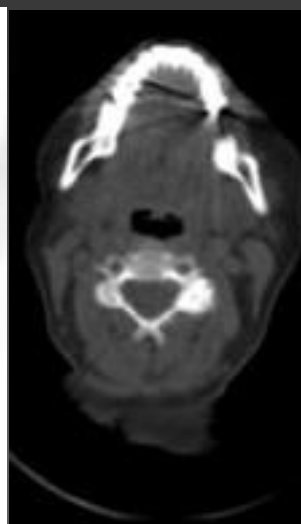
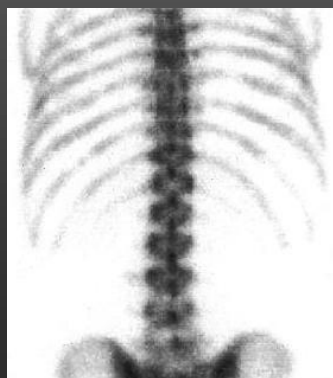
BP fin de ttt d'Ewing : K5



FDG à M3 après #

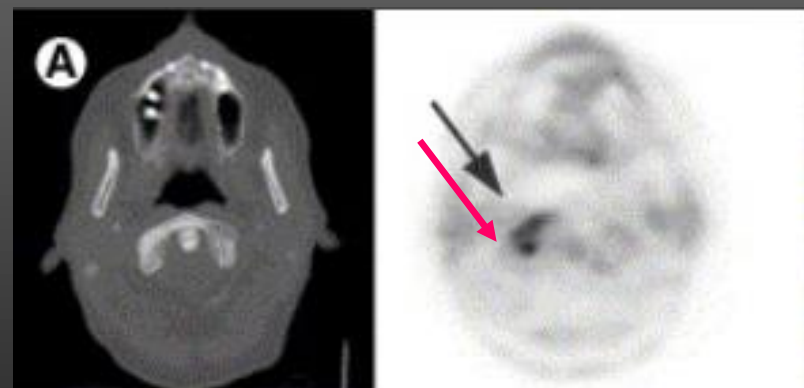
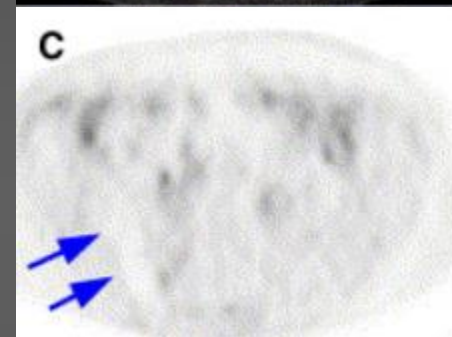
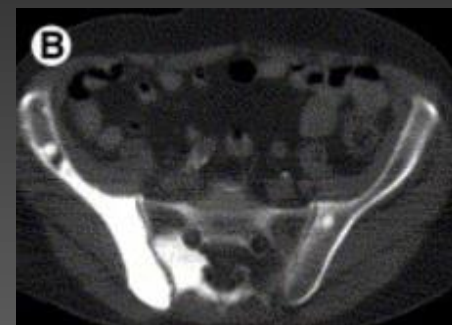
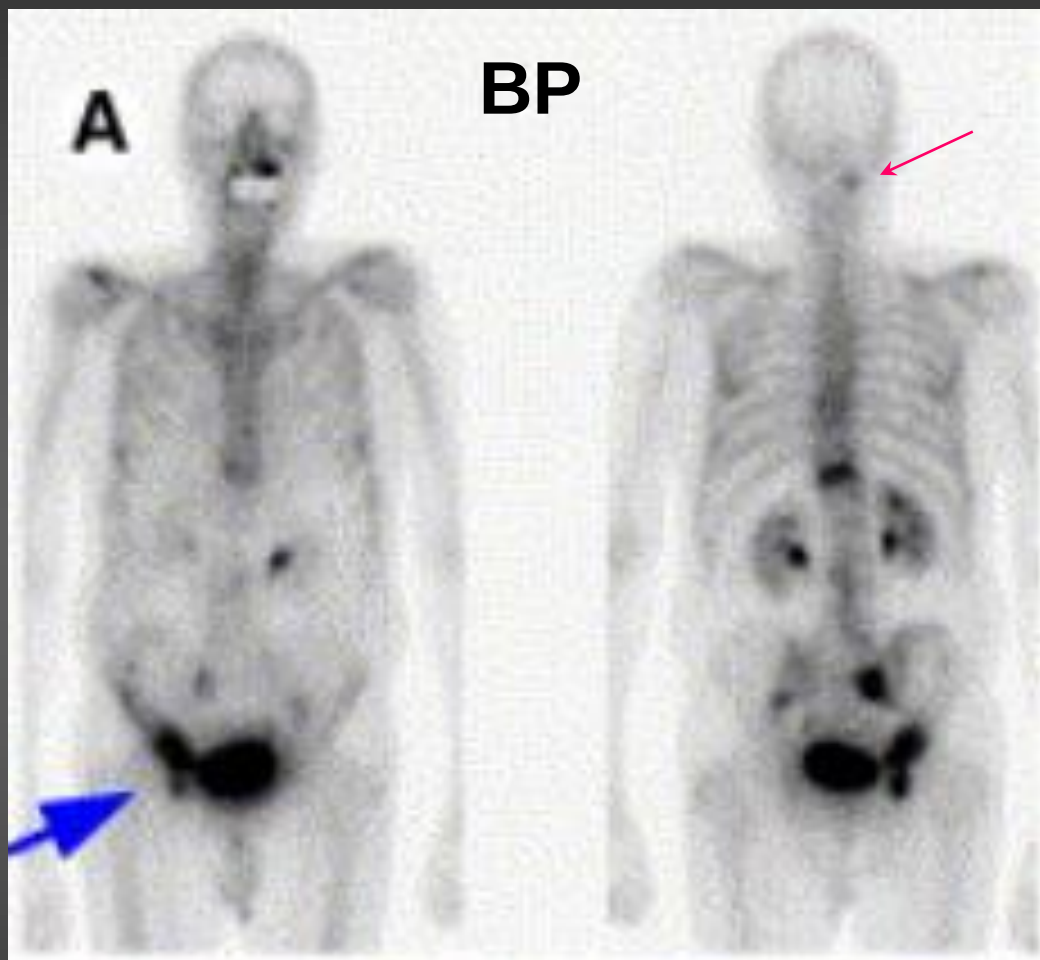


CANCER DU SEIN



FNa

CANCER DE PROSTATE



Se (DP) >> Se(FDG)
18FDG-PET + si méta agressive

FDG

HODGKIN, MYELOMES, LMNH FOLLICULAIRES OU AGRESSIFS



MYELOME

FDG



HODGKIN



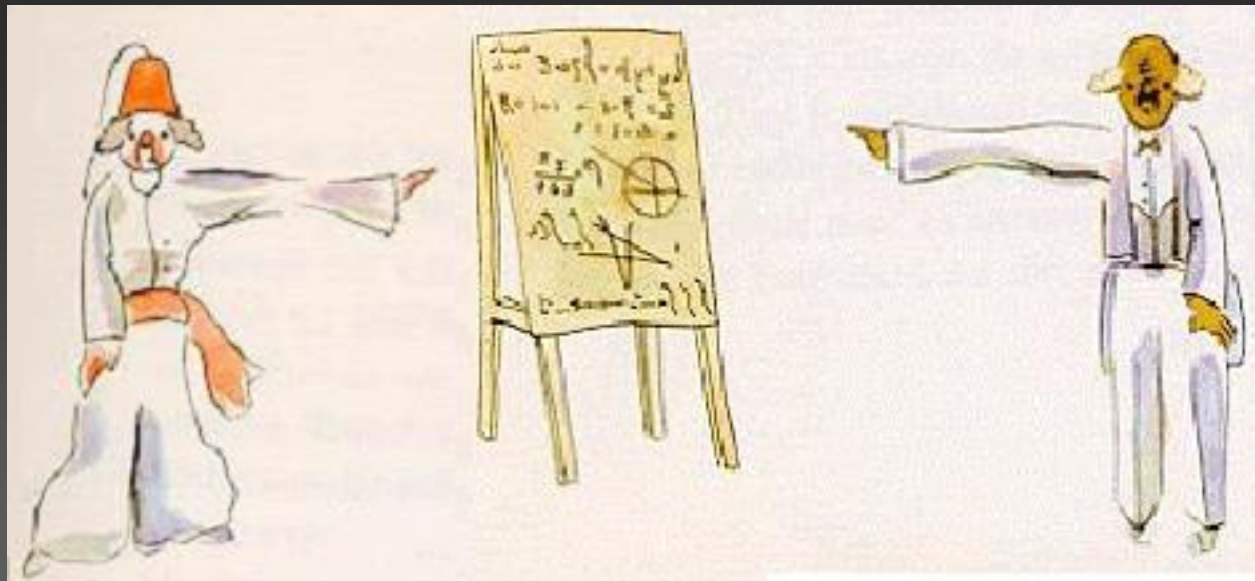
MYELOME Ig D

SYNTHESE SUR LES METASTASES OSSEUSES

	Tc-HDP ou FNa	F-DG
prostate, carcinoïde, CMT (ostéocondensant)	+	FN sauf si agressif
Thyroïde (lytique, sauf rein), MH, LMNH agressif ou folliculaire, myélome		+
Sarcomes (BE, suivi)	+/-	+
poumon, sein, col de l'utérus, ovaire, testicule, digestif	+ (Se sein ?)	+ (Sp ?)
Résolution	1 cm	1/2 cm
Tissus mous	- sauf ossification	+
Flare, fractures	6 mois	3 mois

Bibliographie « didactique »

- Scintigraphie de l'appareil locomoteur. Paycha F et Richard B.
Encycl Méd Chir Appareil locomoteur. 14-001-Q-10, 2002, 21 p.
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Merci de votre attention...