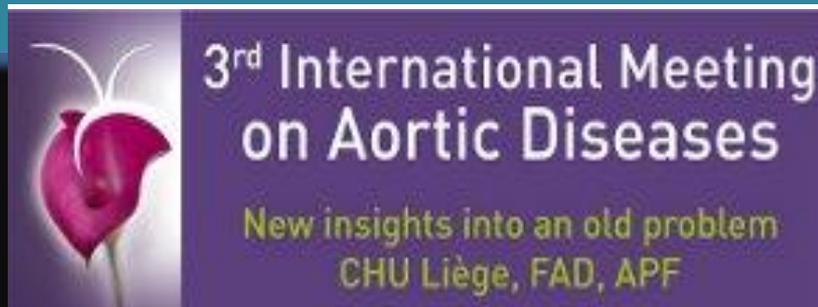




Functional imaging and outcome of the aortic dissection

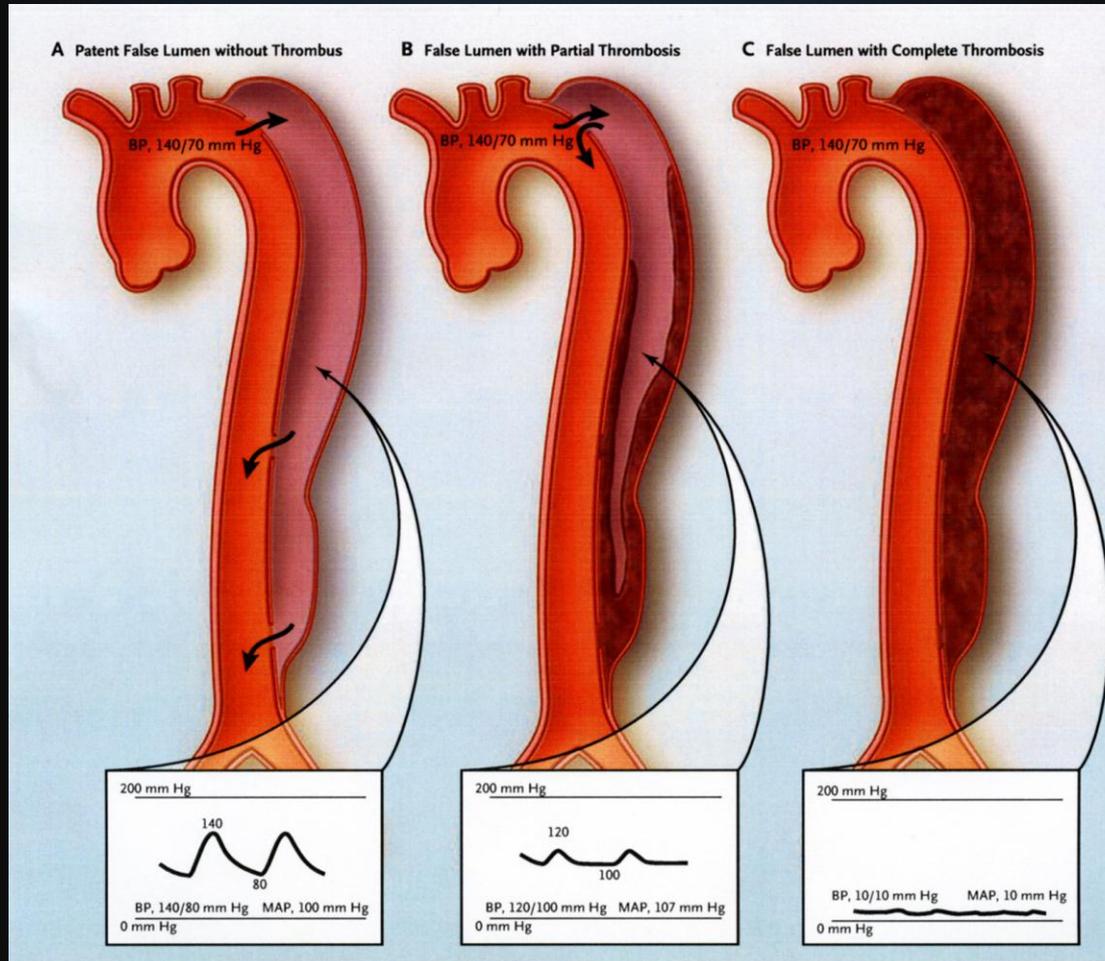


Sakalihasan Natzi MD, PhD

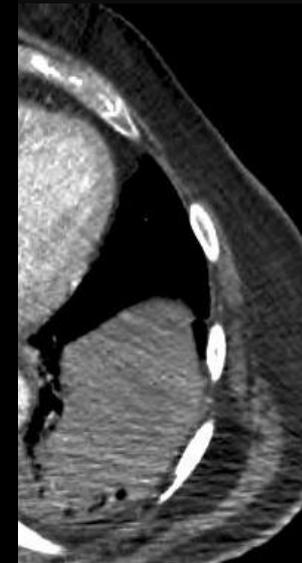
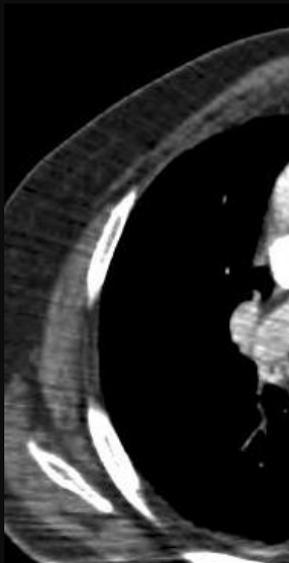
Department of Cardiovascular and Thoracic Surgery

CHU LIEGE, BELGIUM

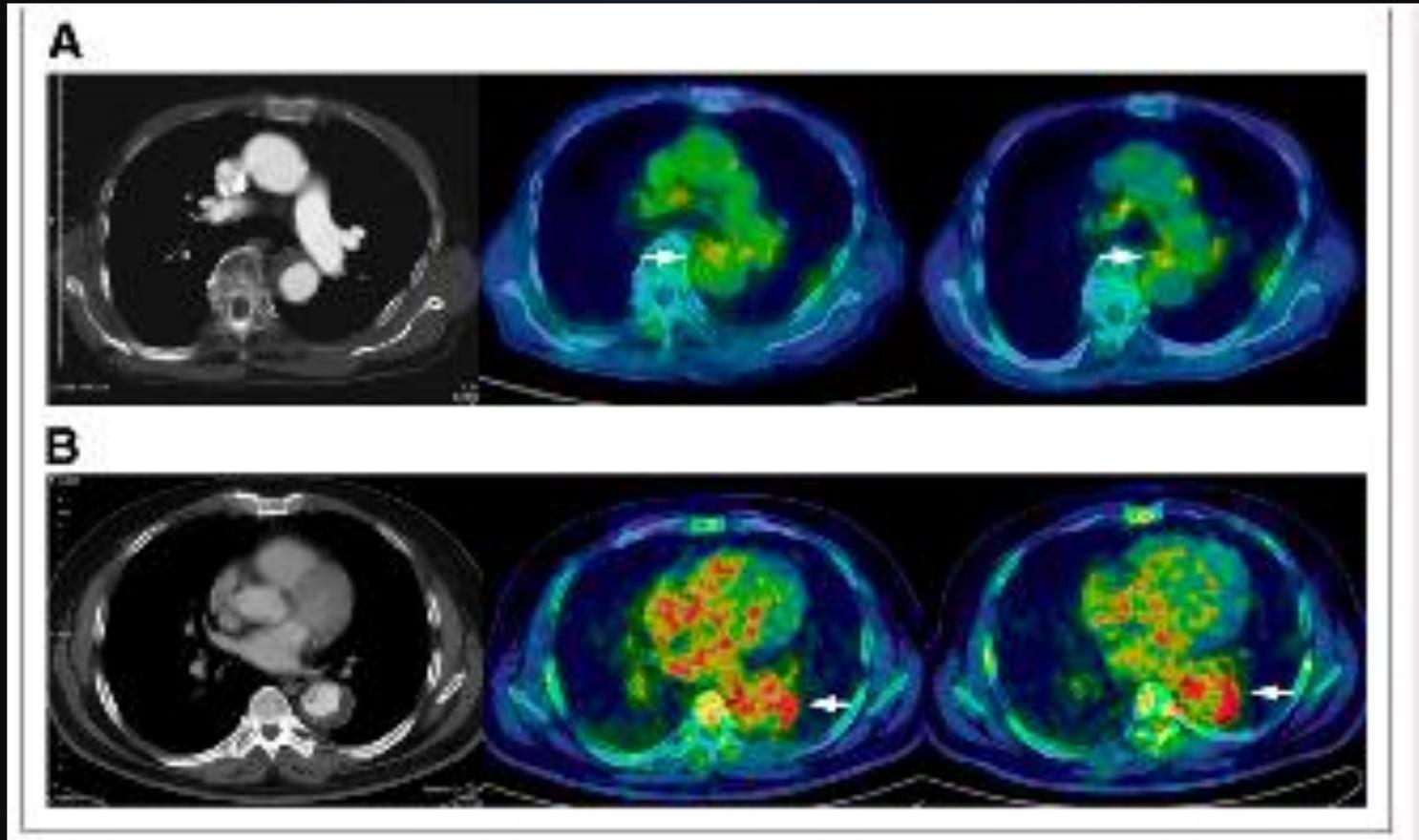
Prognosis of the Type B aortic dissection



Can we predict the complications in Type B dissections?



Uptake of ^{18}F -FDG in acute aortic dissection : a determinant of unfavorable outcome



Material & Methods

23 AORTIC DISSECTIONS

(17 males and 6 females)

with mean age of 64.2 years

mean follow up 24.2 months

	Male	Female	Total
Type A	5	1	6
Type B	12	5	17
Total	17	6	23

Type A : After surgery for ascending aorta

Type B : Immediately after dissection

Material & Methods

23 AORTIC DISSECTIONS

52 PET-CT examinations

89 CT examinations

Biological analysis:

**MMP9, Elastases, MPO, PAP, D – Dimers, TAT , P - Selectin
Ferritin, Transferrin & CRP**

Prognosis of the aortic dissections, according to the « initial PET-CT »

False Chenal status	Patent	Partial thrombosis	Complete thrombosis	Total
n:	7 (30.4%)	14 (60.9%)	2 (8.7%)	23

Prognosis of the aortic dissections, according to the « initial PET-CT »

False Chenal status	Patent	Partial thrombosis	Complete thrombosis	Total
n:	7 (30.4 %)	14 (60.9 %)	2 (8.7 %)	23
+ FDG uptake (16)	2 (12.5 %)	13 (81.2 %)	1 (6.3 %)	16 (70 %)

Prognosis of the aortic dissections, according to the « initial PET-CT »

False Chenal status	Patent	Partial thrombosis	Complete thrombosis	Total
n:	7 (30.4 %)	14 (60.9 %)	2 (8.7 %)	23
+ FDG uptake (16)	2 (12.5 %)	13 (81.2 %)	1 (6.3 %)	16 (70 %)
- FDG uptake (7)	5 (71.4%)	1 (14.3%)	1 (14.3%)	7 (30 %)

Association between Aneurysm formation, initial PET-CT and status of the false chenal

False chenal status	partial thrombosis	Patent	complete thrombosis	Total Patient
	14	7	2	23
Total aneurysm	11 (78,6 %)	1 (14,3 %)	0	12 (52,2 %)

Association between Aneurysm formation, initial PET-CT and status of the false chenal

False chenal status	partial thrombosis	Patent	complete thrombosis	Total Patient
	14	7	2	23
Total aneurysm	11 (78,6 %)	1 (14,3 %)	0	12 (52,2 %)
+ FDG uptake 16	10 (62.5%)	0	0	10 (62.5 %)

Association between Aneurysm formation, initial PET-CT and status of the false chenal

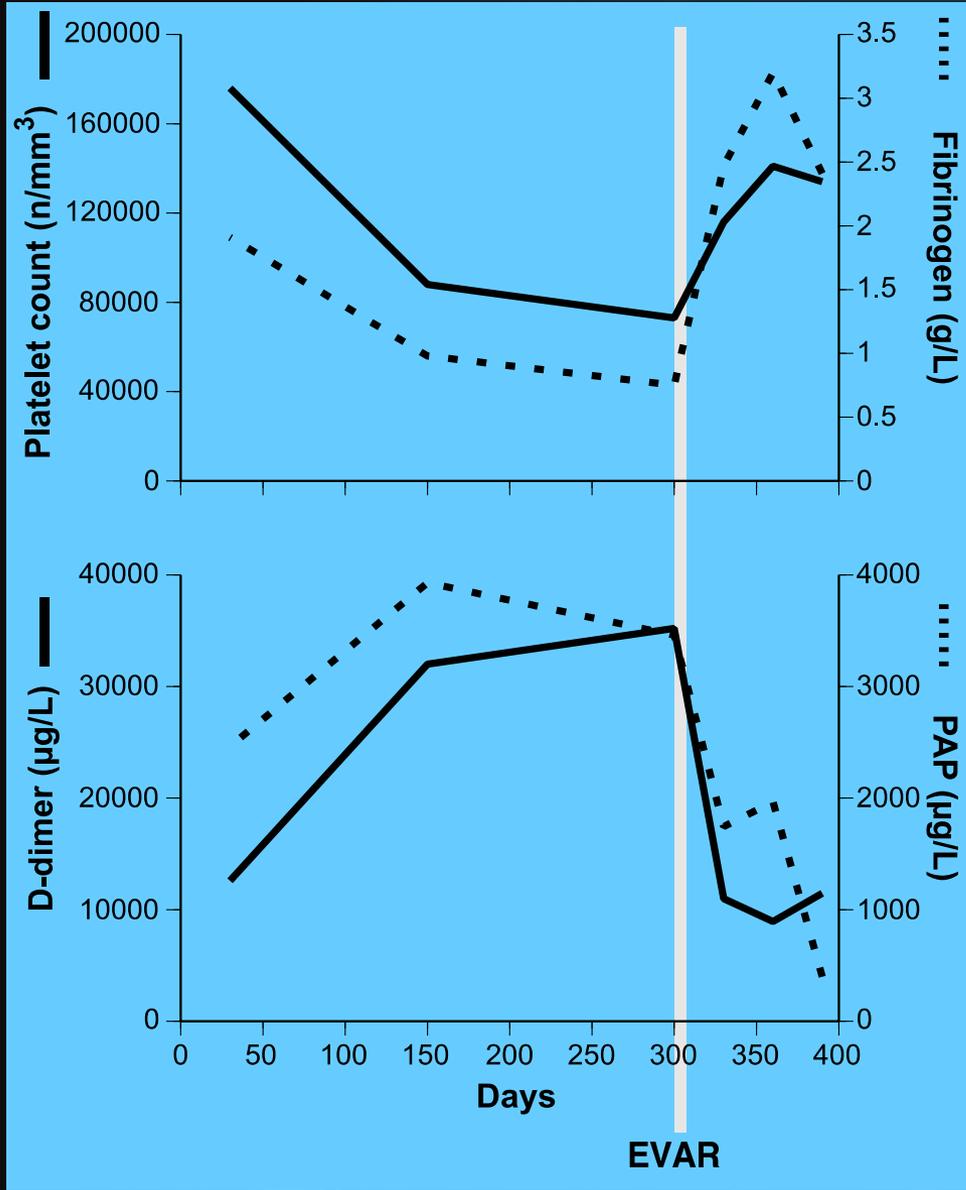
False chenal status	Partial thrombosis	Patent	Complete thrombosis	Total Patient
	14	7	2	23
Total aneurysm	11 (78,6 %)	1 (14,3 %)	0	12 (52,2 %)
+ FDG uptake 16	10 (62.5%)	0	0	10 (62.5 %)
- FDG uptake 7	1 (14.3%)	1 (14.3%)	0	2 (28.6%)

Association between False lumen status, Aneurysm formation (aortic diameter), (+) FDG uptake and biological parameters

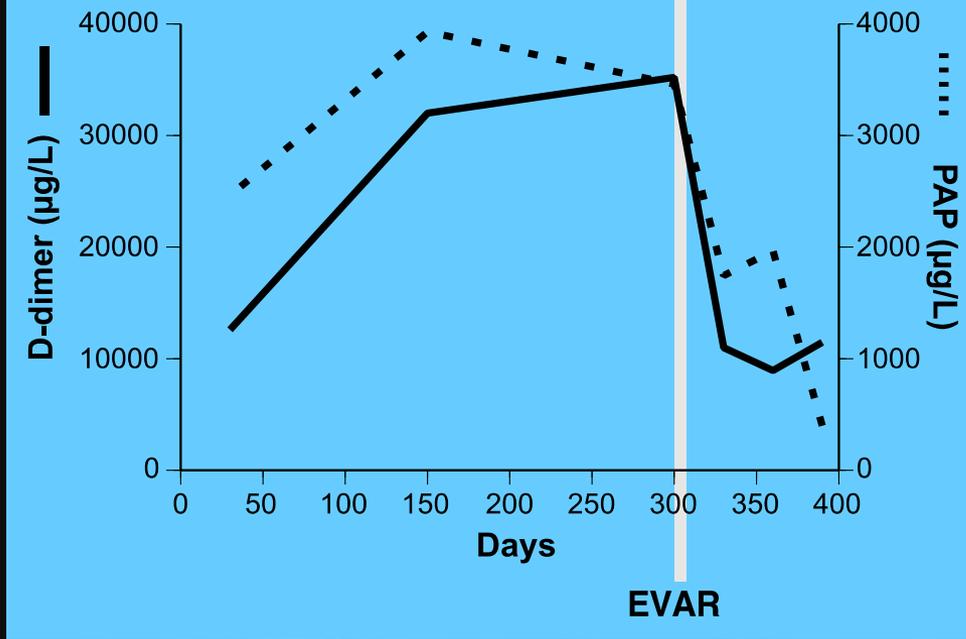
	False lumen with partial thrombosis	Aneurysm formation	+ FDG uptake
MMP-9	P < 0,017	P < 0,01	P < 0,6
D-Dimers	P < 0,001	P < 0,001	P < 0,3
PAP	P < 0,002	P < 0,001	P < 0,1
TAT	P < 0,007	P < 0,007	P < 0,05
SUV max	P < 0,05	P < 0,02	P < 0,001
P-Selectin	P < 0,008	P < 0,001	P < 0,8

Kruskal - Wallis Test

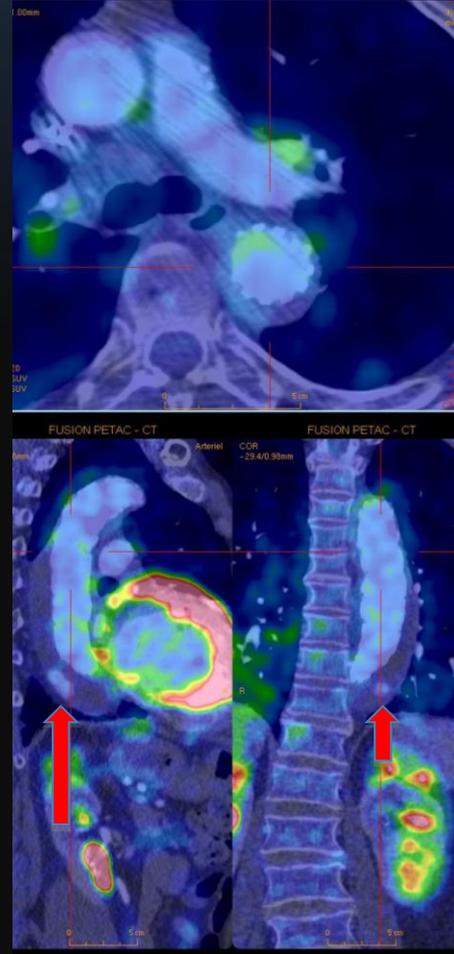
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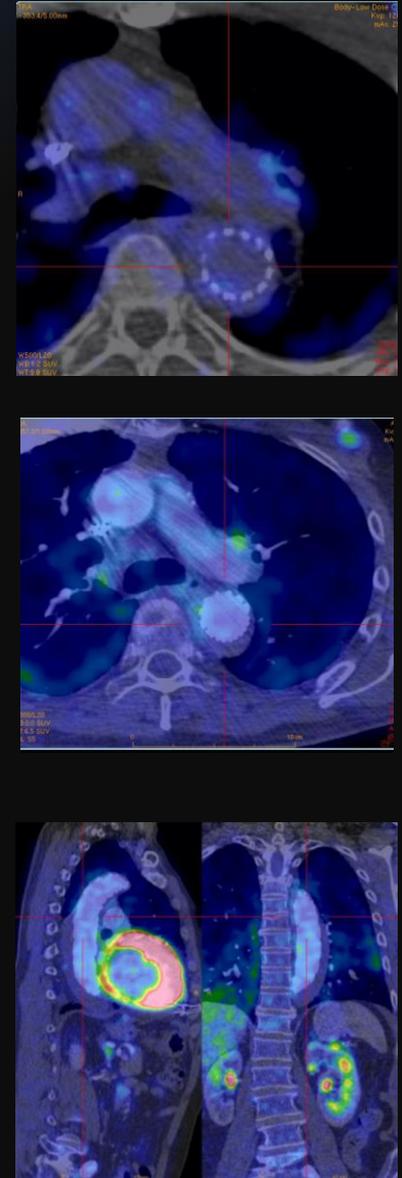
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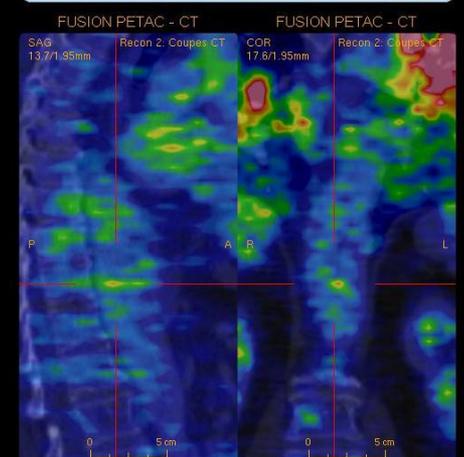
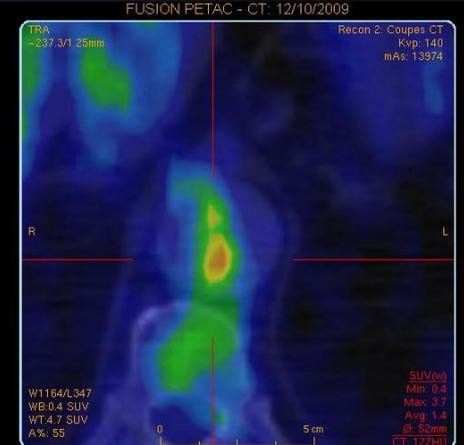
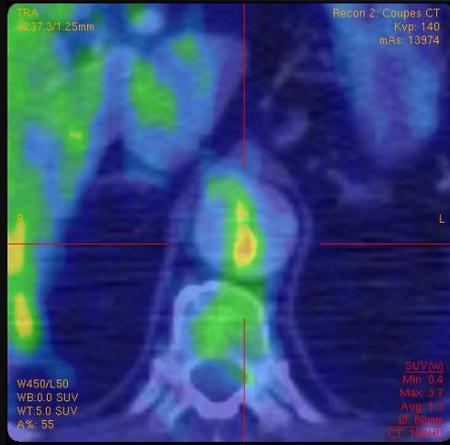
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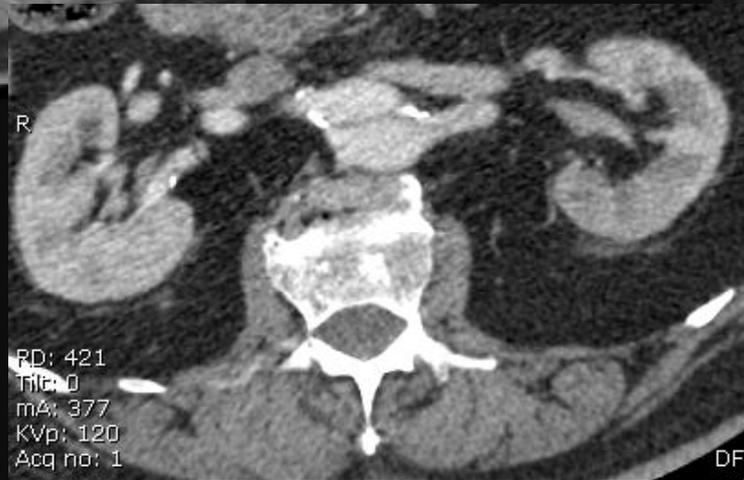
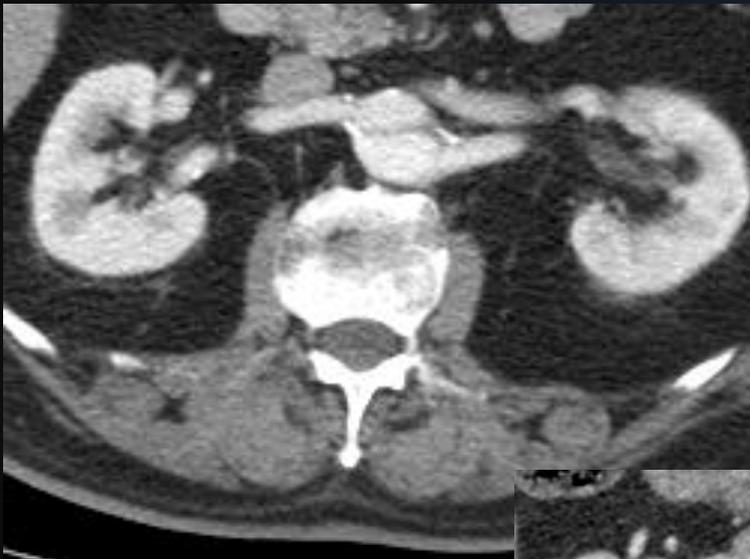
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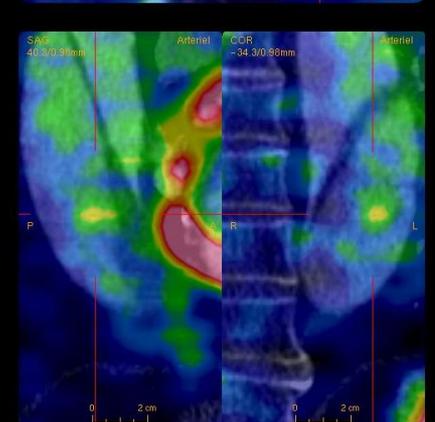
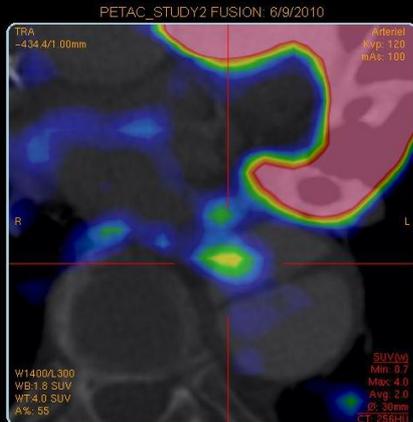
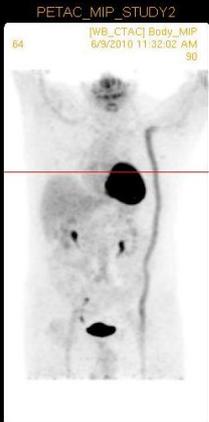
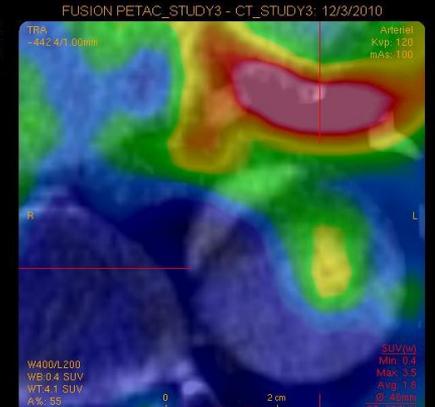
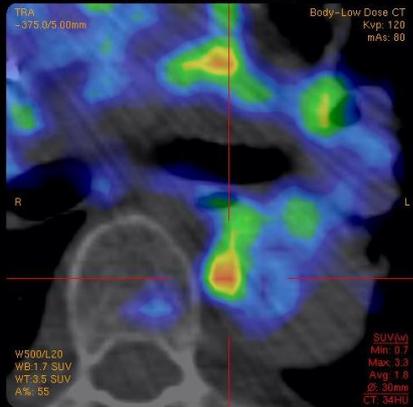
Patent false lumen without thrombus



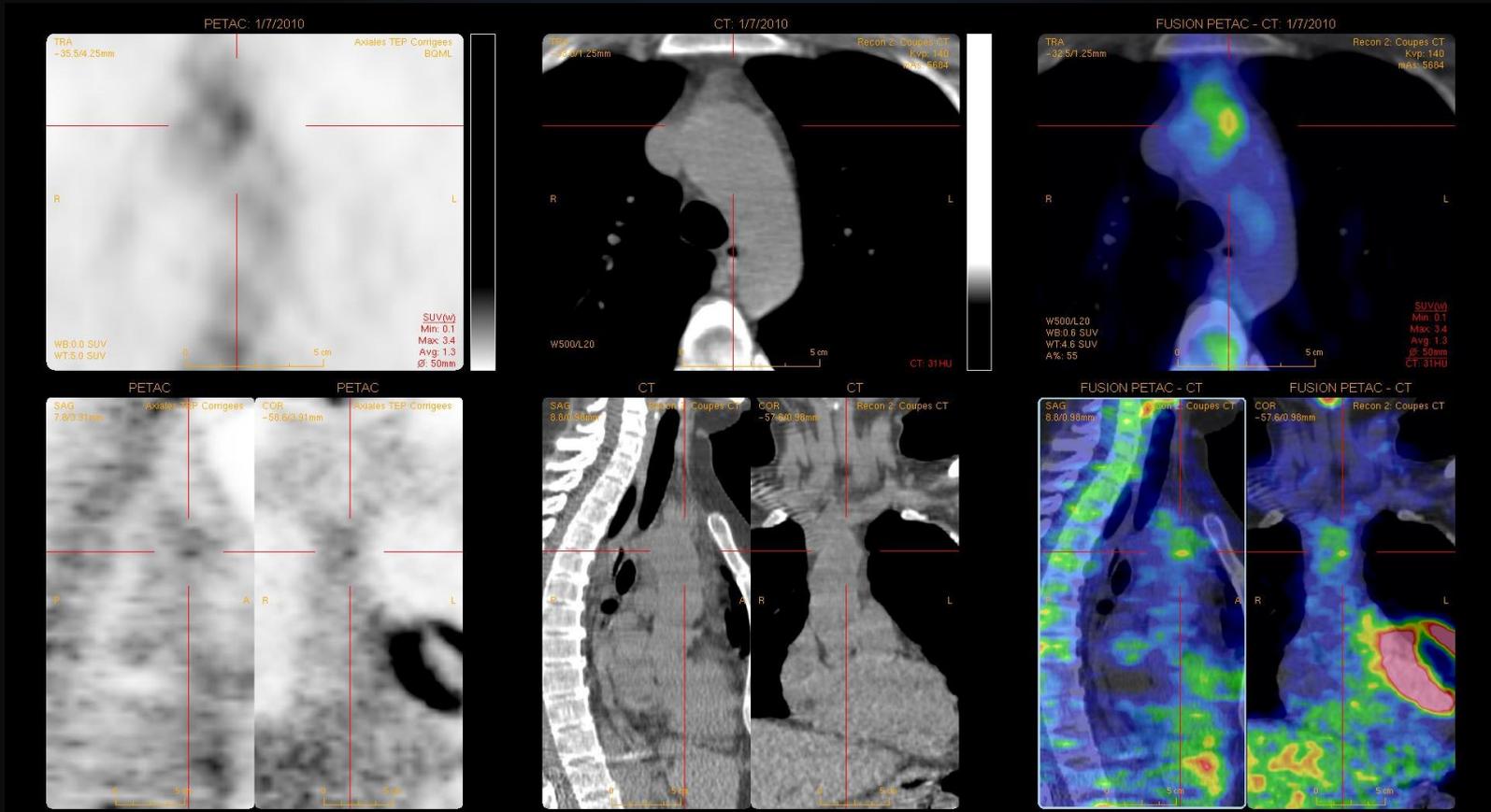
Patent false chenal without thrombus



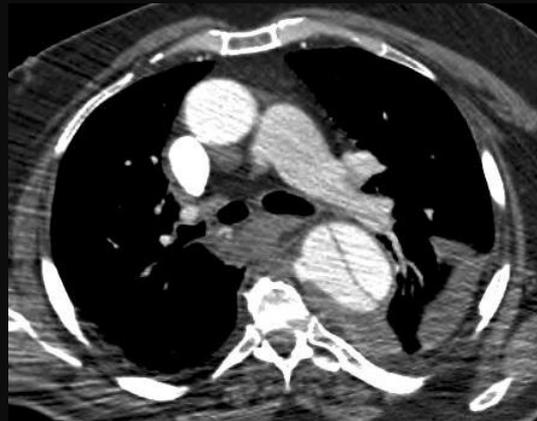
False lumen with partial thrombosis



False lumen with complete thrombosis



Complicated Acute Type B Aortic dissection



Type B dissection

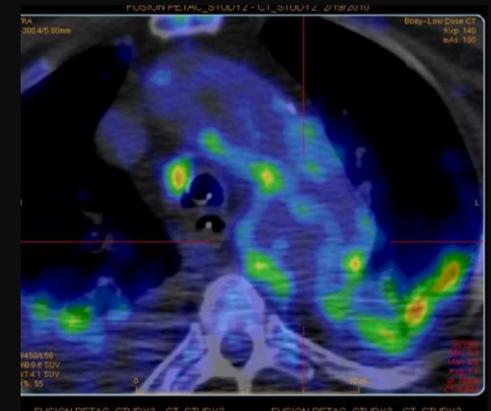
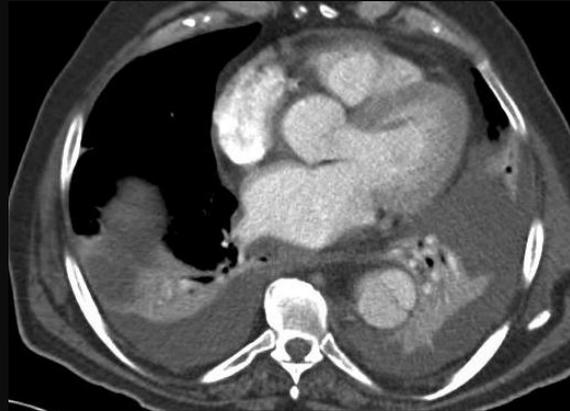
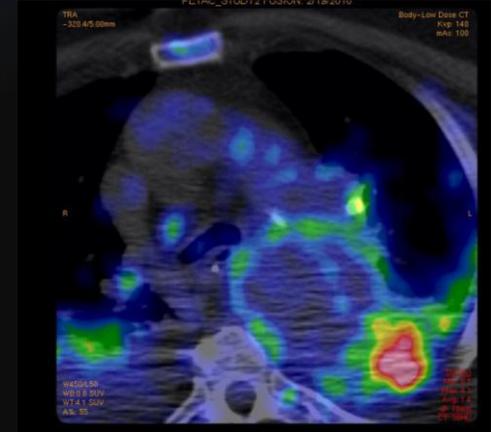
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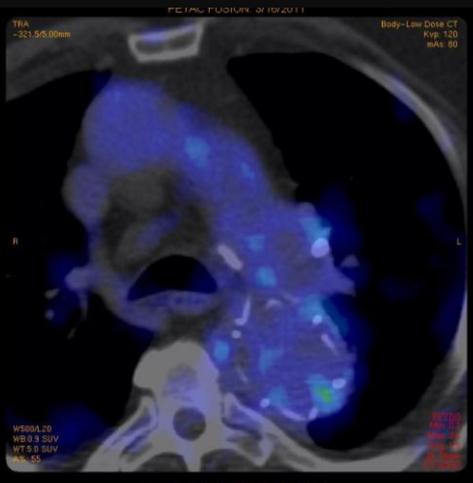
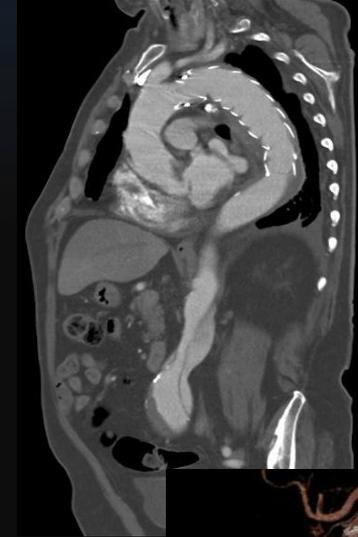
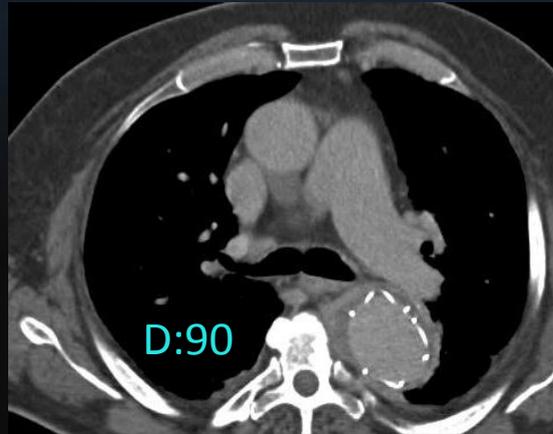
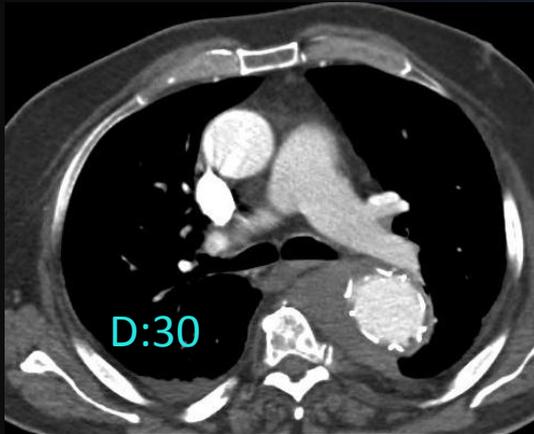
1 week later



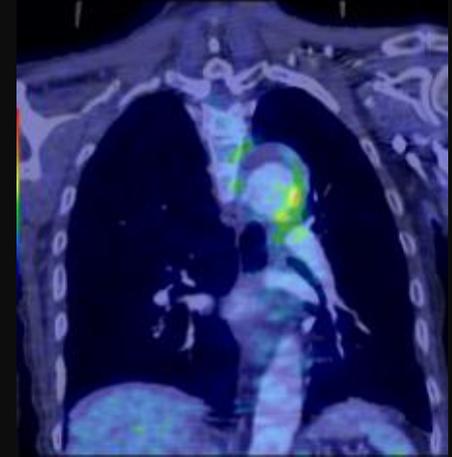
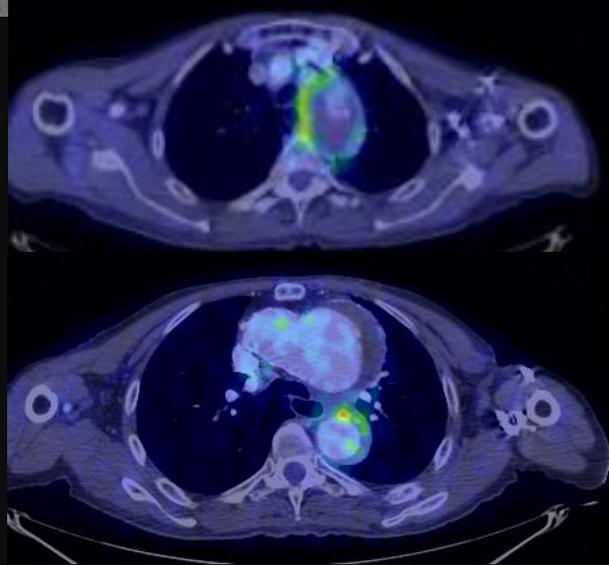
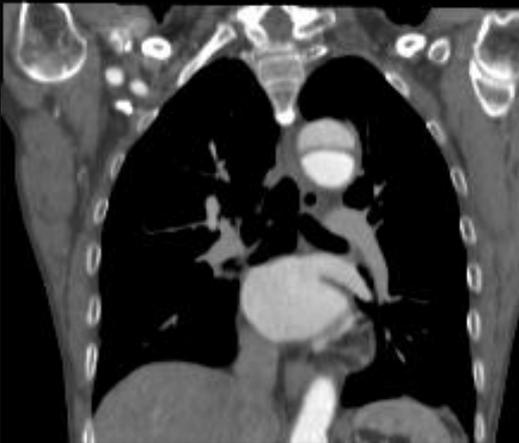
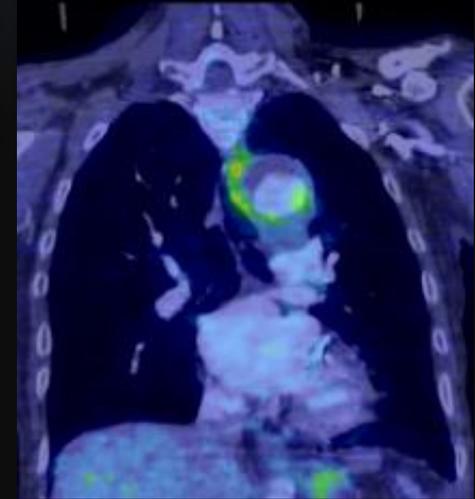
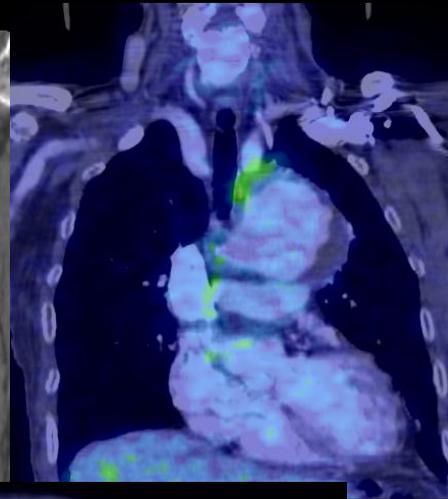
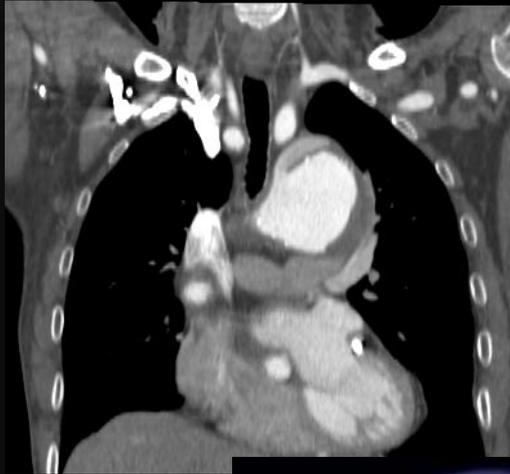
PET-CT



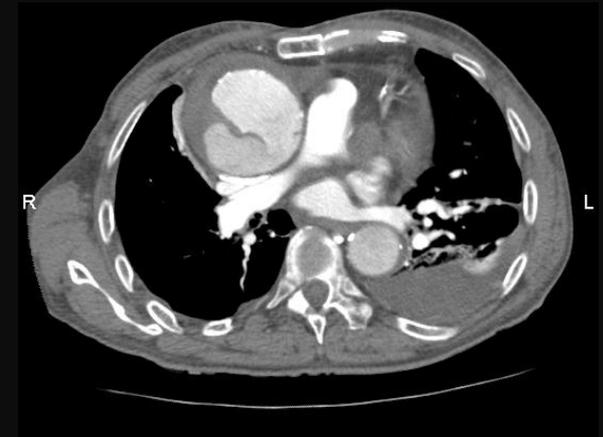
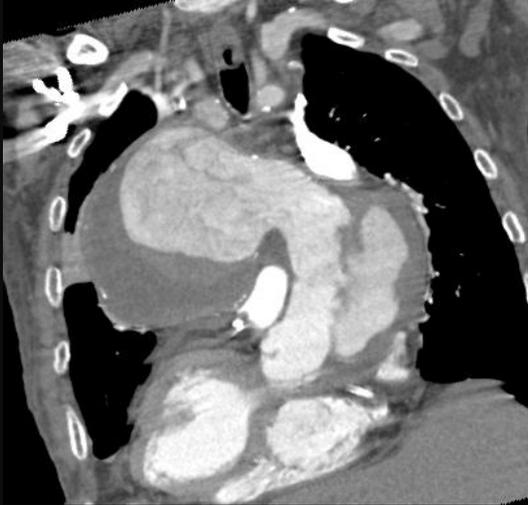
Outcome of the type B dissection after TEVAR



FDG uptake at the level of the partially thrombosed false chenal



Outcome of the Type B dissection



Conclusion

In the present study the partially thrombosed false lumen and the aortic wall revealed elevated 18F-FDG uptake. This high FDG uptake is associated with increased D-Dimer level, PAP and TAT complexes. These observations are suggesting a direct or indirect relationship between the platelet, fibrinogen consumption and fibrinolysis.

In our series the association between aneurismal evolution of the dissection and partially thrombosed false channel was highly significant (Fisher's Exact Test, $p < 0.001$).

PET-CT examination, in patients with initially non-complicated type B dissection may help to select patients for endovascular repair.



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Pr Creemers Etienne	(CHU, Belgium)
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