

USEFULNESS OF SPECT-CT WITH RADIOISOTOPE LABELED LEUCOCYTES FOR DIAGNOSIS OF LEAD-DEPENDENT INFECTIVE ENDOCARDITIS

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Aim of the study

To evaluate the diagnostics accuracy of SPECT-CT with radioisotope labeled leucocytes (SCY) in patients with suspected LDIE.

Methods

Study population consisted of 11 patients (2F +9M), mean age 69.8 ± 11.9 years, with different types of CIED and intracavitary masses (vegetation/thrombus) detected by TTE/TEE.

Methods

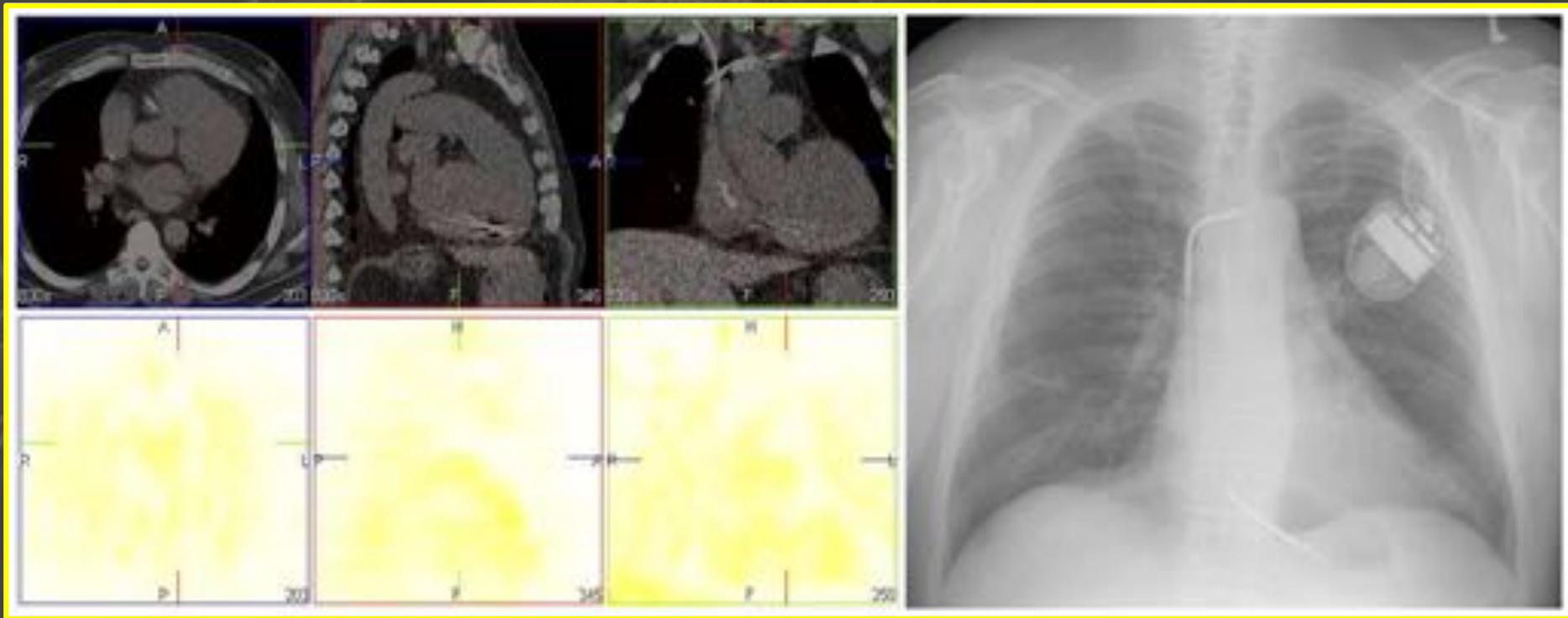
In every patient SPECT-CT with radioisotope labeled leucocytes (SCY) was performed:

- ^{99m}Tc - isotope, $T_{1/2}$ - 6h,
- long labeling process (2-3h) requiring ca. 40-50ml of patients blood,
- dose 300-925MBq, imaging 4 – 24h after administration,
- collimator LEAP, WB + SPECT/CT.

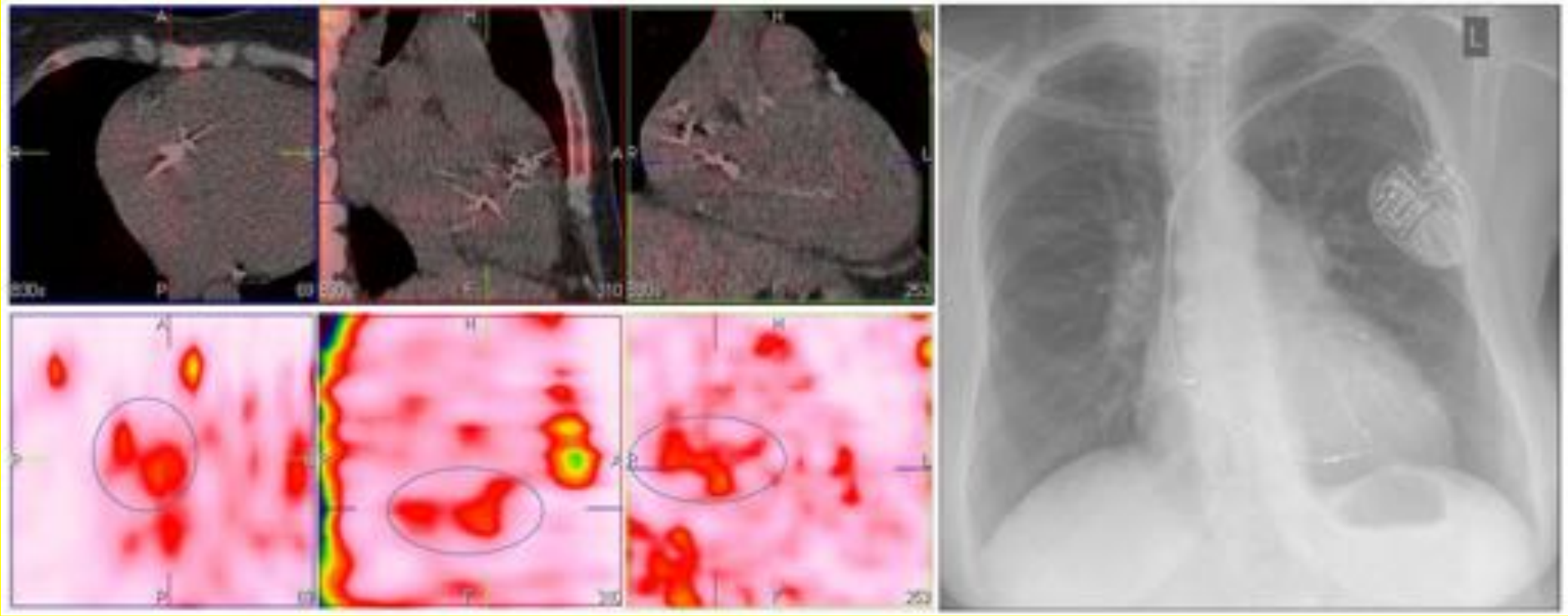
Methods

Transvenous lead extraction (TLE) was performed according to modified Duke criteria (ESC Guidelines 2009).

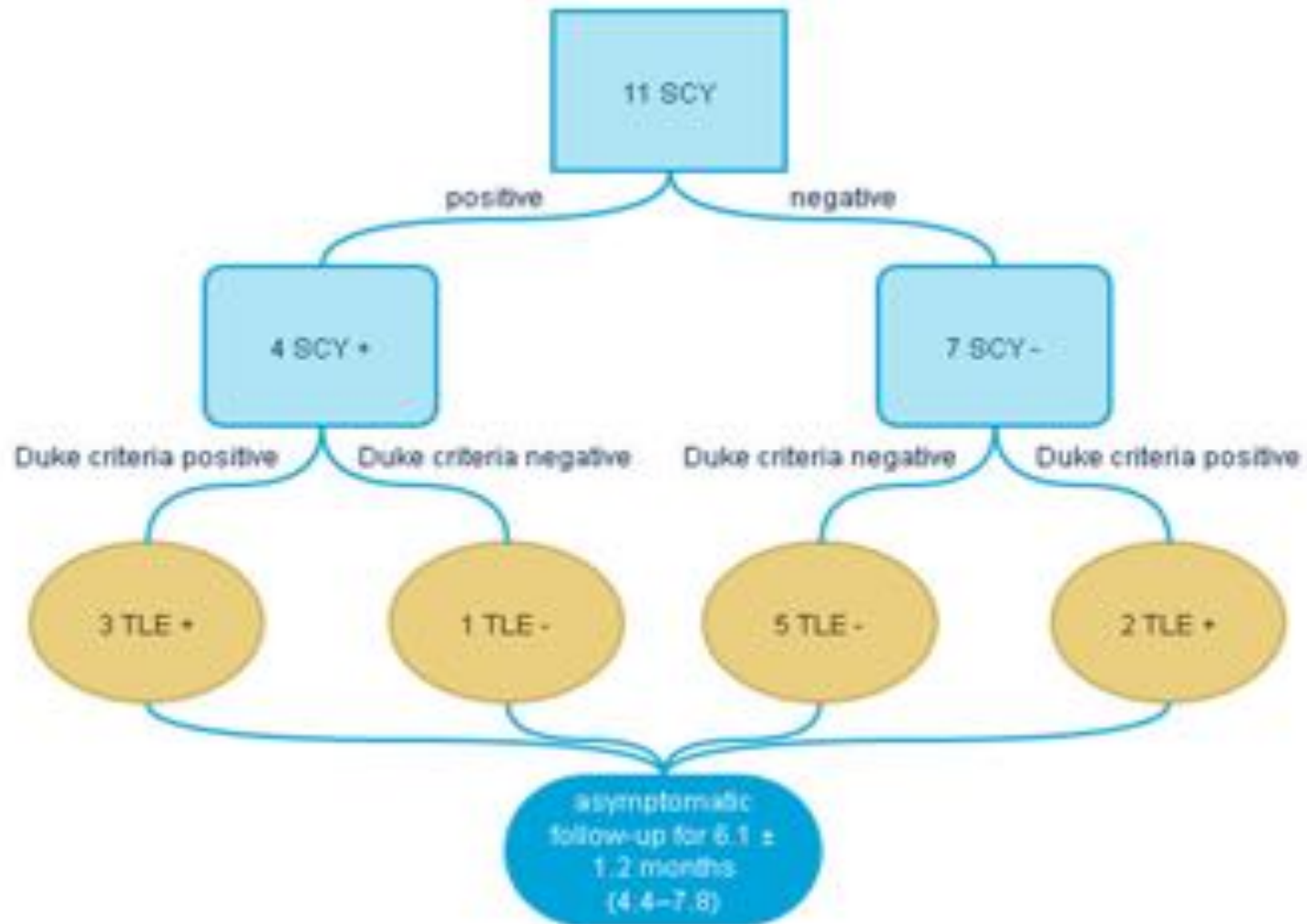
Negative SPECT-CT



Positive SPECT-CT



Results



Results

		Modified Duke Criteria		Predictive value
		+	-	
SCY	+	3	1	PPV = 75.0%
	-	2	5	NPV = 71.4%
Sensitivity/specificity		Sensitivity = 60.0%	Specificity = 83.3%	

- SCY in 11 patients population showed a sensitivity of 60% and specificity of 83.3%.
- Positive predictive value (PPV) and negative predictive value (NPV) of the procedure were found to be 75% and 71.4%, respectively.

Results

		Modified Duke criteria		Predictive value
		+	-	
SCY	+	3	1	PPV = 75.0%
	-	0	5	NPV = 100.0%
Sensitivity/specificity		Sensitivity = 100.0%	Specificity = 83.3%	

- After the exclusion of 2 patients due to preceding antibiotic use and evaluation of SCY in 9 patients it showed a sensitivity of 100% and specificity of 83.3%.
- PPV of 75% and NPV of 100% in the diagnosis of LDIE.

Conclusions

- SCY is an additional tool with high specificity (83.3%) and high NPV which helps to establish LDIE diagnosis in patients with masses vegetation/thrombus attached to the endocavitary leads.
- In patients with firm diagnosis of LDIE according to Duke Criteria the antibiotic therapy caused SCY false negative results.

Thank you for attention

