

Single episode of chest pain post-PTCA, with normal ECG and enzymes

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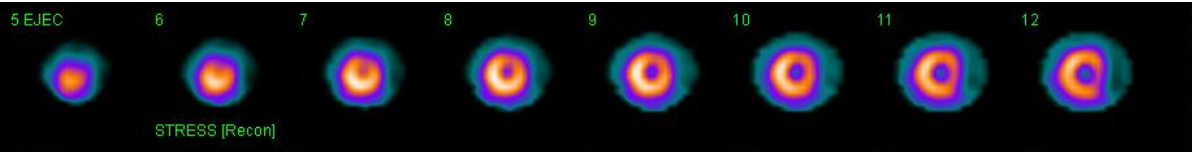


Clinical history

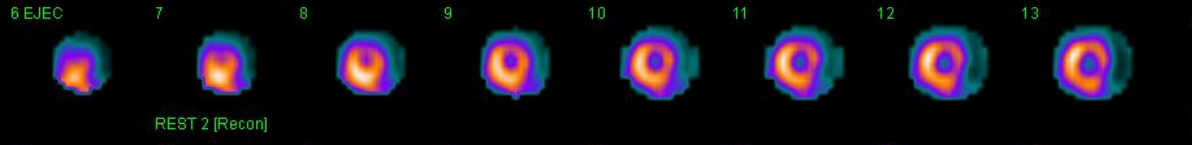
- 54 y.o. woman.
- Smoker, dyslipidemic, asthmatic.
- Acute coronary syndrome 3 ys. ago with PTCA (LCx).
- Admitted for single episode of chest pain radiated to neck.
- Rest ECG and enzymes negative for AMI.
- Submitted for stress MPS with exercise.

Myocardial perfusion study

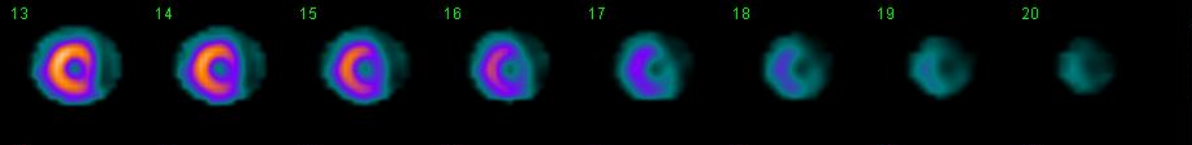
stress



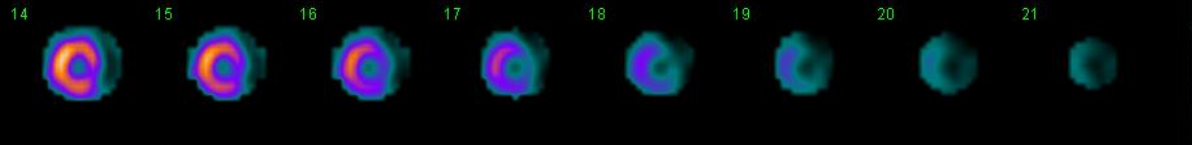
rest



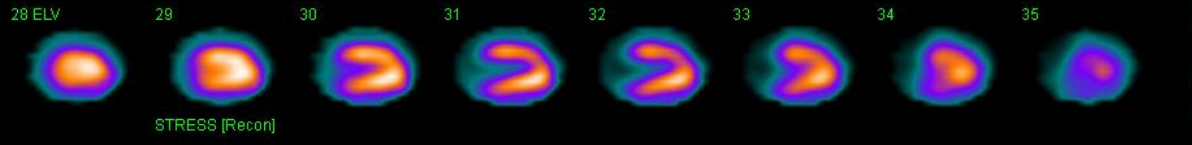
stress



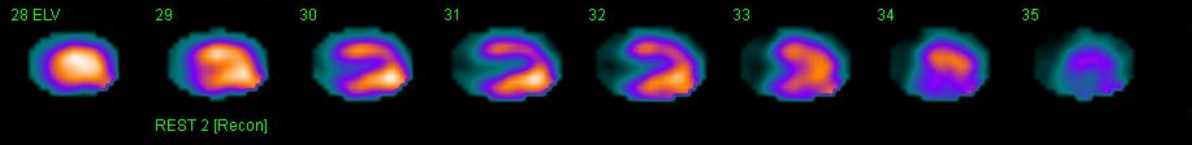
rest



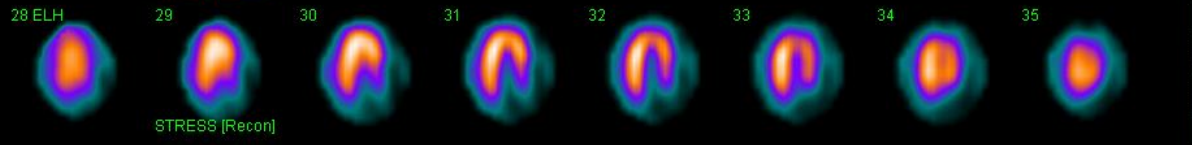
stress



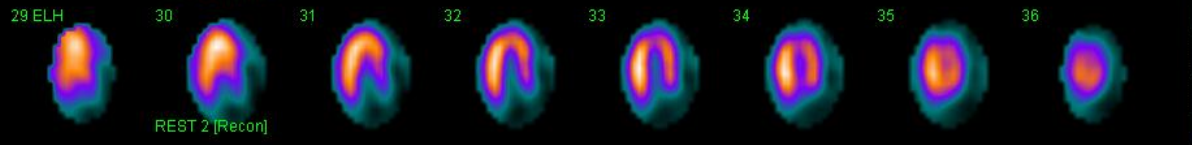
rest



stress



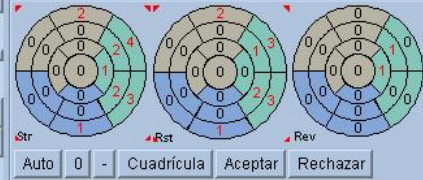
rest



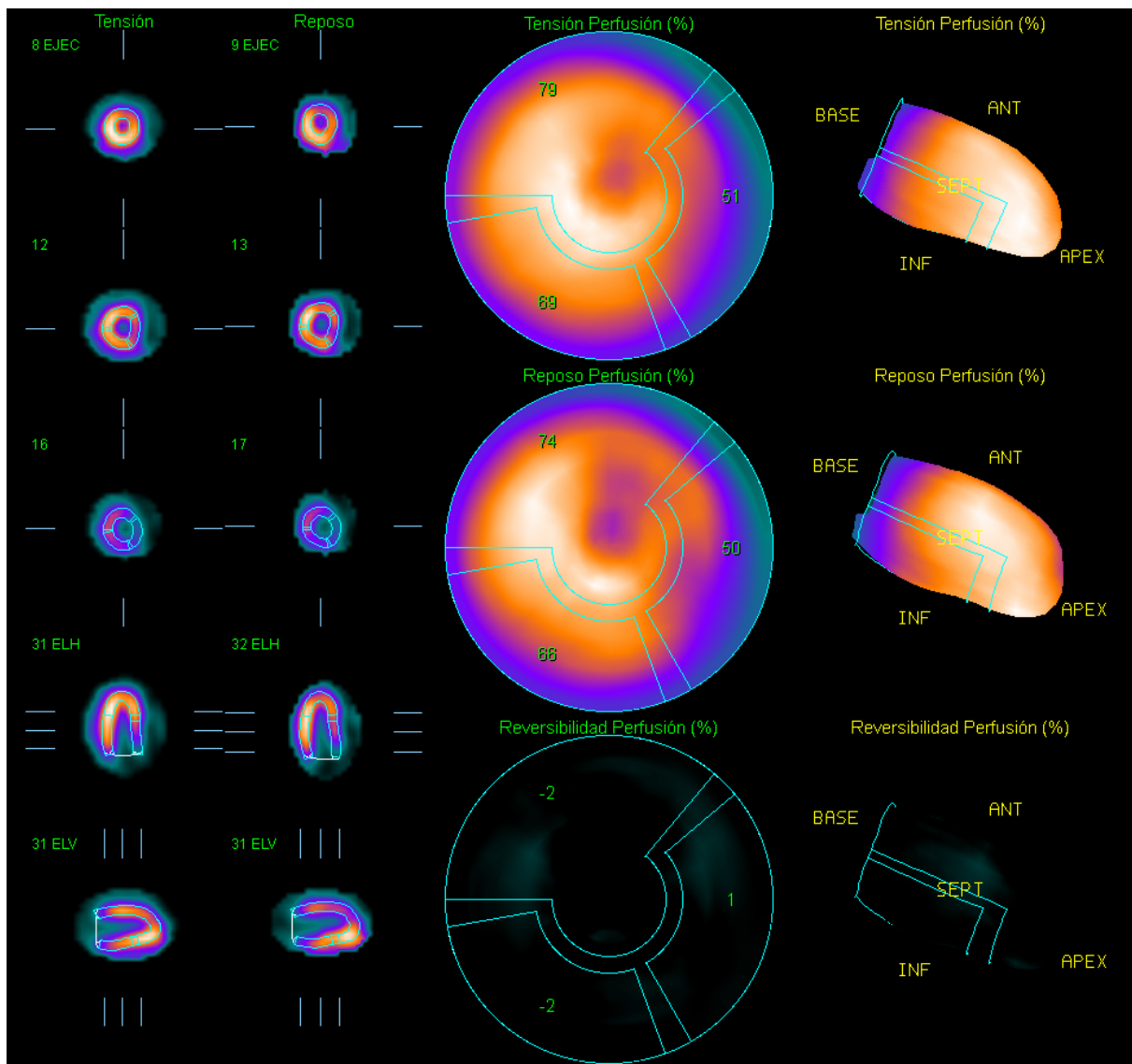
Nombre					
ID de pac	15893785				
Sexo	FEMENINO				
Límites	--				
SSS	14	SRS	11	SDS	2
SS%	21	SR%	16	SD%	3

Estudio	SPECT MIOCARDICO
Conjunto de	STRESS [Recon]
Fecha	2013-03-19 15:50:28
Base de dati	FemaleStressMB
Volumen	48ml
Área	104cm ²
Defecto	24cm ²
Extensión	23%
TPD	18%
Excentricidad	0.93

Estudio	SPECT MIOCARDICO
Conjunto de	REST 2 [Recon]
Fecha	2013-03-18 18:39:37
Base de dati	FemaleRestMB
Volumen	55ml
Área	115cm ²
Defecto	21cm ²
Extensión	18%
TPD	15%
Excentricidad	0.92



Myocardial perfusion study



Nombre **MORENO, GABRIELA**
 ID de pac **15893785**
 Sexo **FEMENINO**
 Límites --
 SRS **14** SRS **11** SDS **2**
 SS% **21** SR% **16** SD% **3**

Estudio **SPECT MIOCARDICO**
 Conjunto de **STRESS [Recon]**
 Fecha **2013-03-19 15:50:28**
 Base de dat **FemaleStressMB**
 Volumen **48ml**
 Área **104cm²**
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Estudio **SPECT MIOCARDICO**
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 Base de dat **FemaleRestMB**
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	Tensión		Reposo		Rev
	Ext	TPD	Ext	TPD	
DAI	8	3.0	5	2.1	3
ICJ	93	11.7	76	10.7	17
ACD	2	0.6	4	1.0	1
TOTAL	23	17.7	18	15.1	6

The study result is consistent with:

- a) Normal perfusion, congenital abnormality.
- b) Lateral wall infarction.
- c) Normal perfusion, technical artefact.
- d) a & c can be true.

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- There is a pseudo-defect at the basal portion of the lateral wall, but the LV seems to be “mirrored” (see also polar maps) so this is not a true defect but the normal appearance of the proximal septum.
- The finding can be attributed to a congenital abnormality (dextrocardia) or to a technical error during acquisition or processing.

To resolve the matter, you would:

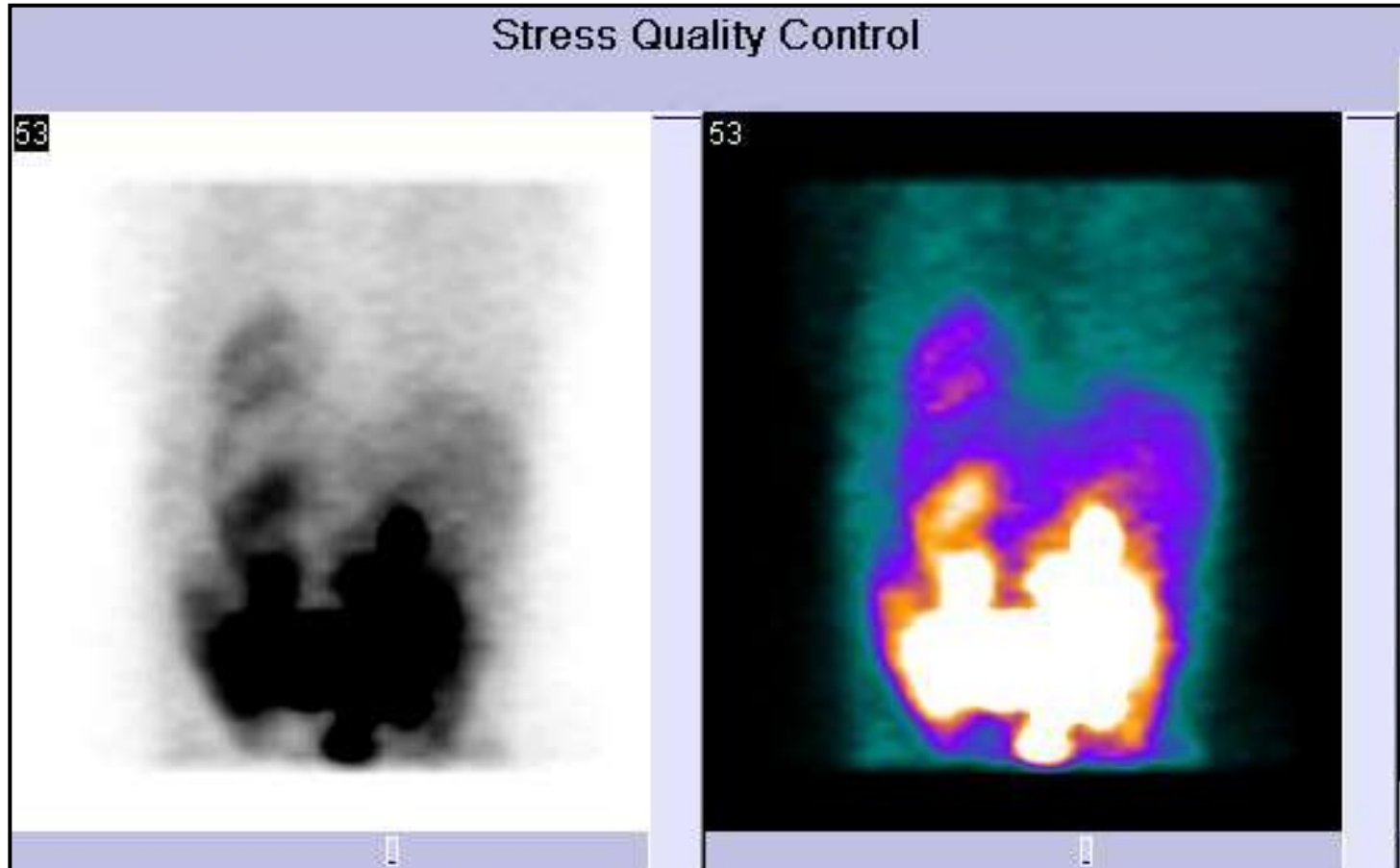
- a) Review the QC acquisition parameters.
- b) Review the ECG.
- c) Examine the patient.
- d) All of the above.

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- a) Review the QC acquisition parameters.
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- d) *All of the above.***

- By reviewing the acquisition parameters, one should identify any major technical errors (i.e. wrong camera rotation or patient positioning), as well as anatomical abnormalities.
- ECG and patient examination (auscultation) could give clues for confirming/excluding congenital abnormalities.

Raw data – anterior projection



- Anterior view of the raw images demonstrating the heart on the right side of the chest and reverse placement of abdominal organs in *situs inversus*.

Follow-up

- Dextrocardia was known because of previous cardiological history including percutaneous intervention.
- ECG was normal but using inverted leads.
- The conclusion was normal stress/rest perfusion study.
- The patient was subsequently discharged and medical treatment optimized.
- No recurrent episodes of chest pain at 6 months.

Teaching points

- Dextrocardia is a congenital defect in which the heart is situated on the right side of the chest.
- There are 2 main types of dextrocardia: isolated dextrocardia and dextrocardia with situs inversus.
- In patients with dextrocardia, 180-degree imaging should be performed on a SPECT camera from the left anterior oblique to right posterior oblique rather than the usual right anterior oblique to left posterior oblique.
- The perfusion images highlight the normal difference in length between the septum and lateral wall as seen in the vertical long-axis views, regardless of cardiac position.

Bibliography

- Danias PG, Manning WJ. Is this right? (...or is it left?). *Circulation* 1999; 100:209-10.
- Turgut B, Kitapci MT, Temiz NH, et al. Thallium-201 myocardial SPECT in a patient with mirror-image dextrocardia and left bundle branch block. *Ann Nucl Med* 2003; 17:503-6.
- Thomas GS, Kawanishi DT. Situs inversus with dextrocardia in the nuclear lab. *American Heart Hospital Journal* 2008; 6:60–62.
- Yusuf SW, Durand JB, Lenihan DJ, Swafford J. Dextrocardia: an incidental finding. *Tex Heart Inst J* 2009; 36:358-9.