2017 ASE Echo Florida, Orlando, FL

Stress Echo Cases

Sunday, October 8, 2016 | 3:10 – 3:30 PM | 20 min

NYU
SCHOOL OF
MEDICINE

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Disclosures

Medtronic & Philips
Speakers' Bureaus

Stress Case #1

CASE PRESENTATION

82-year-old man with history of hypertension,
presents with **exertional chest pain.**

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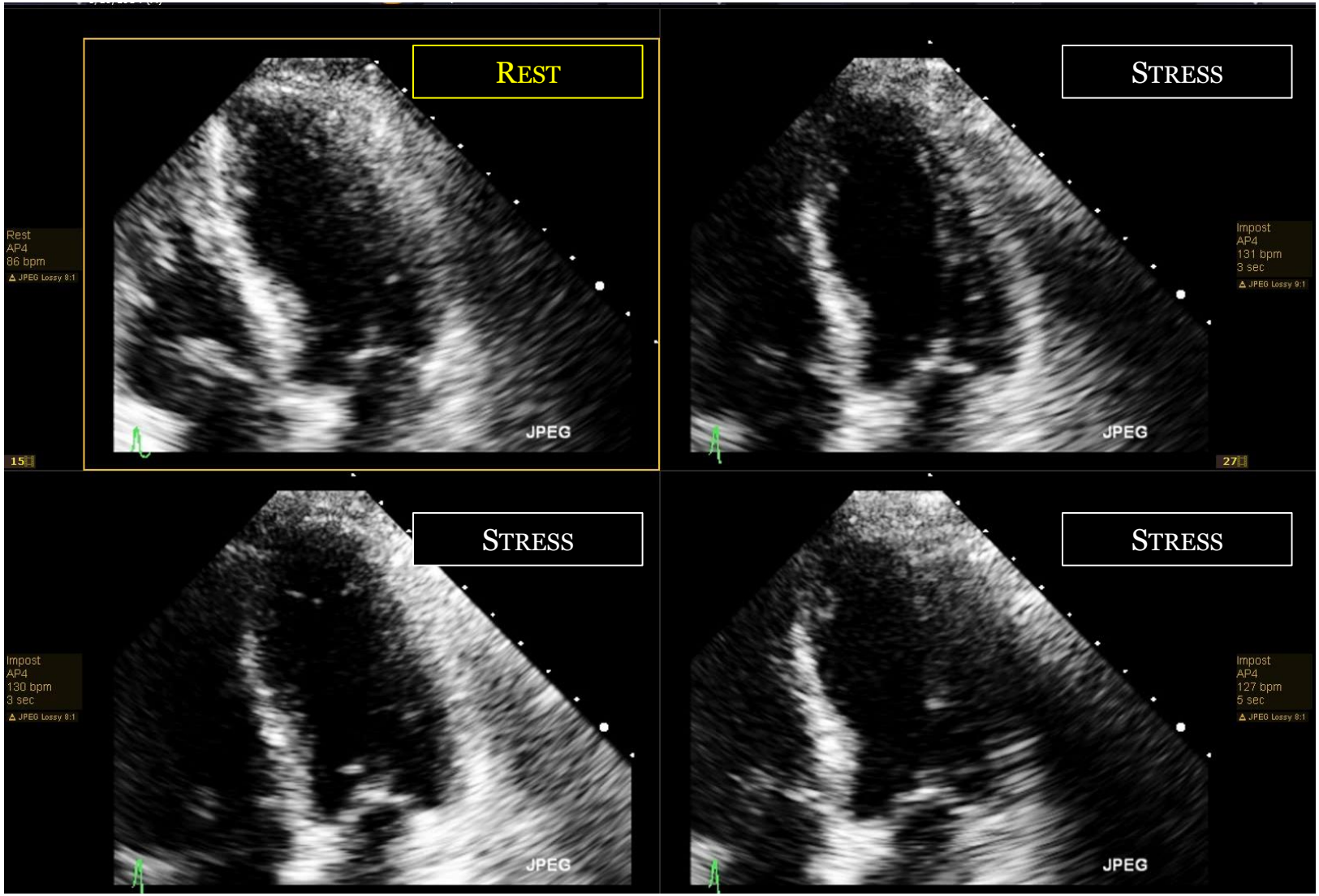
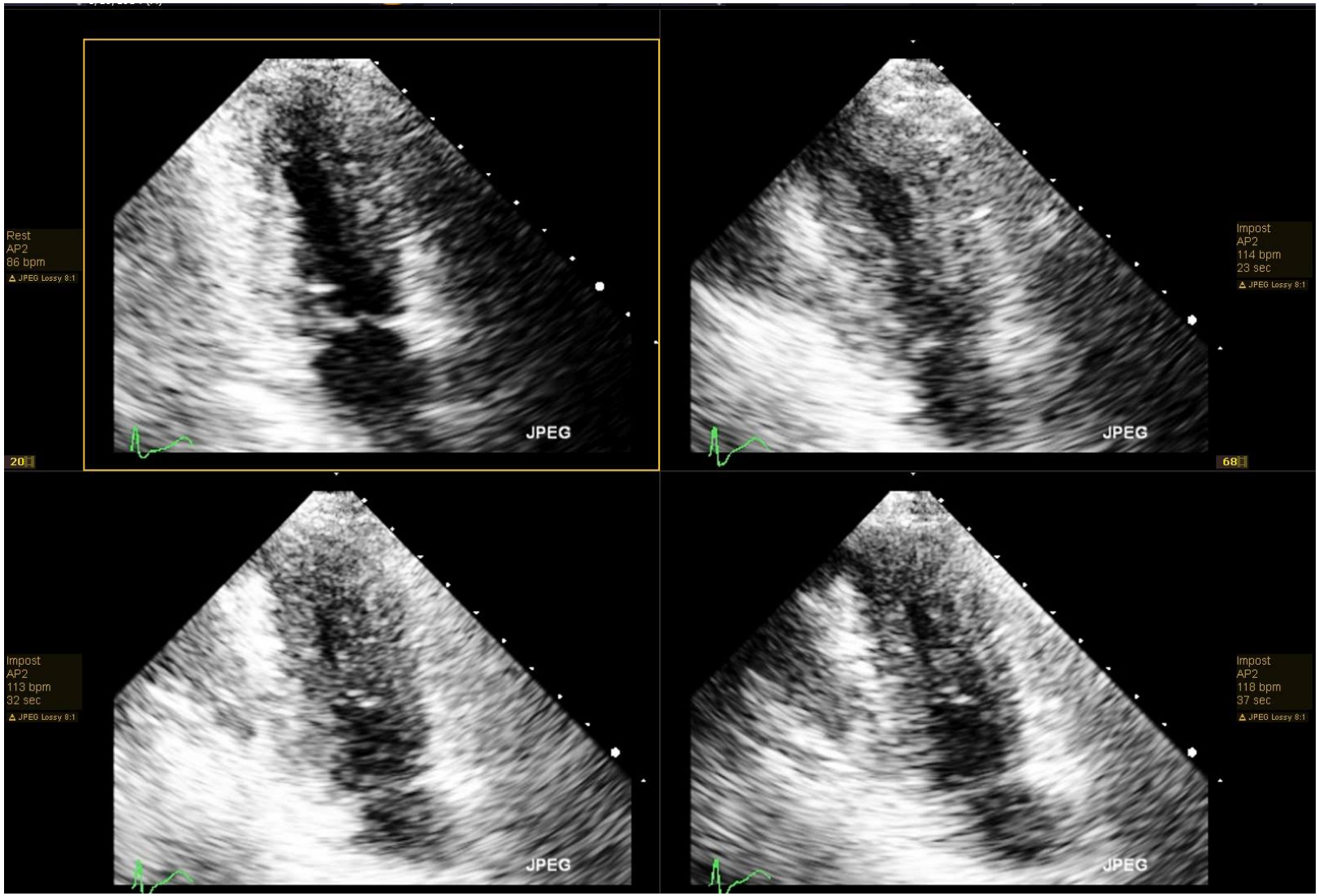
Referred for **exercise** stress echo

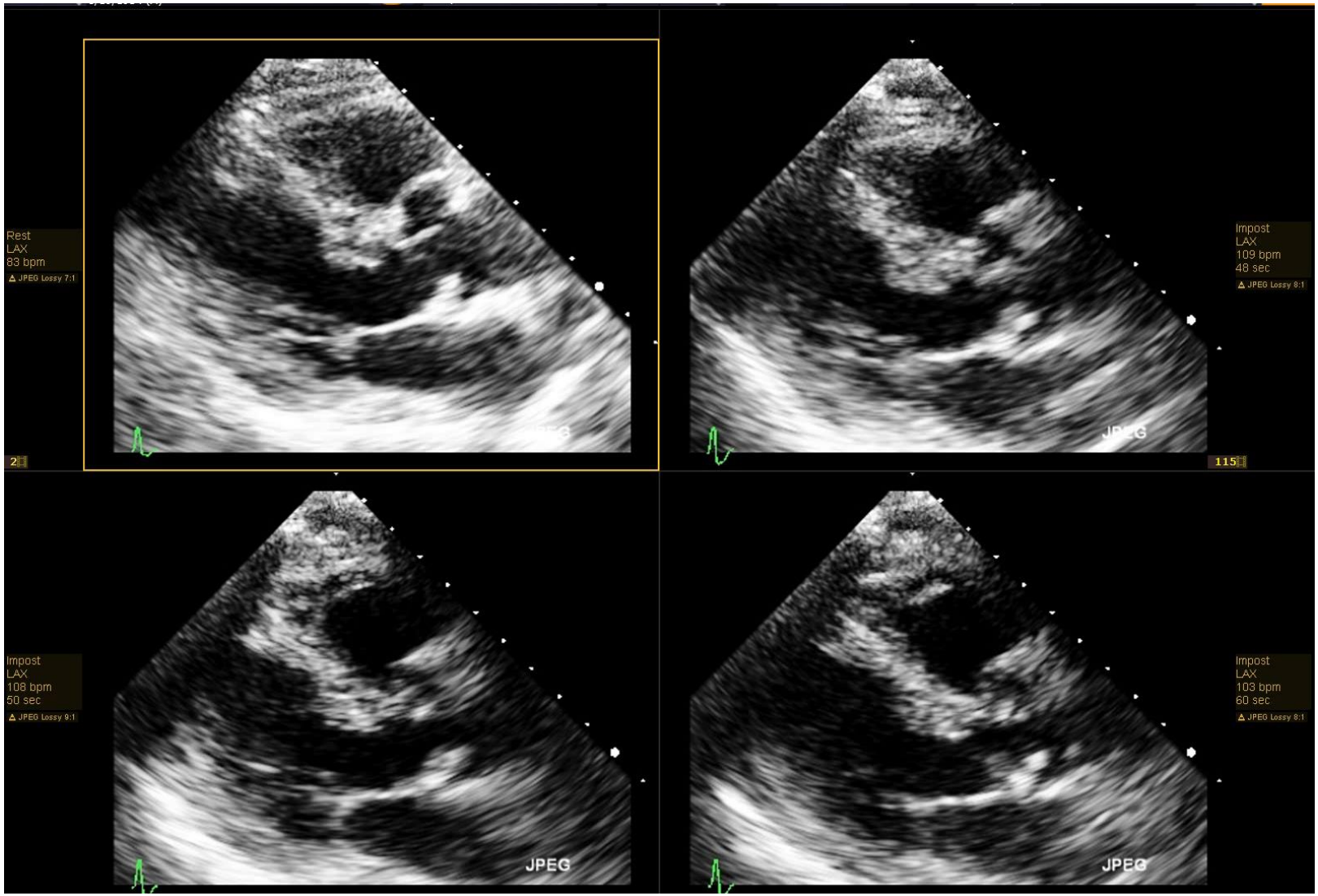
EXERCISE STRESS ECHO | A4C VIEW



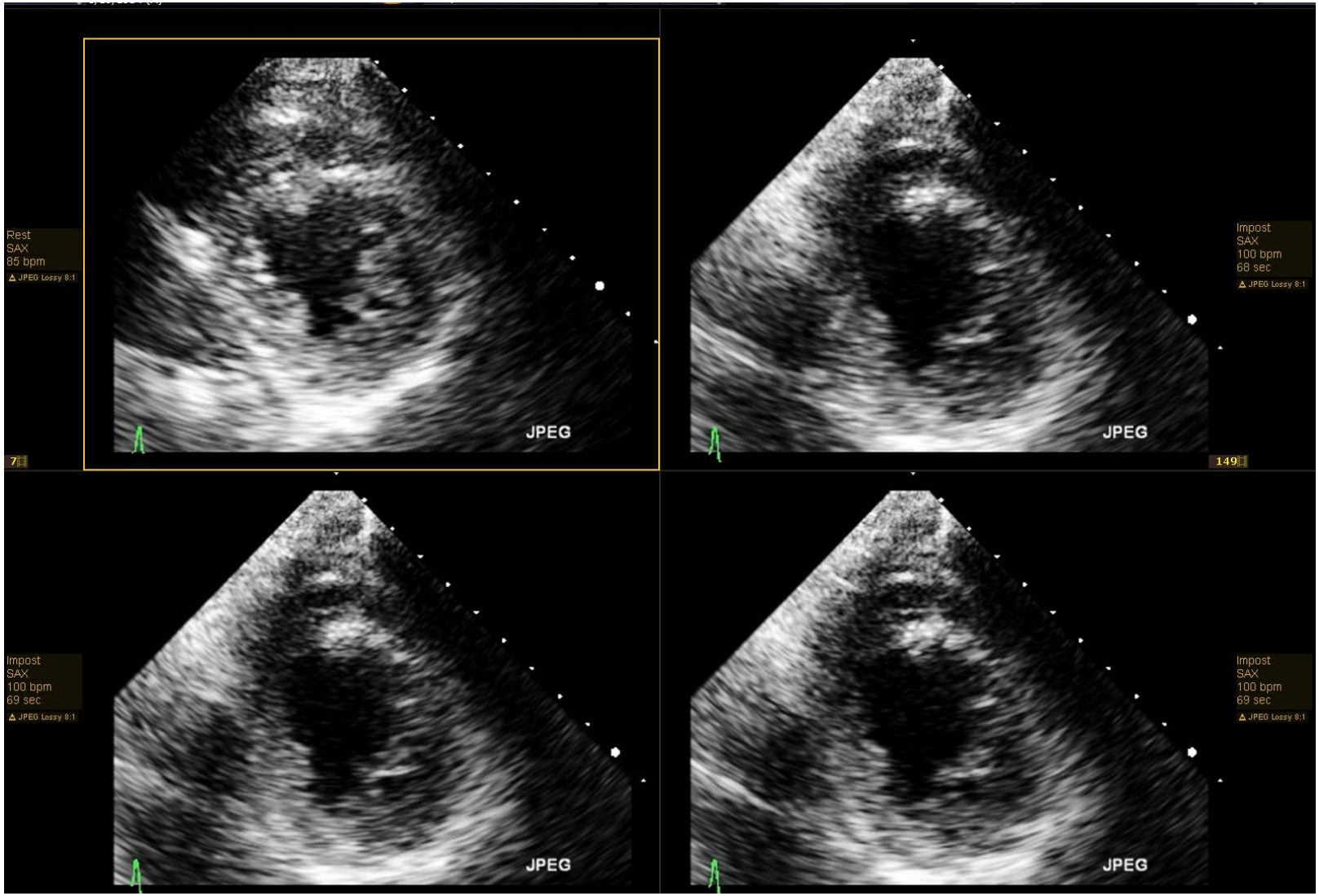
EXERCISE STRESS ECHO | A2C VIEW



EXERCISE STRESS ECHO | PLAX VIEW



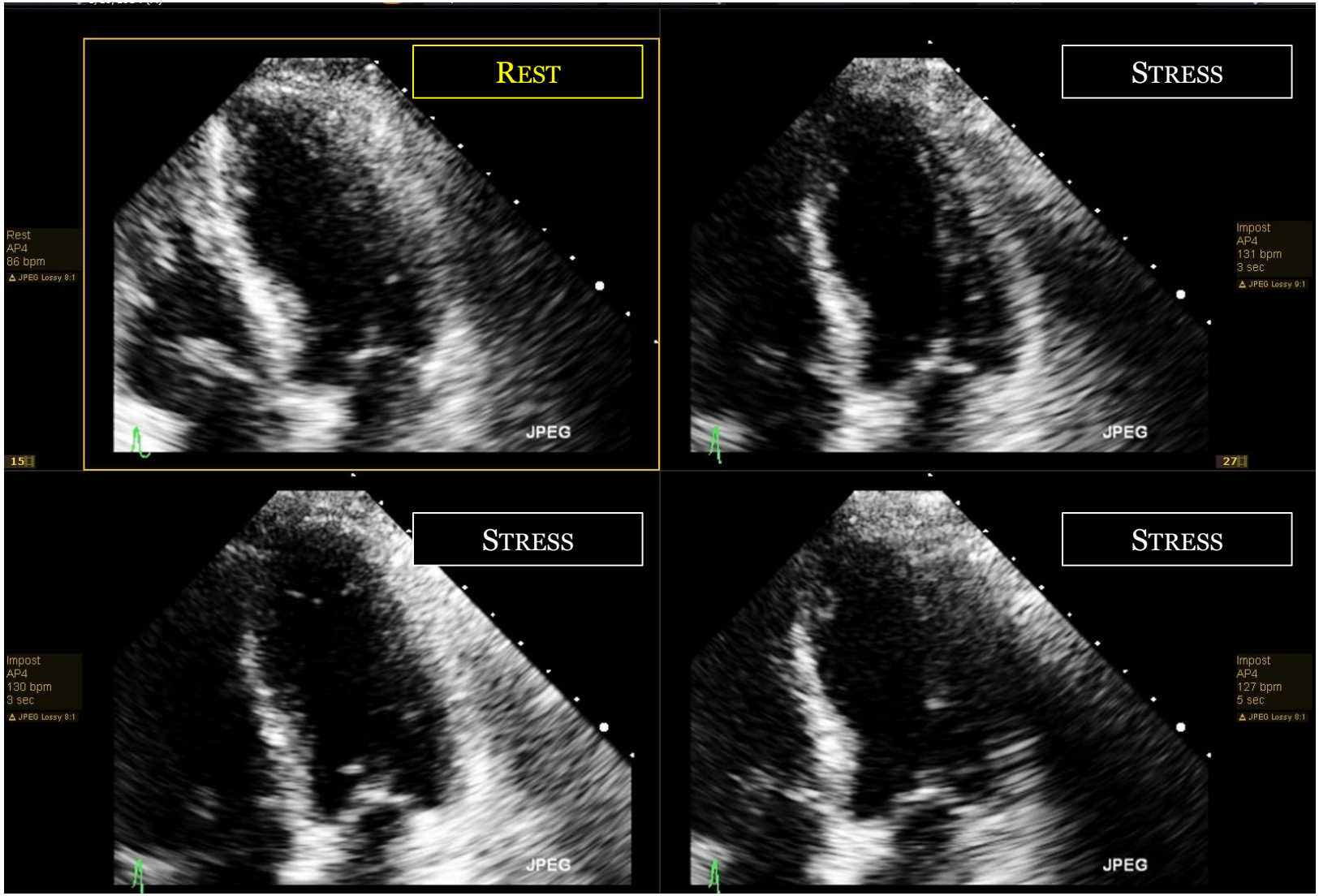
EXERCISE STRESS ECHO | PSAX VIEW



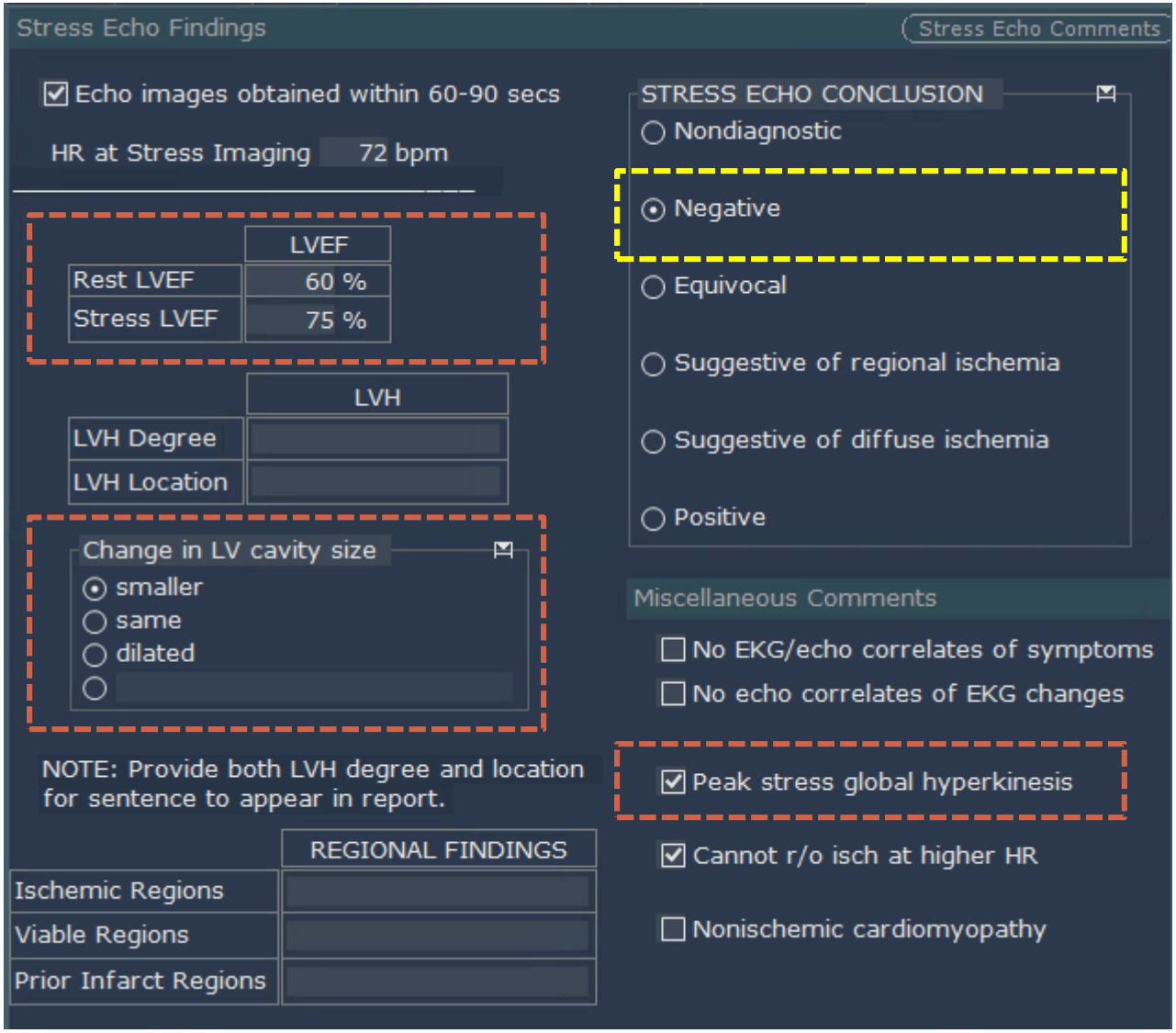
CONCLUSION

Normal stress echocardiogram

EXERCISE STRESS ECHO | A4C VIEW



STRESS ECHO | LV CONTRACTILITY DATA



Teaching Points

Normal stress echocardiogram

- Global increase in LV and RV contractility with exercise
- Decrease in LV cavity size
- Maintenance of triangular LV shape

Technical Points

- View hierarchy
  A4C > A2C > PLAX > PSAX

Stress Case #2

CASE PRESENTATION

60 y/o male with hypertension, diabetes mellitus and obesity presents with **exertional dyspnea.**

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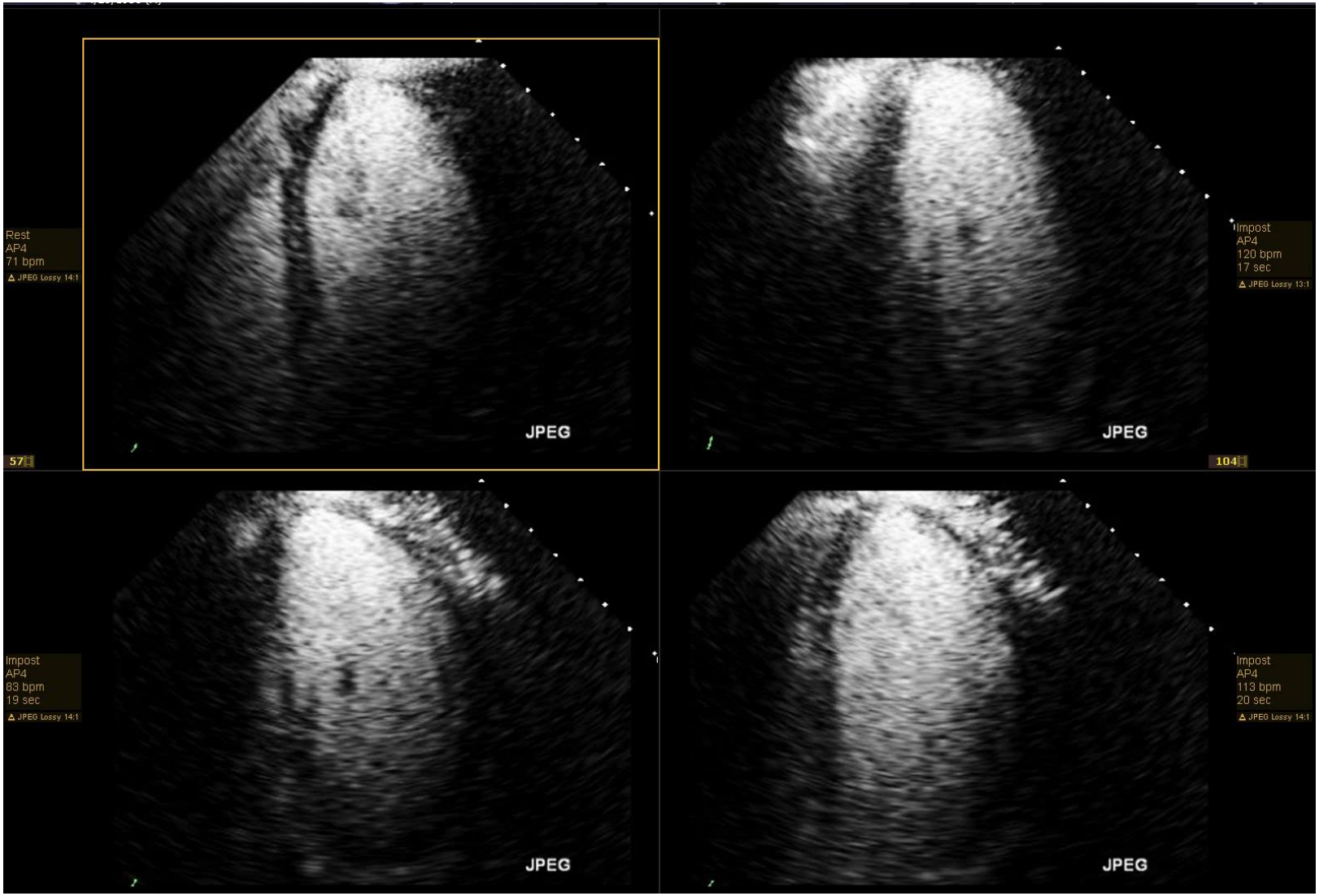
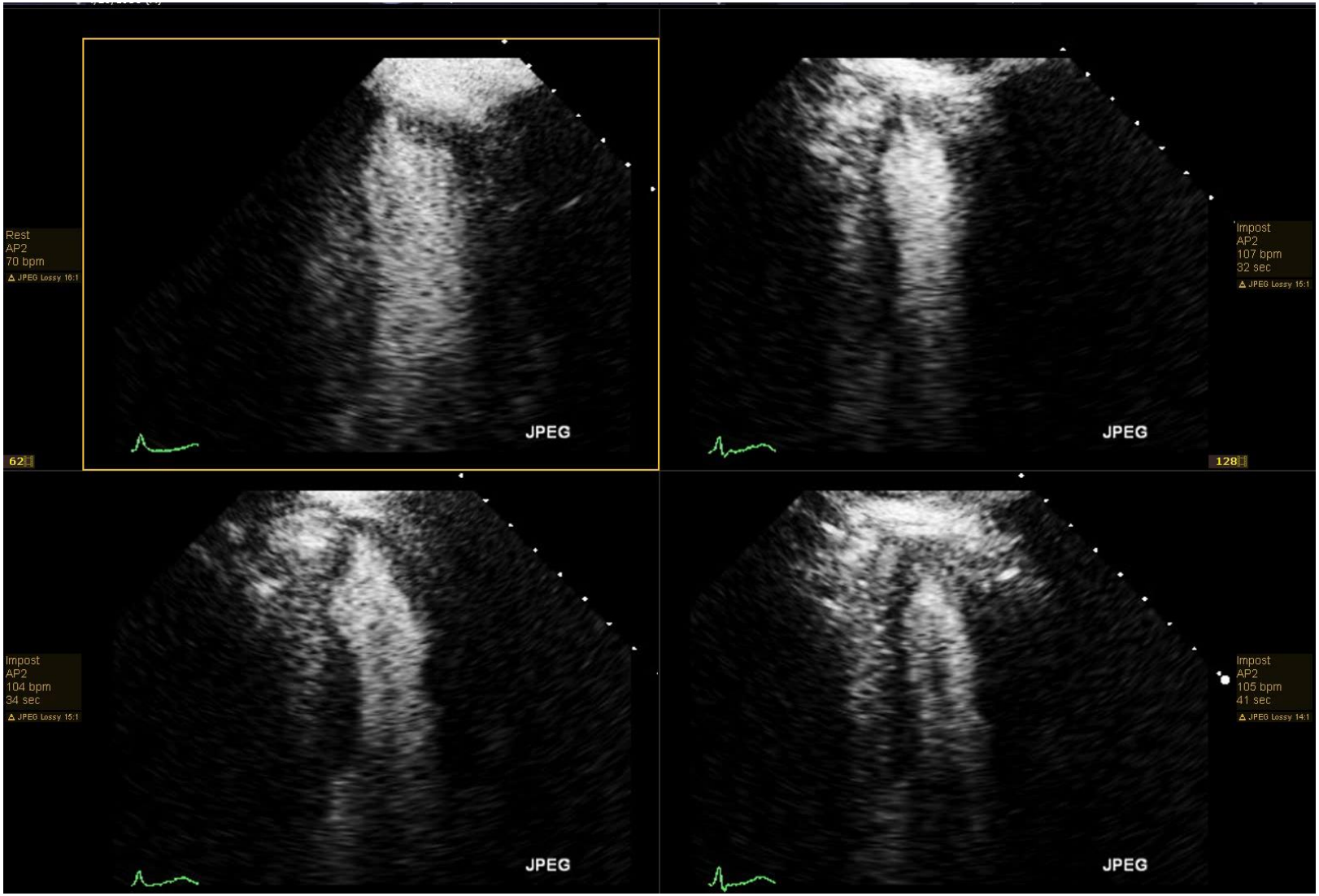
Referred for **exercise** stress echo

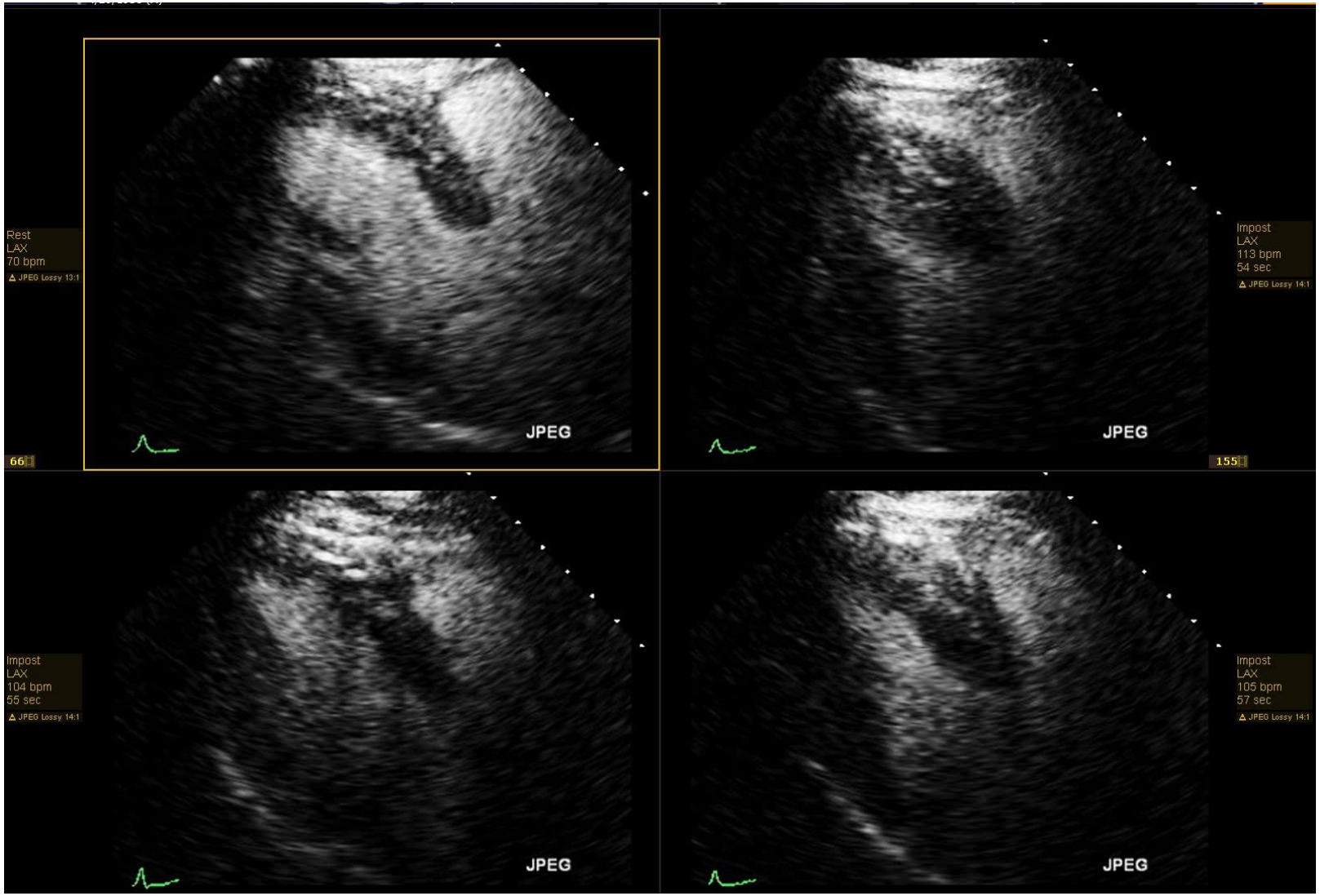
EXERCISE STRESS ECHO | A4C VIEW



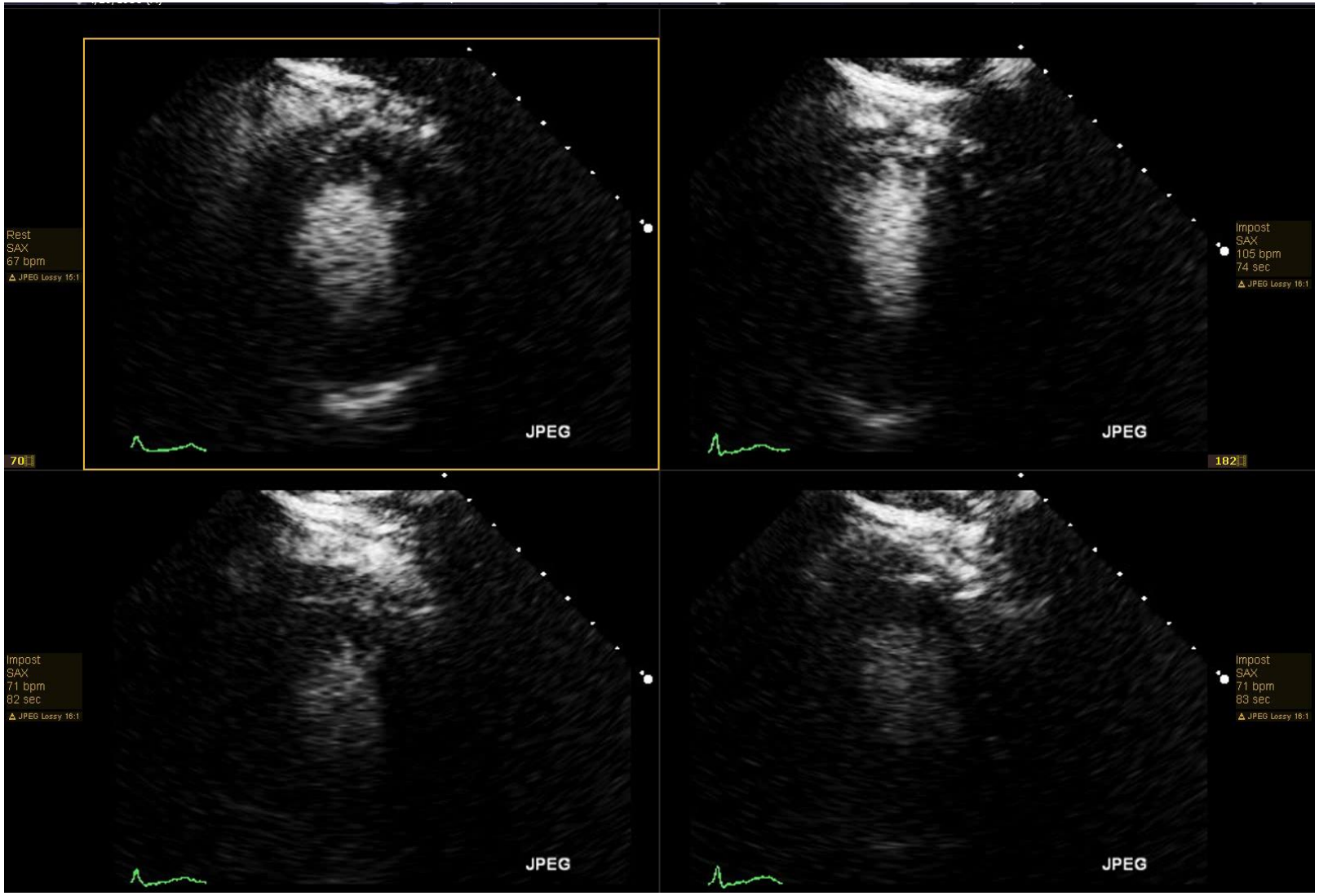
EXERCISE STRESS ECHO | A2C VIEW



EXERCISE STRESS ECHO | PLAX VIEW



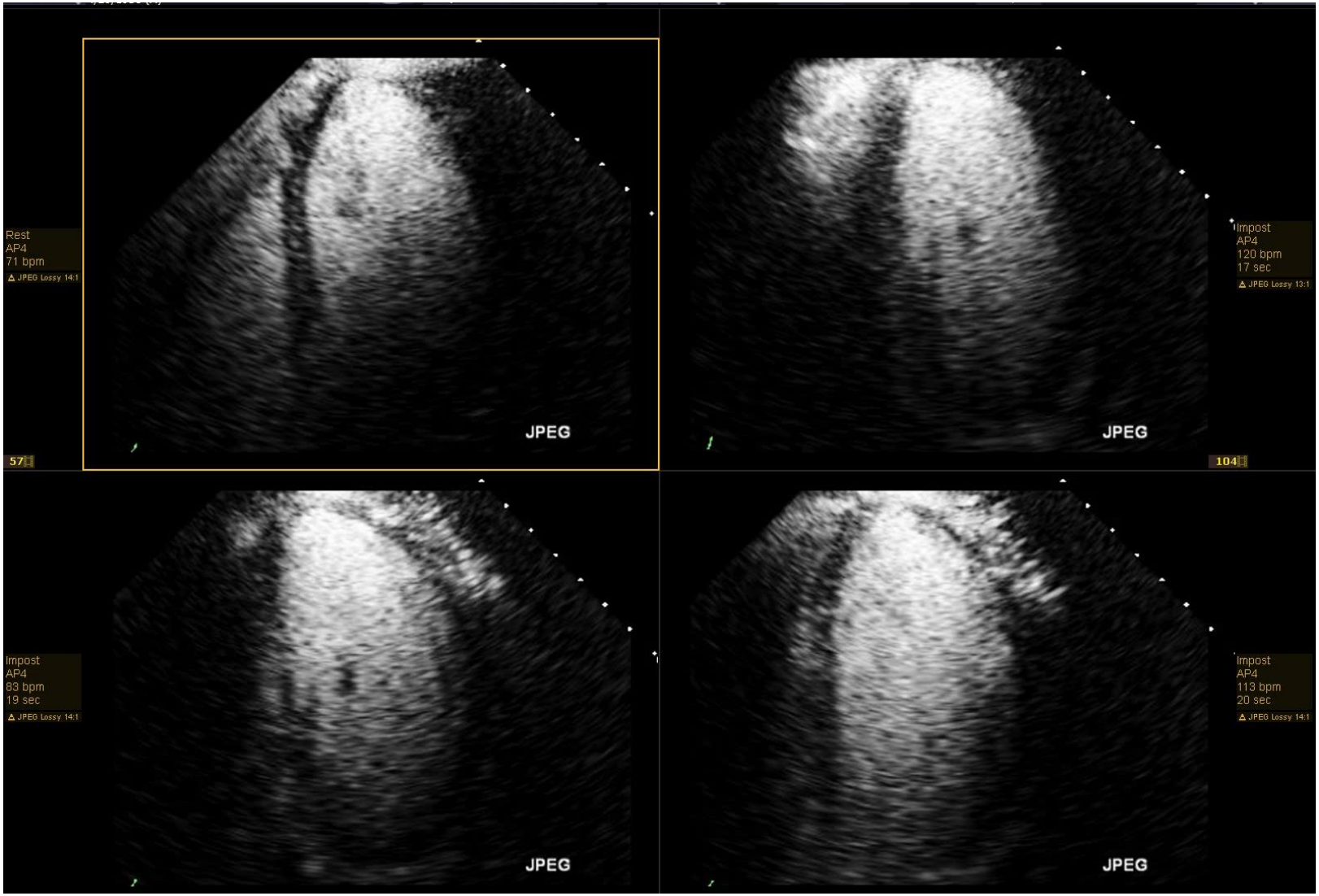
EXERCISE STRESS ECHO | PSAX VIEW



CONCLUSION

Normal contrast stress echocardiogram

EXERCISE STRESS ECHO | A4C VIEW



Teaching Points

Normal stress echocardiogram

- Global increase in LV and RV contractility with exercise
- Decrease in LV cavity size
- Maintenance of triangular LV shape

Technical Points

- View hierarchy
  A4C > A2C > PLAX > PSAX

Stress Case #3

CASE PRESENTATION

75-year-old man with CAD, s/p CABG with subsequent RCA stent.
Presents with **exertional dyspnea**

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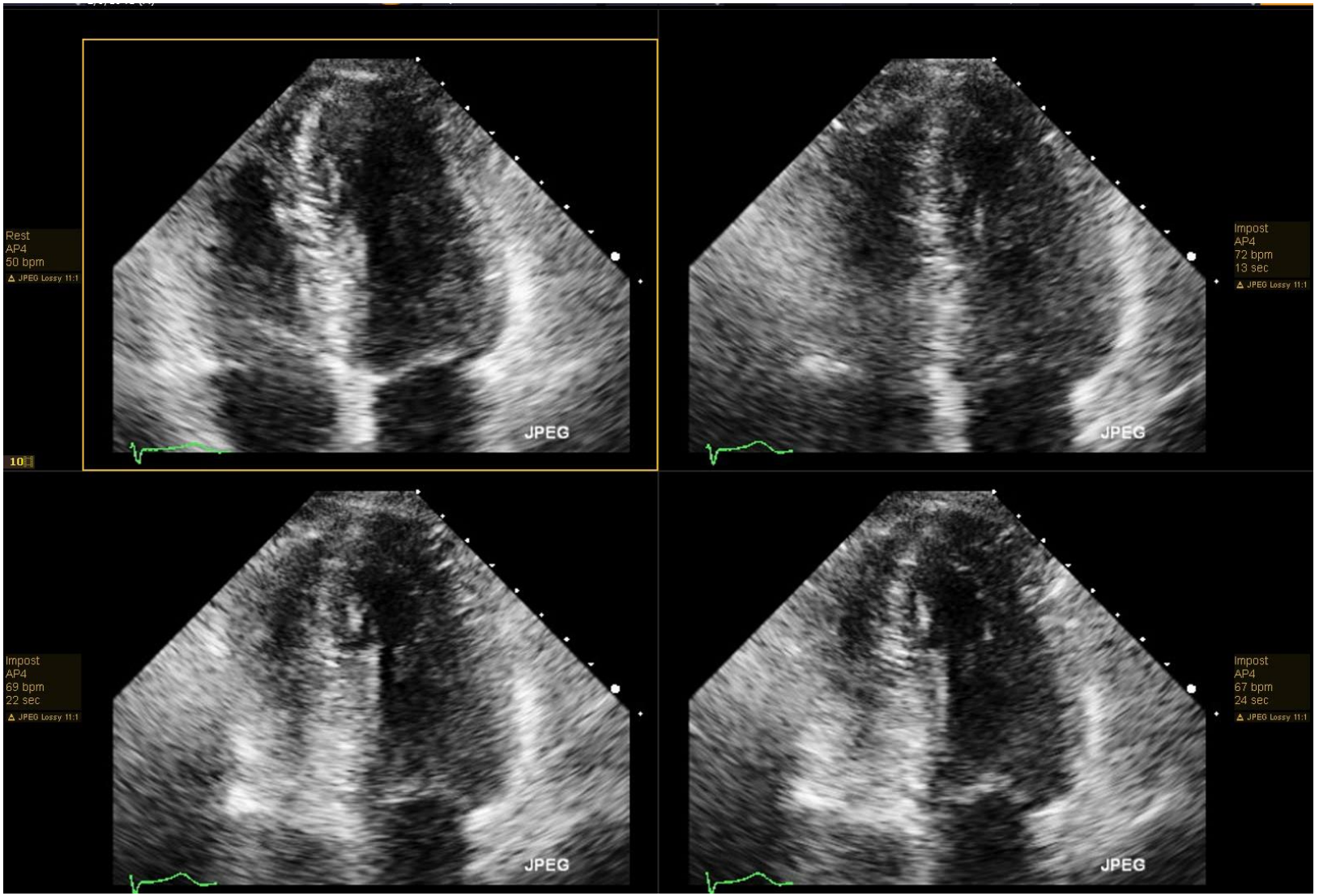
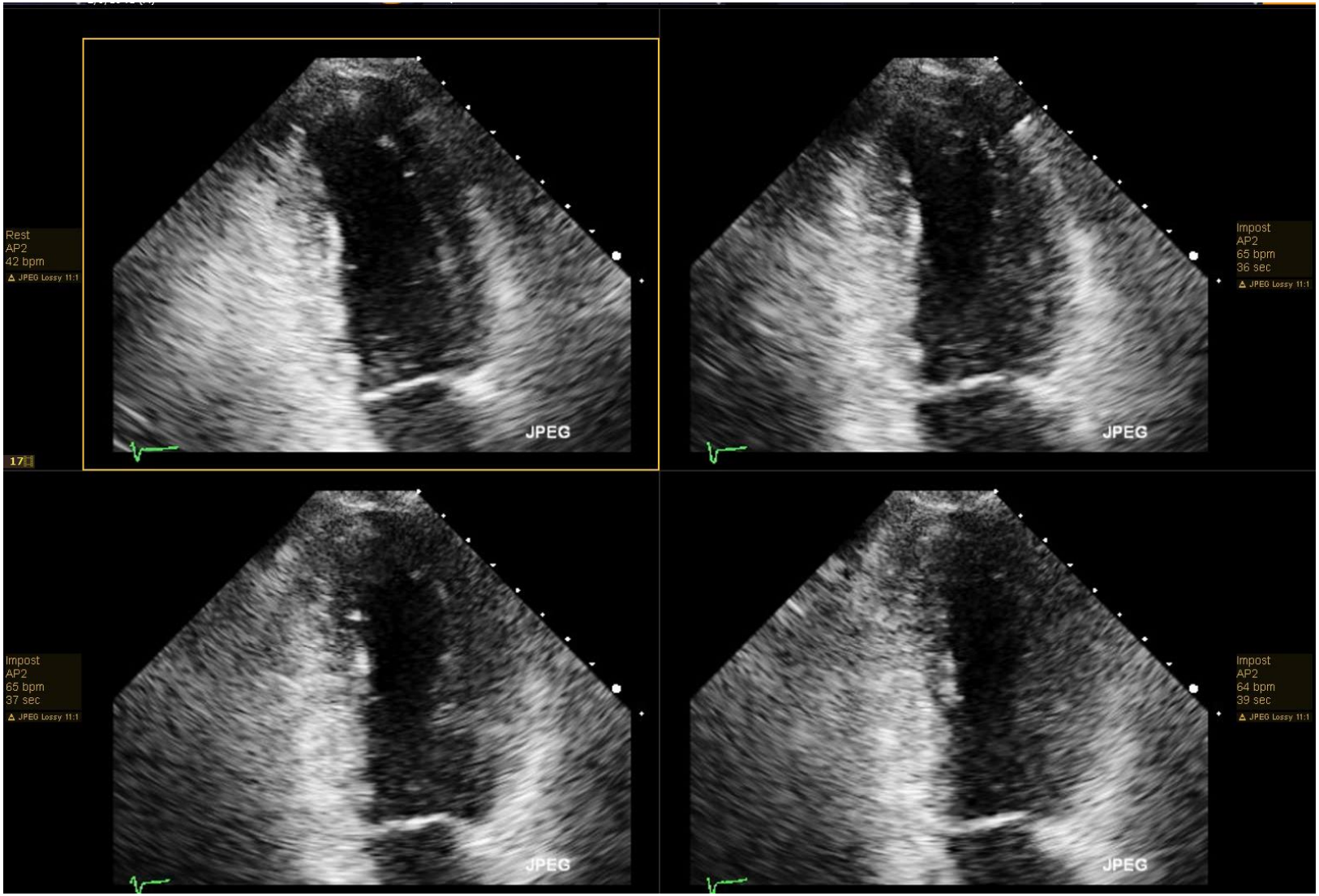
Referred for **exercise** stress echo

EXERCISE STRESS ECHO | A4C VIEW



EXERCISE STRESS ECHO | A2C VIEW

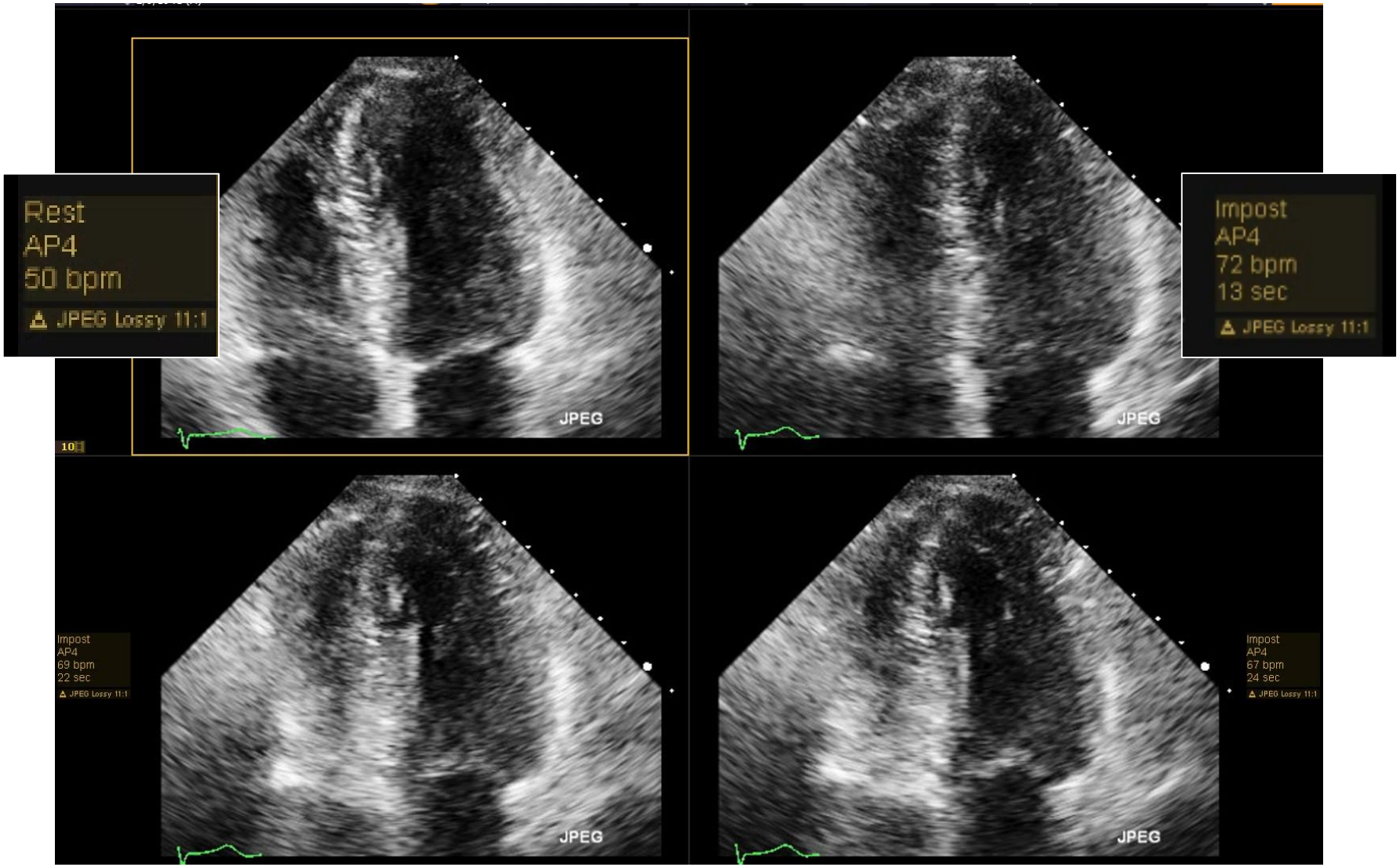


CONCLUSION

No stress-induced LV wall motion abnormalities.

But… Is this a normal stress echocardiogram?

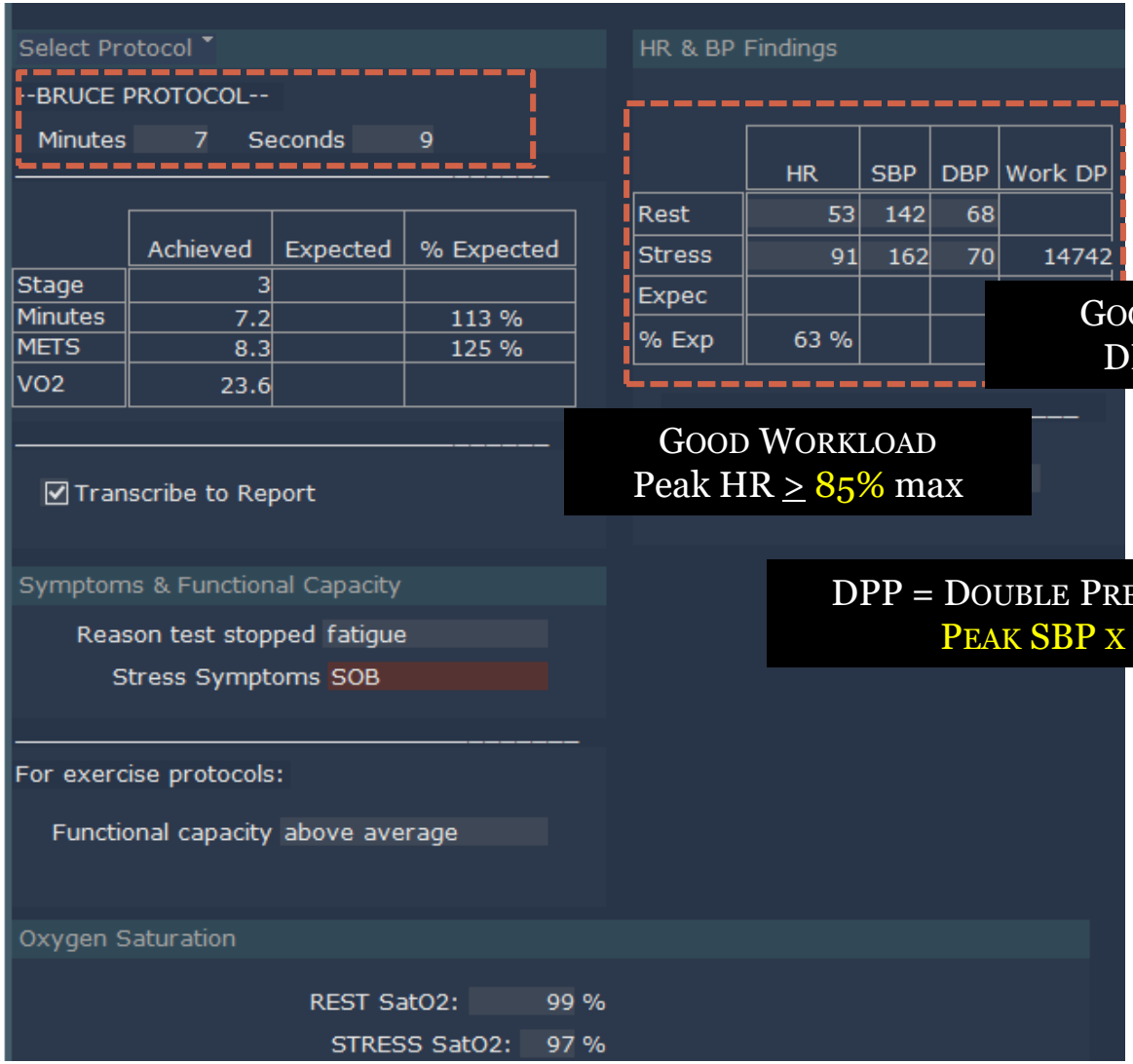
EXERCISE STRESS ECHO | A4C VIEW



TEACHING POINTS

- Absence of stress-induced LV wall motion abnormalities does NOT exclude occlusive coronary artery disease.
- Always comment on workload at which stress images were obtained.

STRESS ECHO | WORKLOAD DATA



GOOD WORKLOAD
DPP ≥ 20,000

GOOD WORKLOAD
Peak HR ≥ 85% max

DPP = DOUBLE PRESSURE PRODUCT
PEAK SBP X PEAK HR

Stress Case #4

CASE PRESENTATION

50-year-old man, previously healthy, referred for evaluation of **syncope** following an episode of rapid heart beat.

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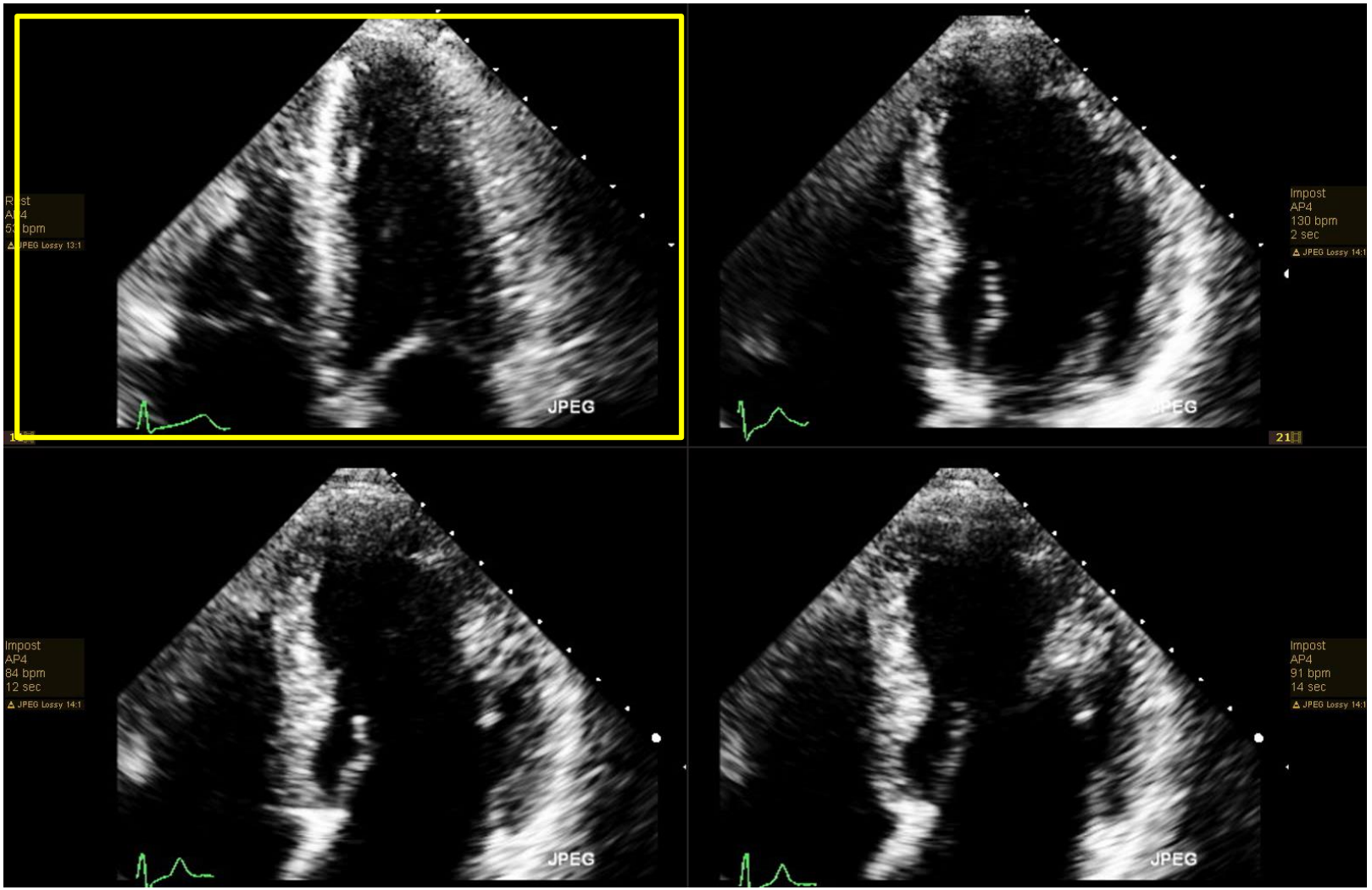
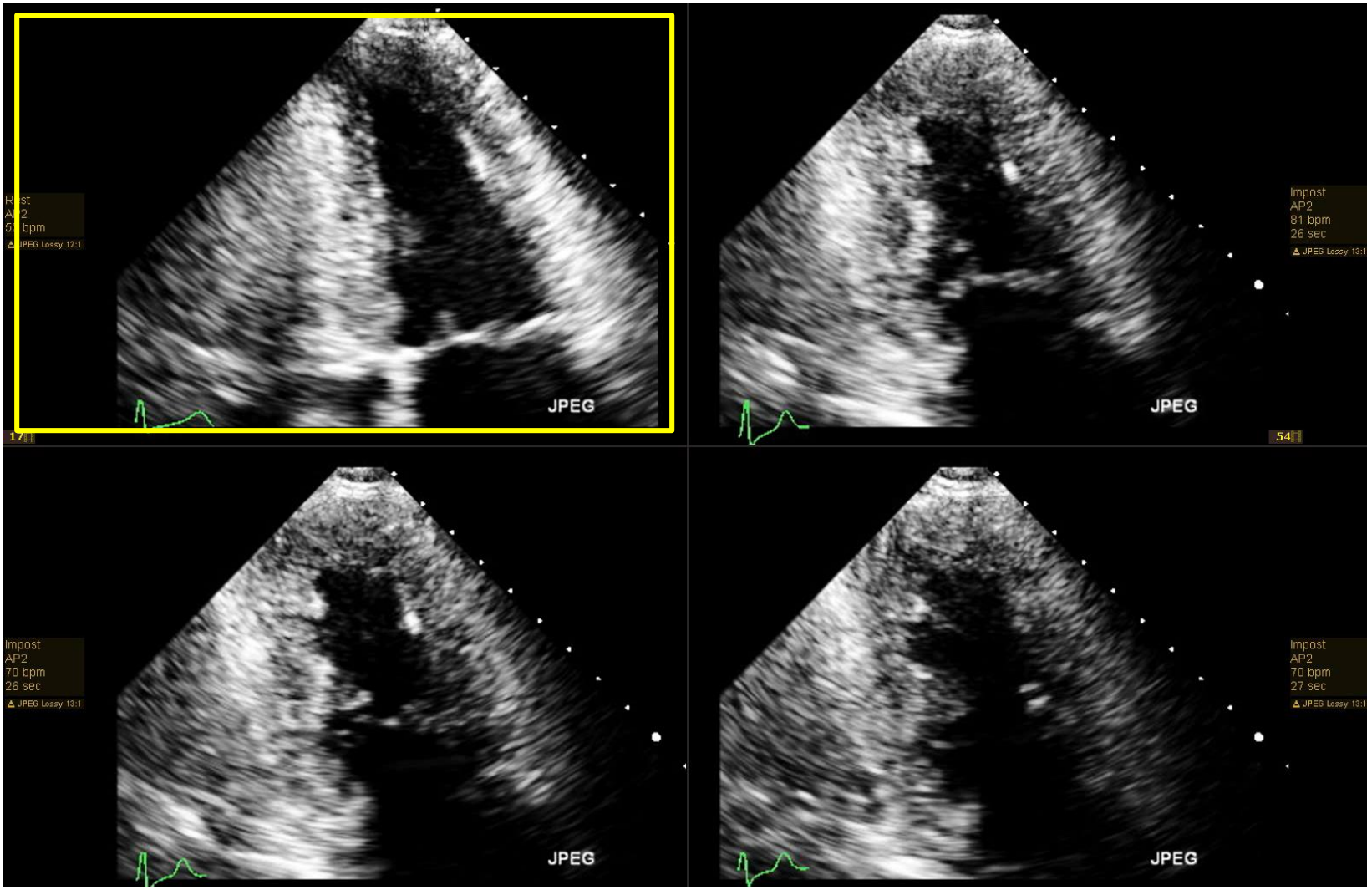
Referred for **exercise** stress echo

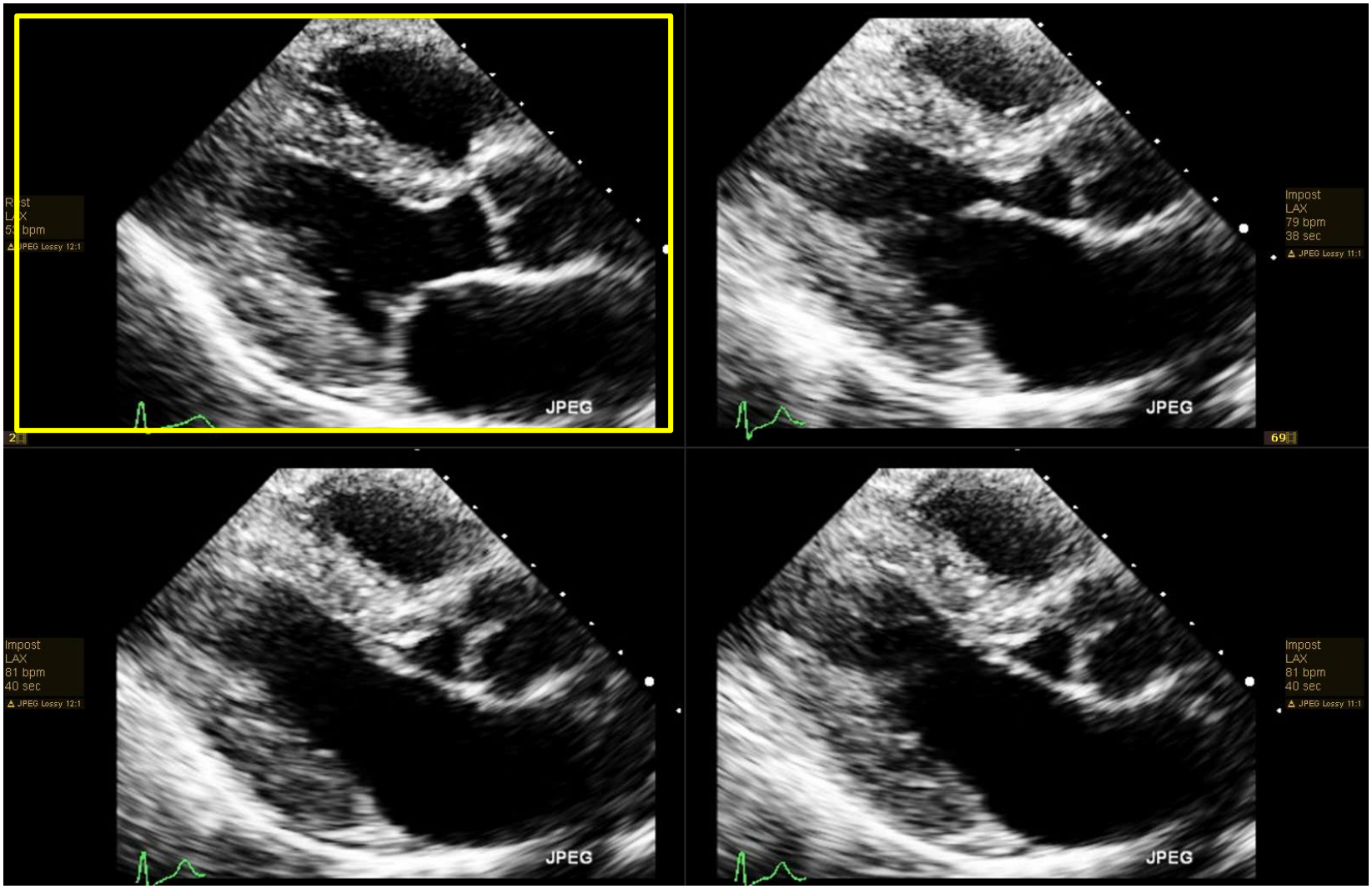
EXERCISE STRESS ECHO | A4C VIEW



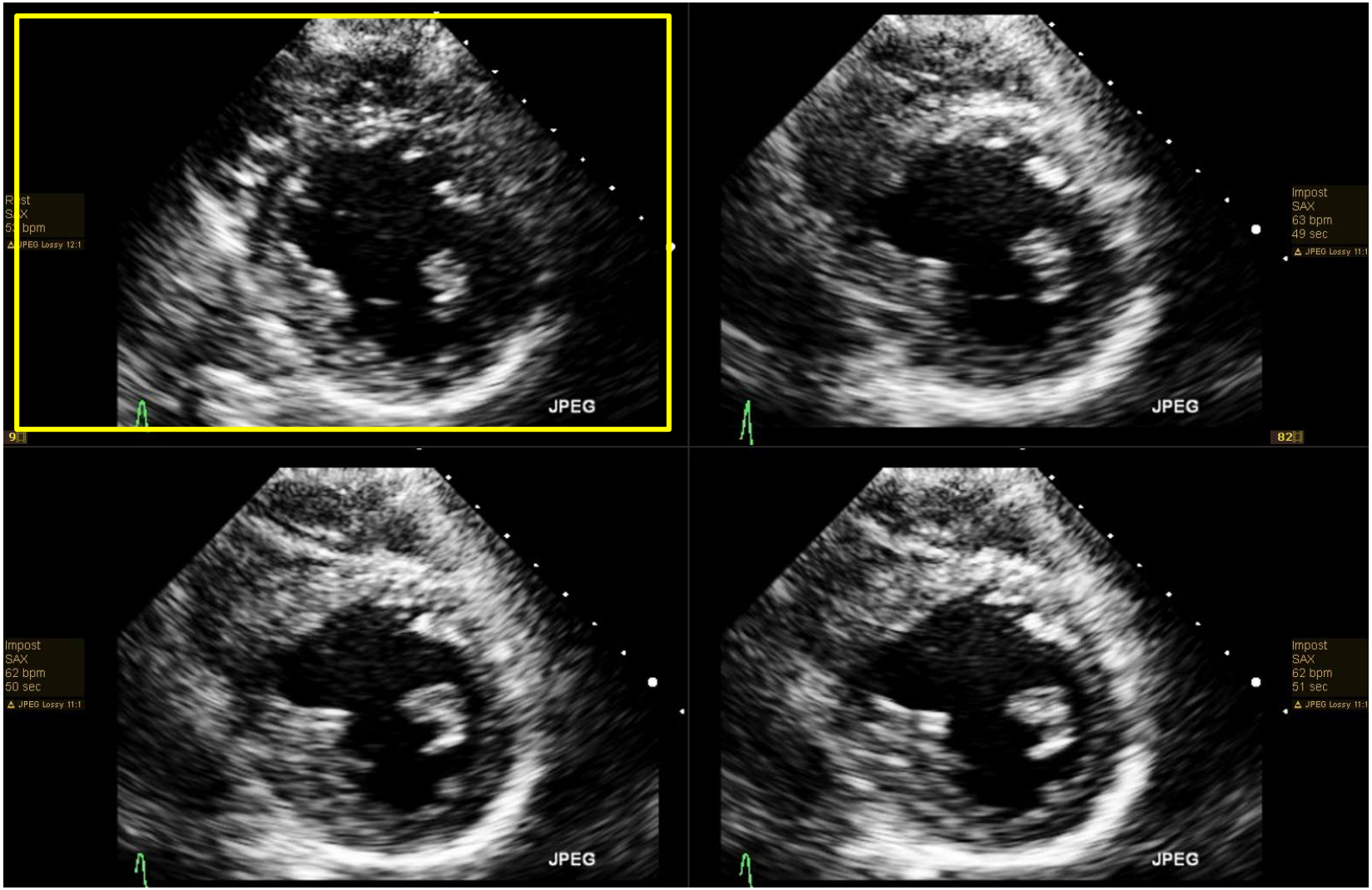
EXERCISE STRESS ECHO | A2C VIEW



EXERCISE STRESS ECHO | PLAX VIEW



EXERCISE STRESS ECHO | PSAX VIEW

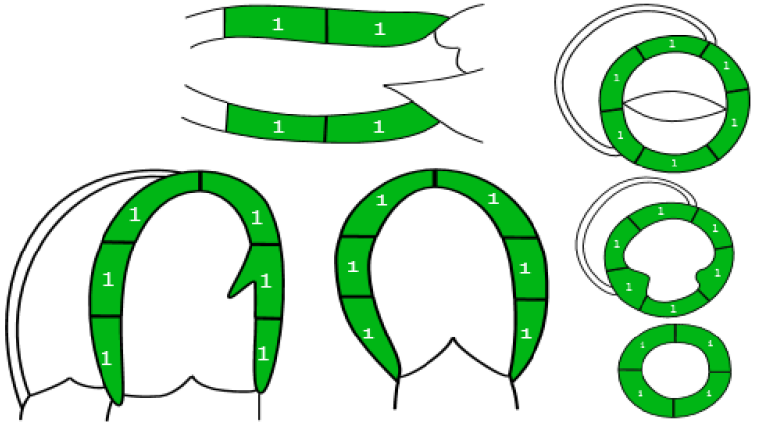


EXERCISE STRESS ECHO | WALL SCORING

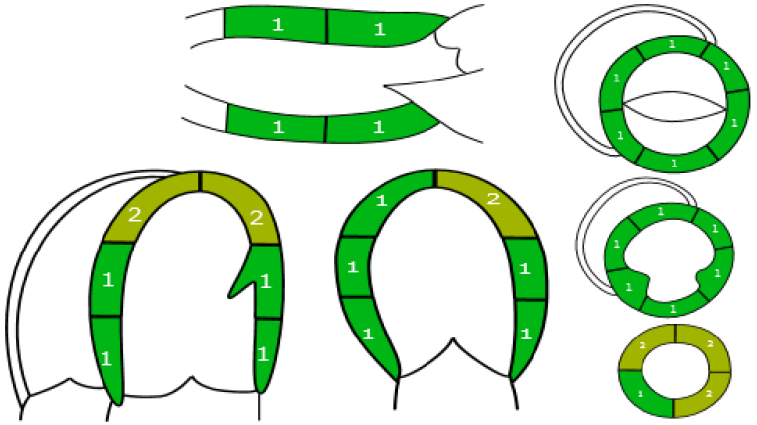
Wall Scoring

0 Unable to Score 1 Normal 2 Hypokinetic 3 Akinetic 4 Dyskinetic 5 Aneurysmal

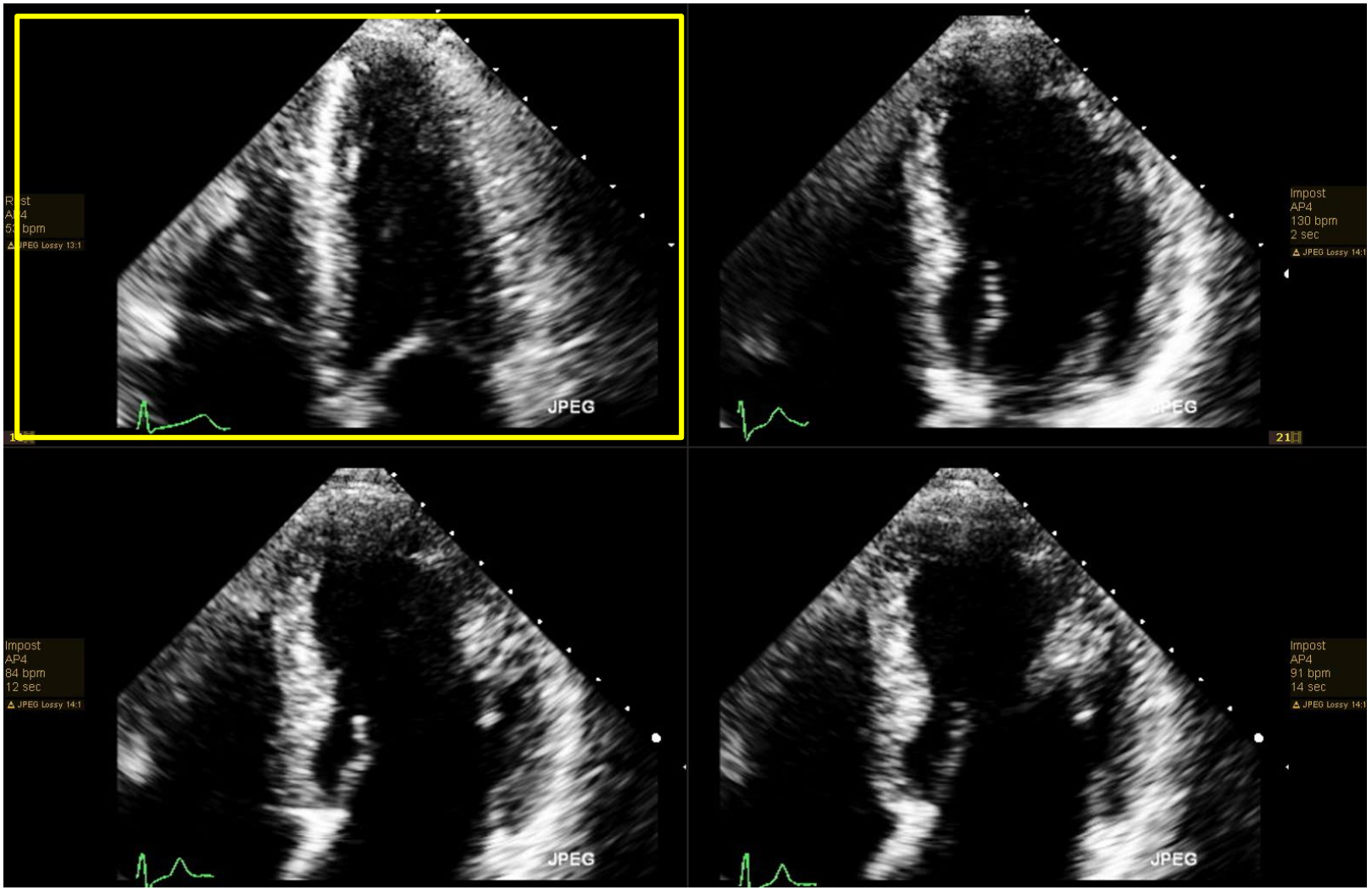
Rest All segments are normal.



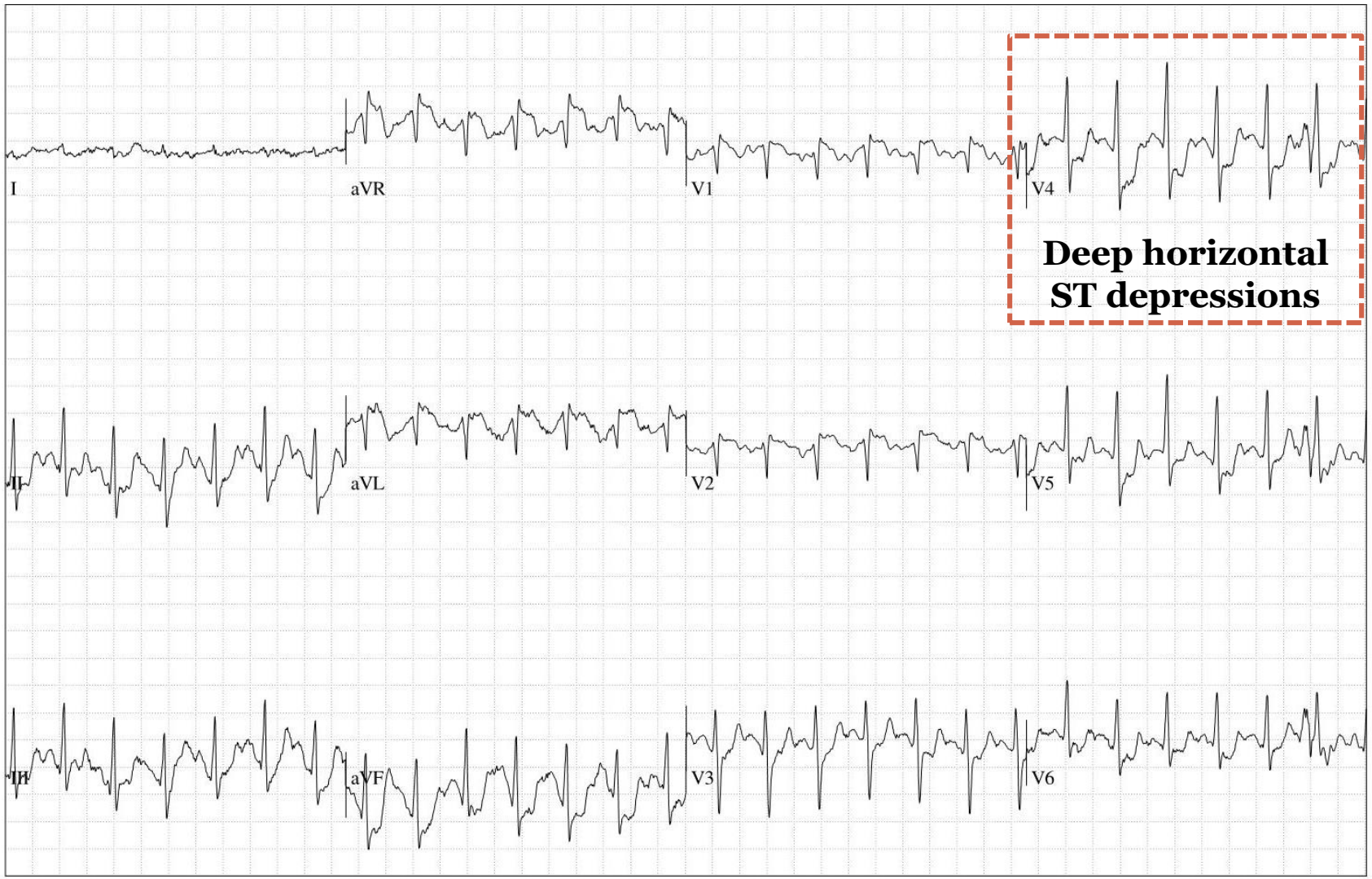
Impost The apical lateral wall, apical septum , and apical anterior wall are hypokinetic. All remaining scored segments are normal.



EXERCISE STRESS ECHO | A4C VIEW



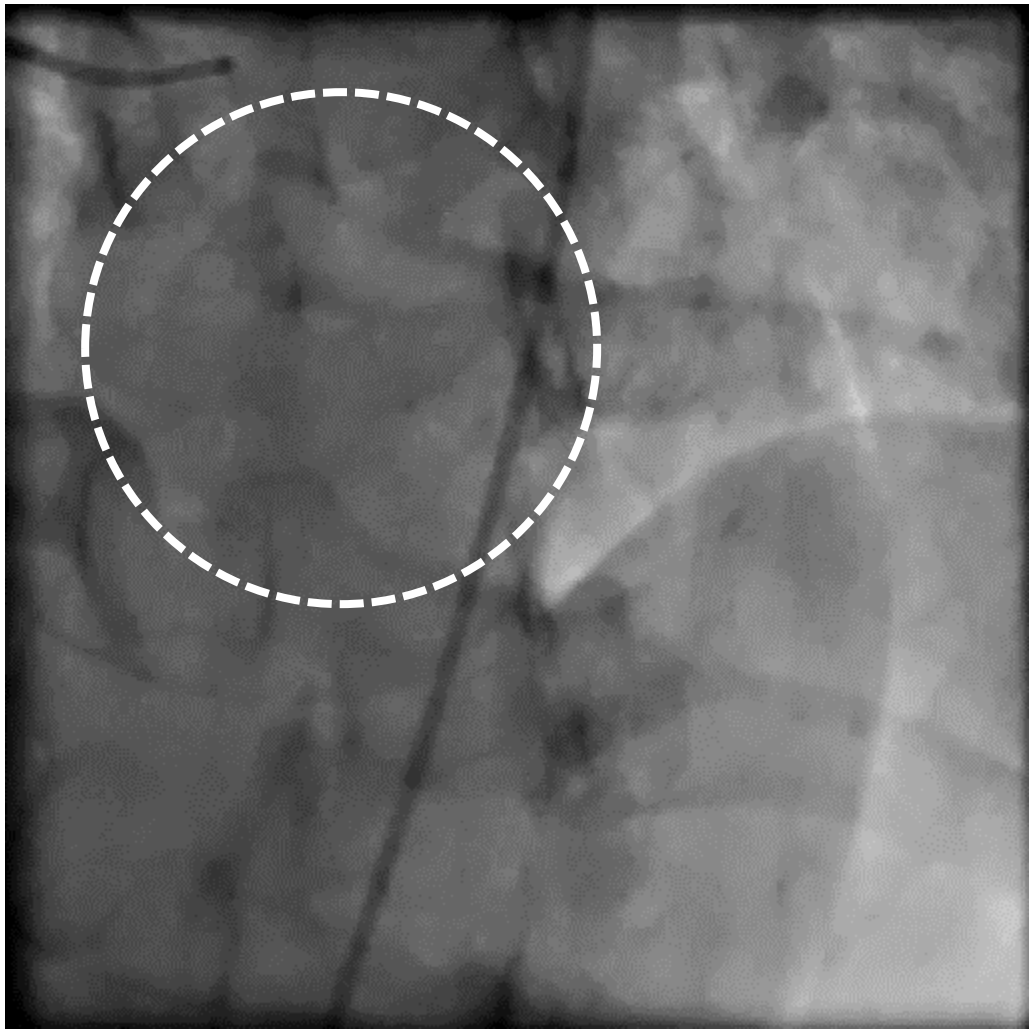
EXERCISE STRESS ECHO | EKG AT PEAK STRESS



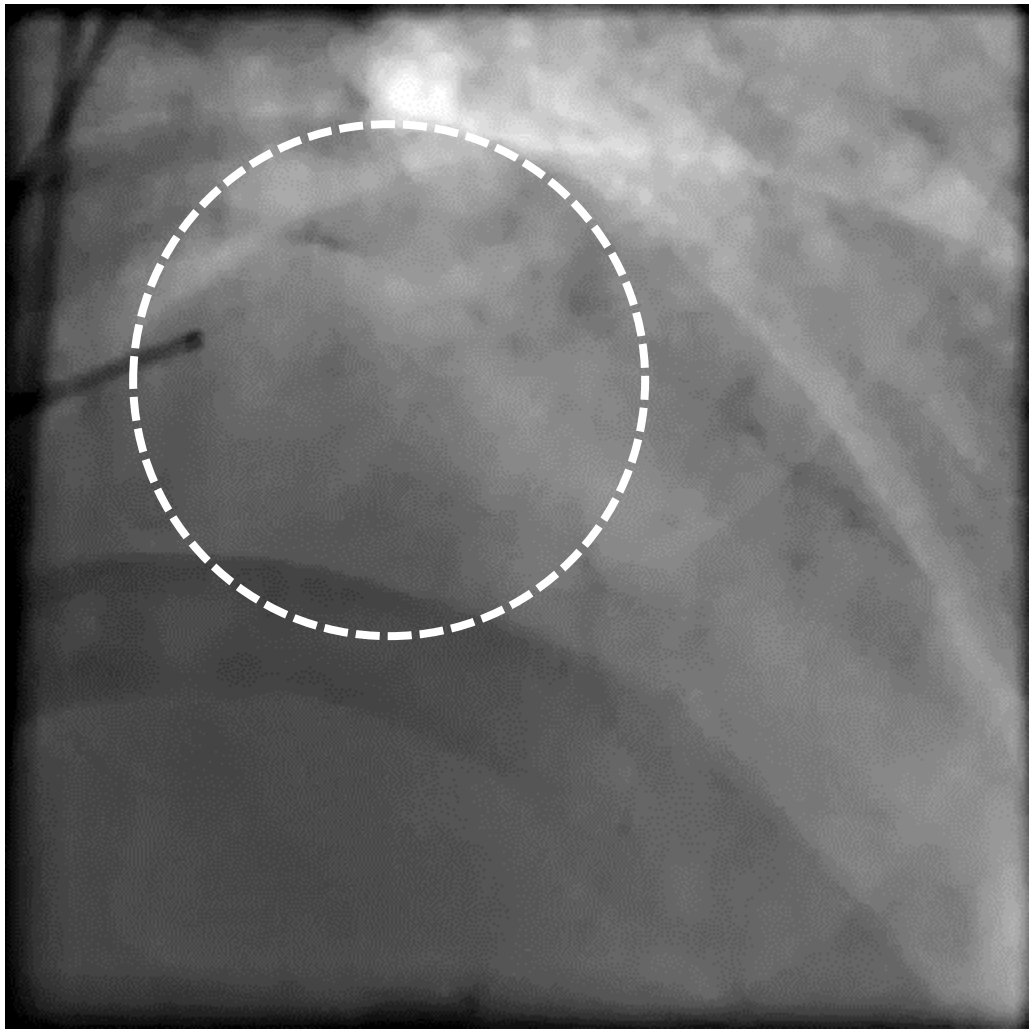
CONCLUSION

Stress echo **positive** for LAD ischemia.

CORONARY ANGIOGRAPHY | LAD STENOSIS | LAO VIEW



CORONARY ANGIOGRAPHY | LAD STENOSIS | RAO VIEW



Stress Case #5

CASE PRESENTATION

69-year-old man with CAD, s/p PCI to LAD
with recent recurrence of **exertional chest pain**.

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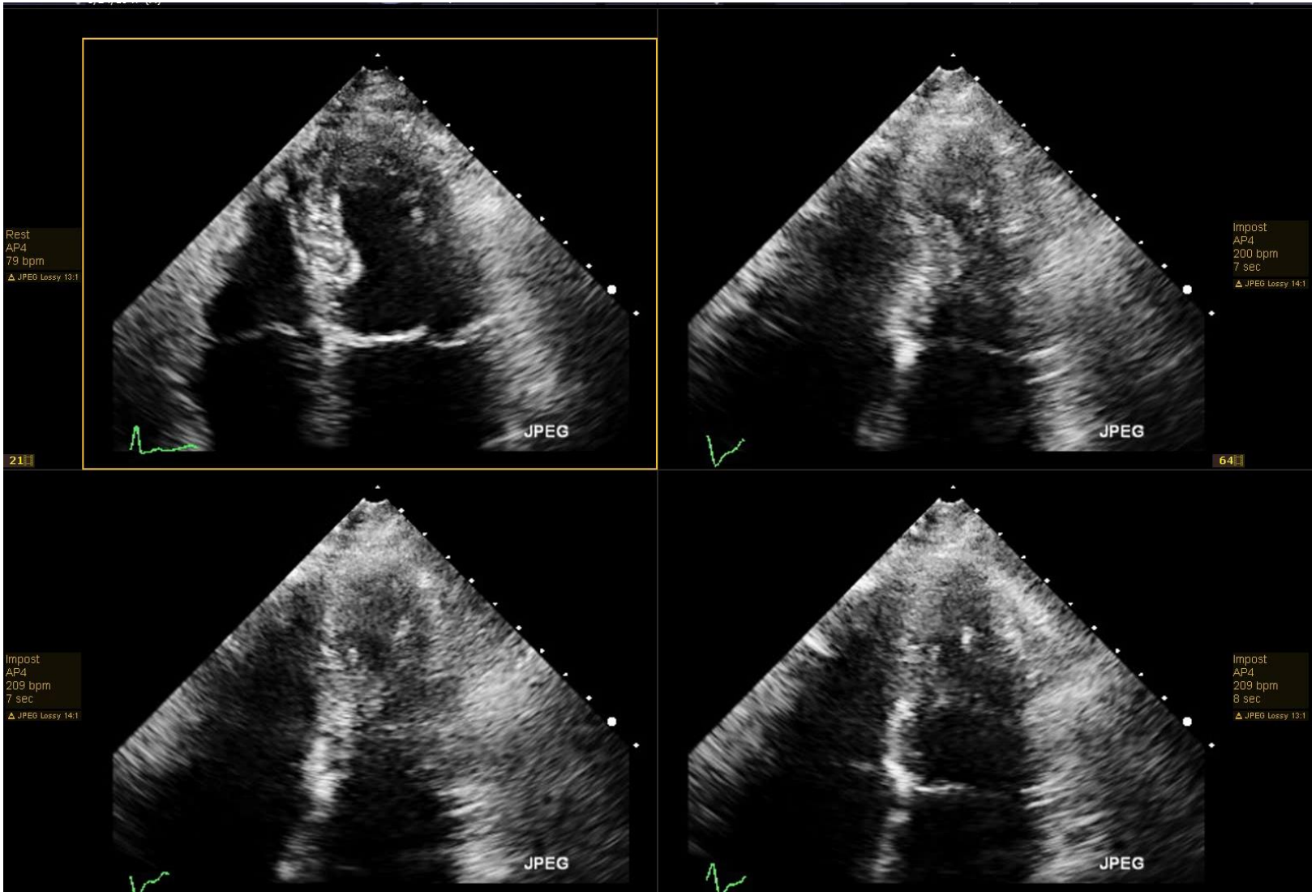
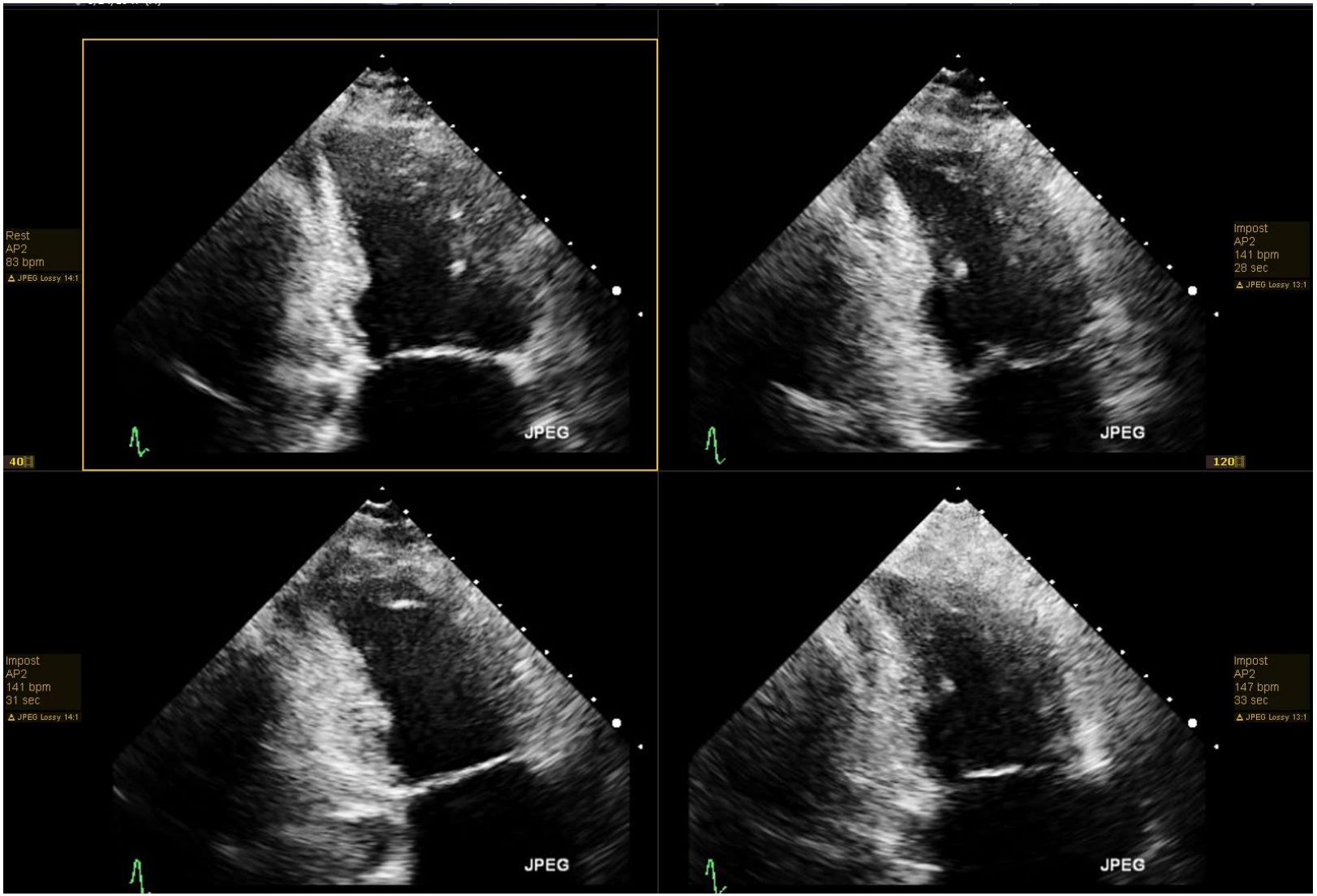
Referred for **exercise** stress echo

Exercise Stress Echo | EKG at Peak Stress

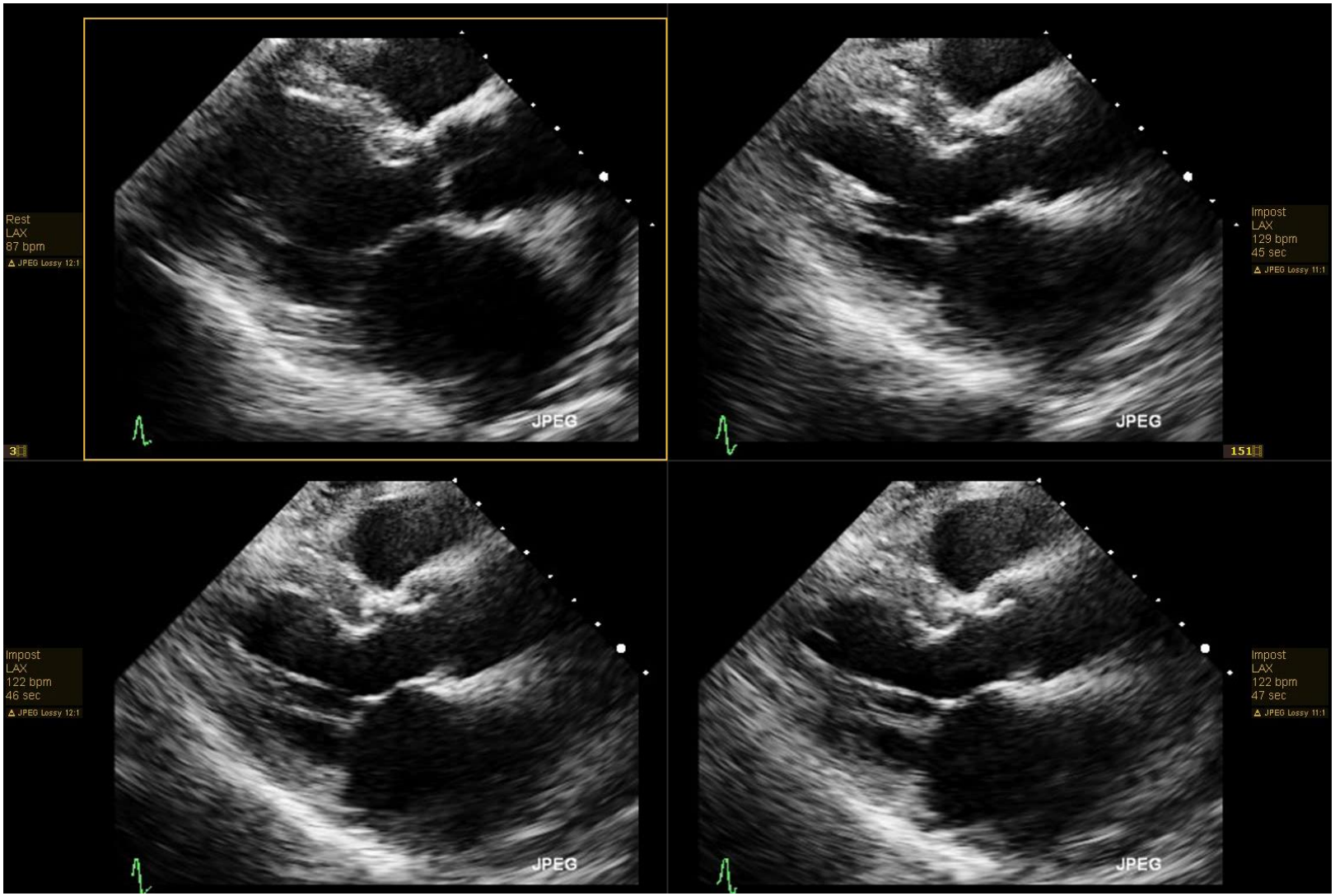
EXERCISE STRESS ECHO | A4C VIEW



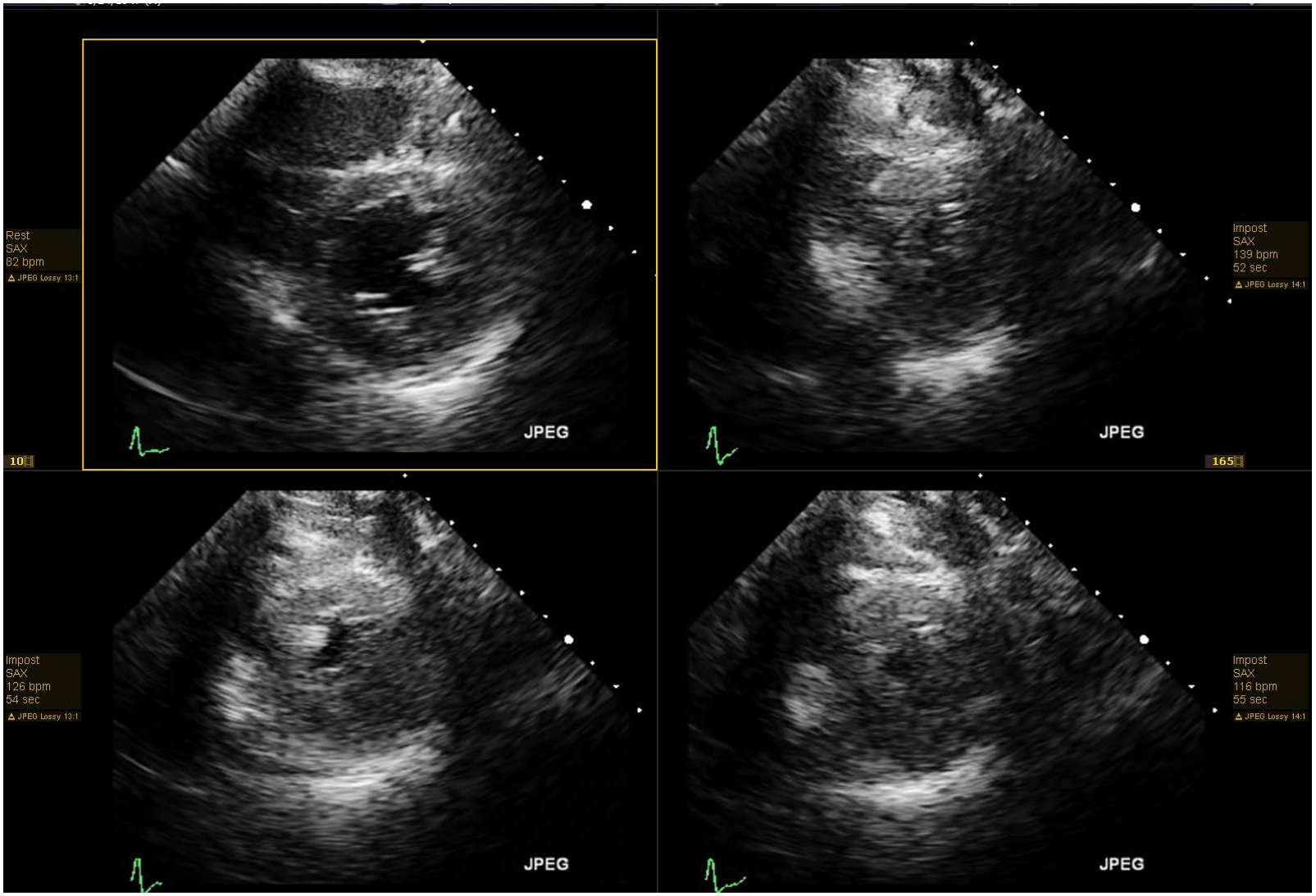
EXERCISE STRESS ECHO | A2C VIEW



EXERCISE STRESS ECHO | PLAX VIEW



EXERCISE STRESS ECHO | PSAX VIEW



QUESTION

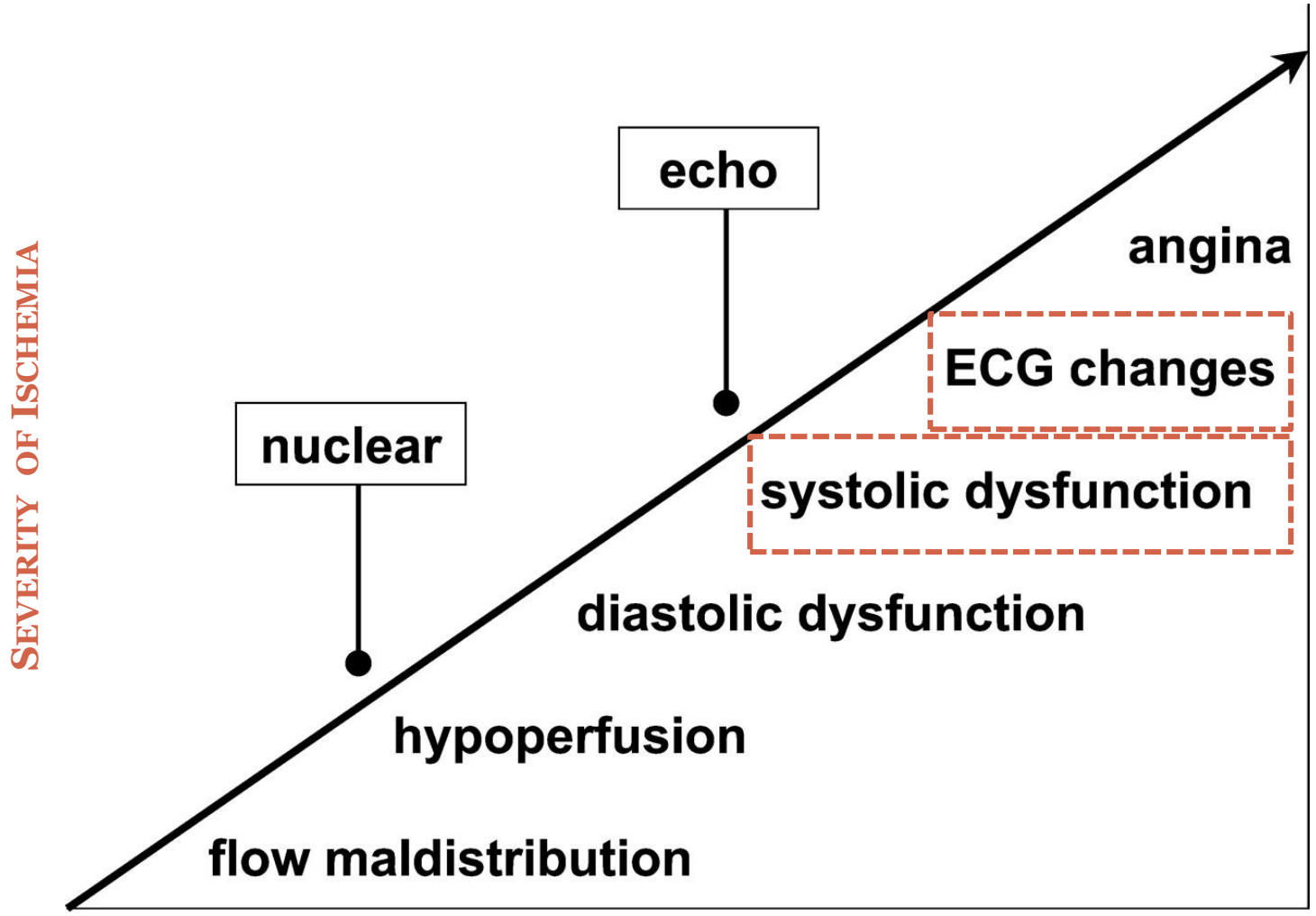
Is this a positive stress echo?

Positive EKG + Negative LV wall motion abnormalities

TEACHING POINTS

- Absence of stress-induced LV wall motion abnormalities typically implies a **negative stress echo** irrespective of stress-induced EKG changes.

Ischemic Cascade



Stress Case #6

CASE PRESENTATION

82-year-old woman with CAD, s/p multiple coronary stents presents with **heart failure**.

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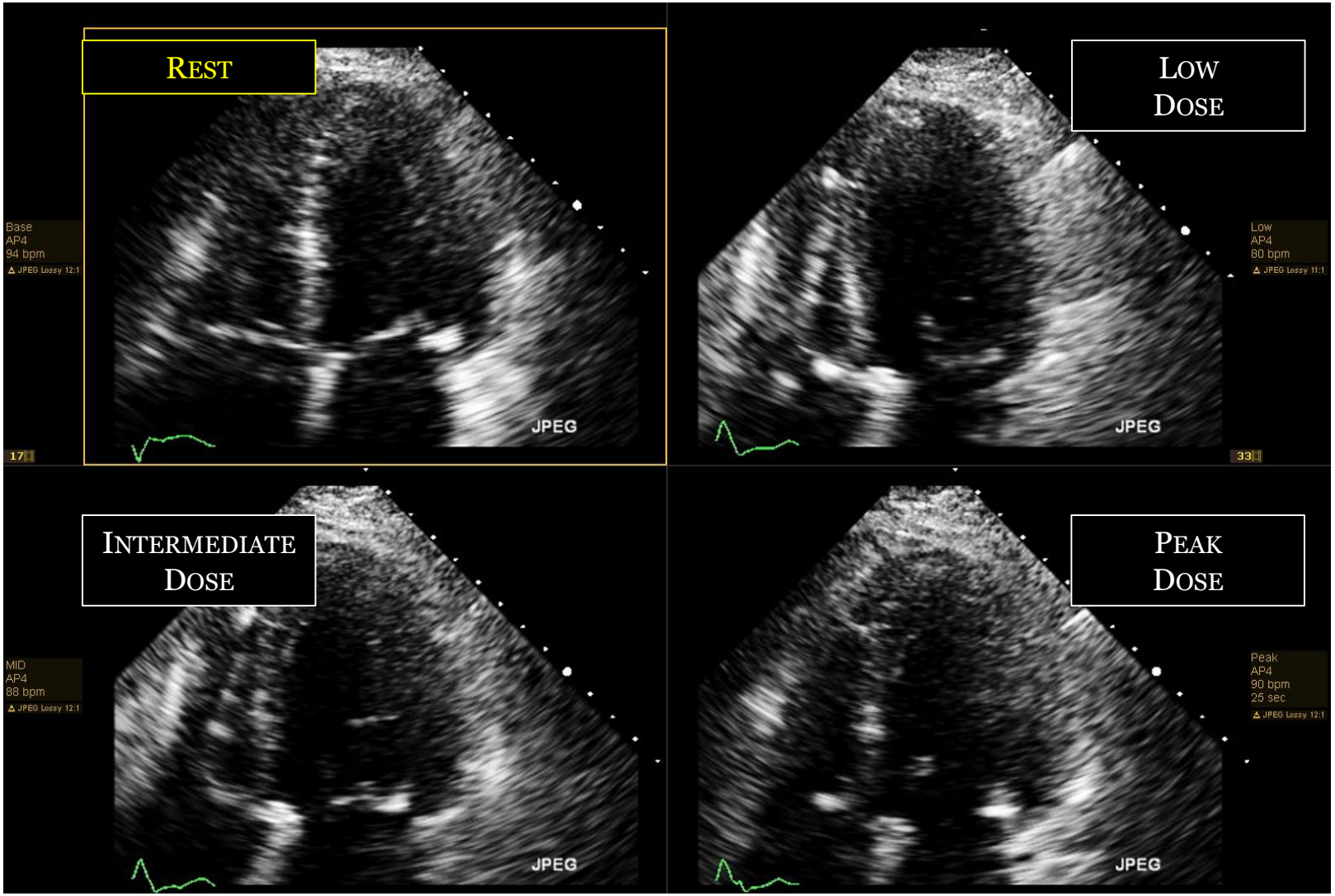
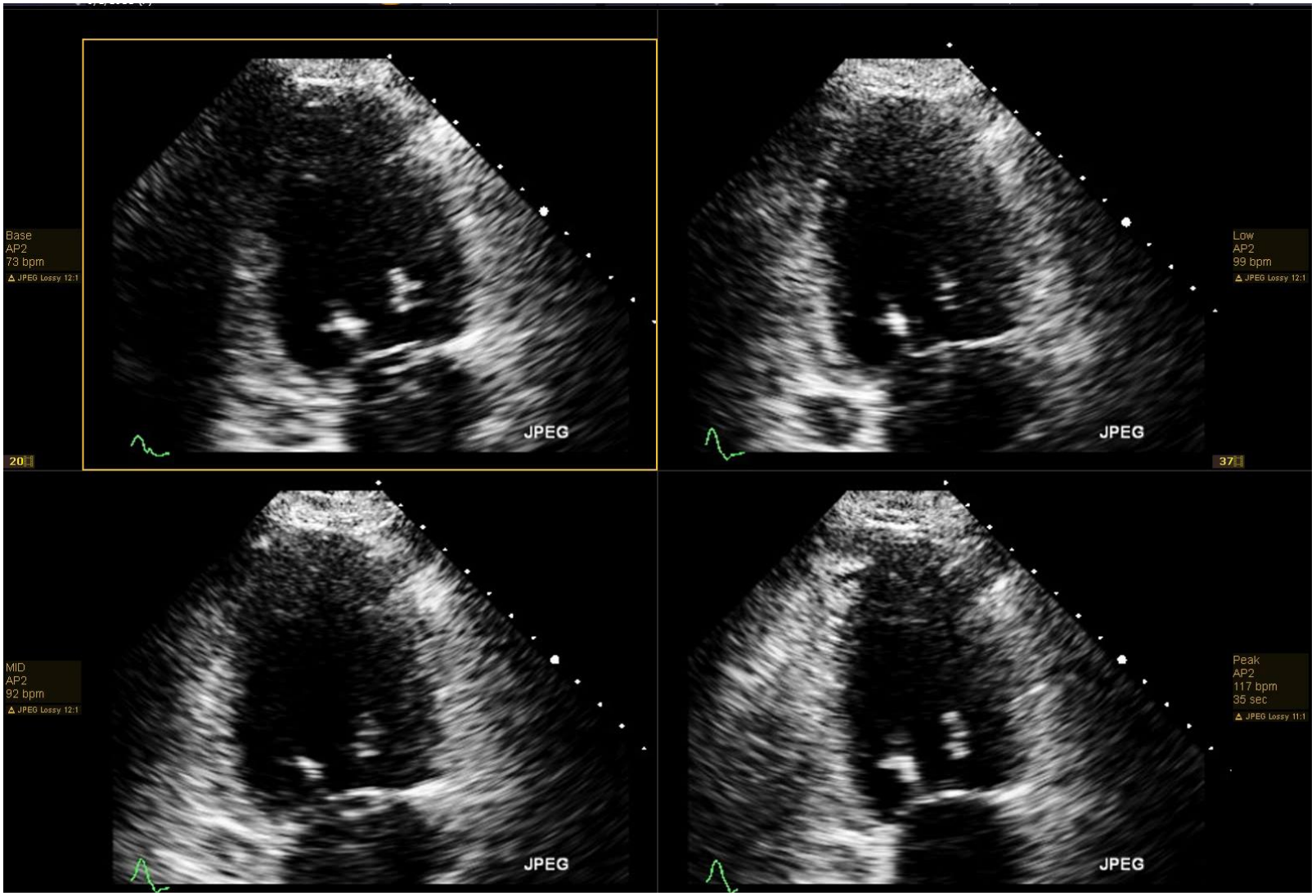
Referred for **dobutamine** stress echo;
cannot exercise due to severe hip pain.

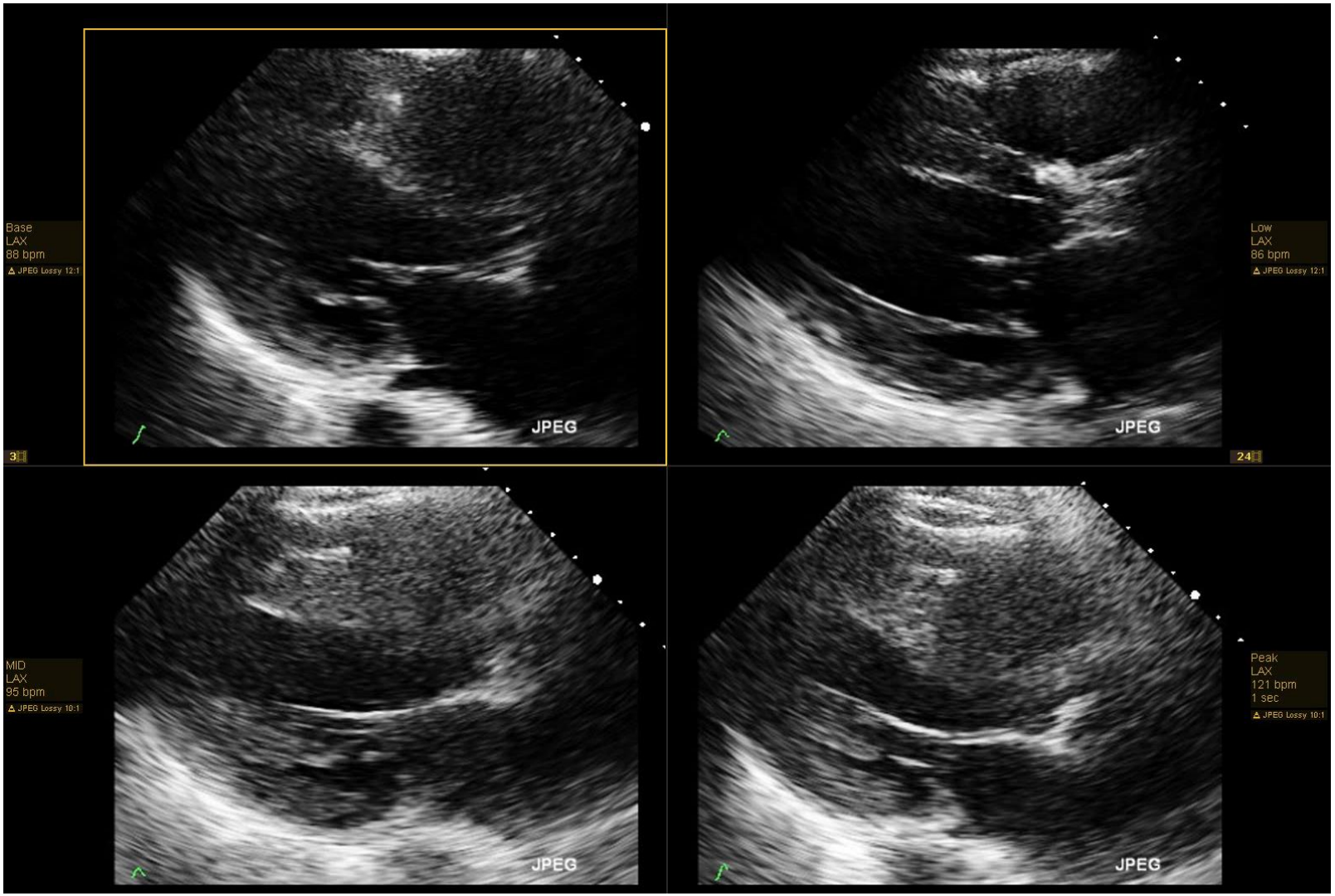
DOBUTAMINE STRESS ECHO | A4C VIEW



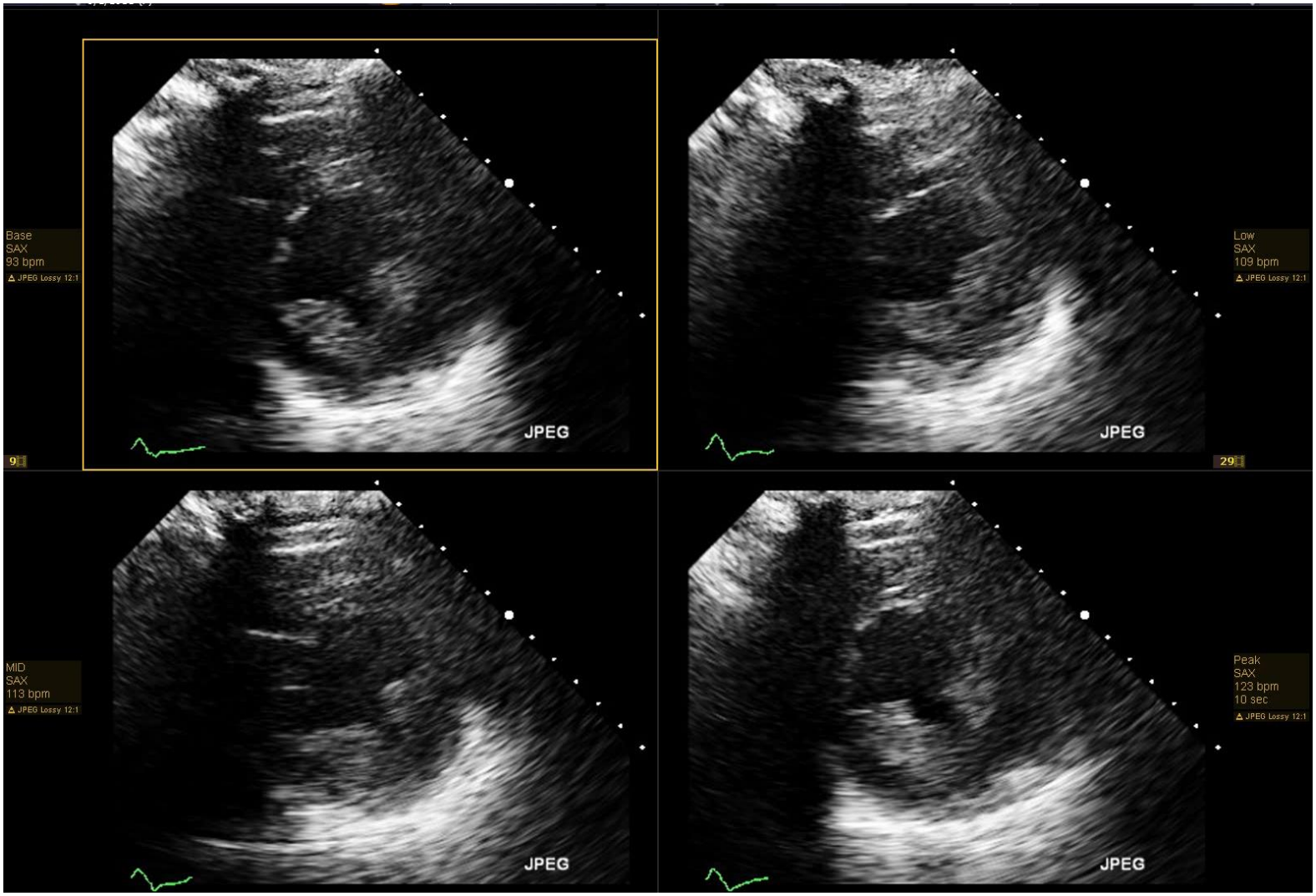
DOBUTAMINE STRESS ECHO | A2C VIEW



DOBUTAMINE STRESS ECHO | PLAX VIEW



DOBUTAMINE STRESS ECHO | PSAX VIEW

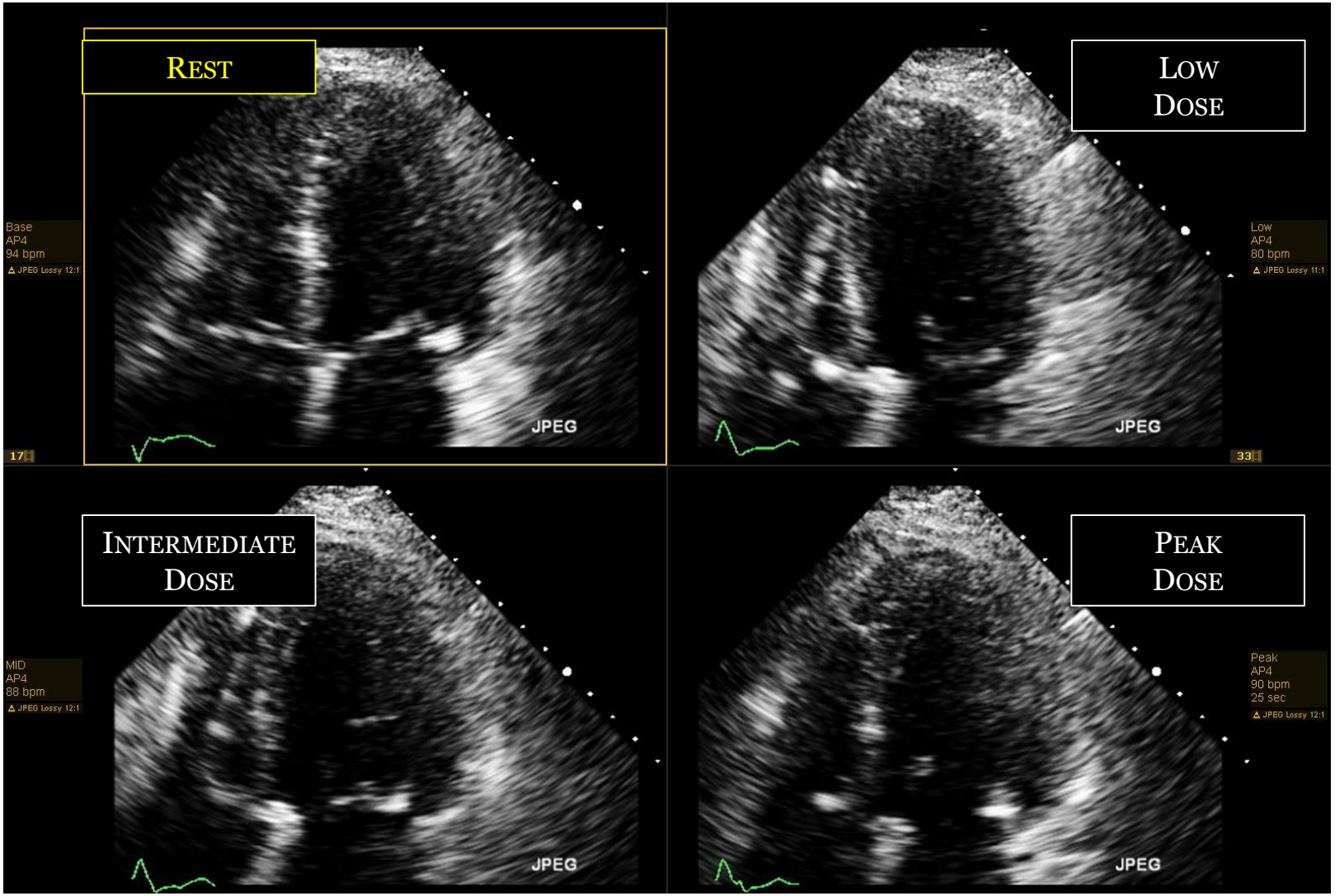


QUESTION

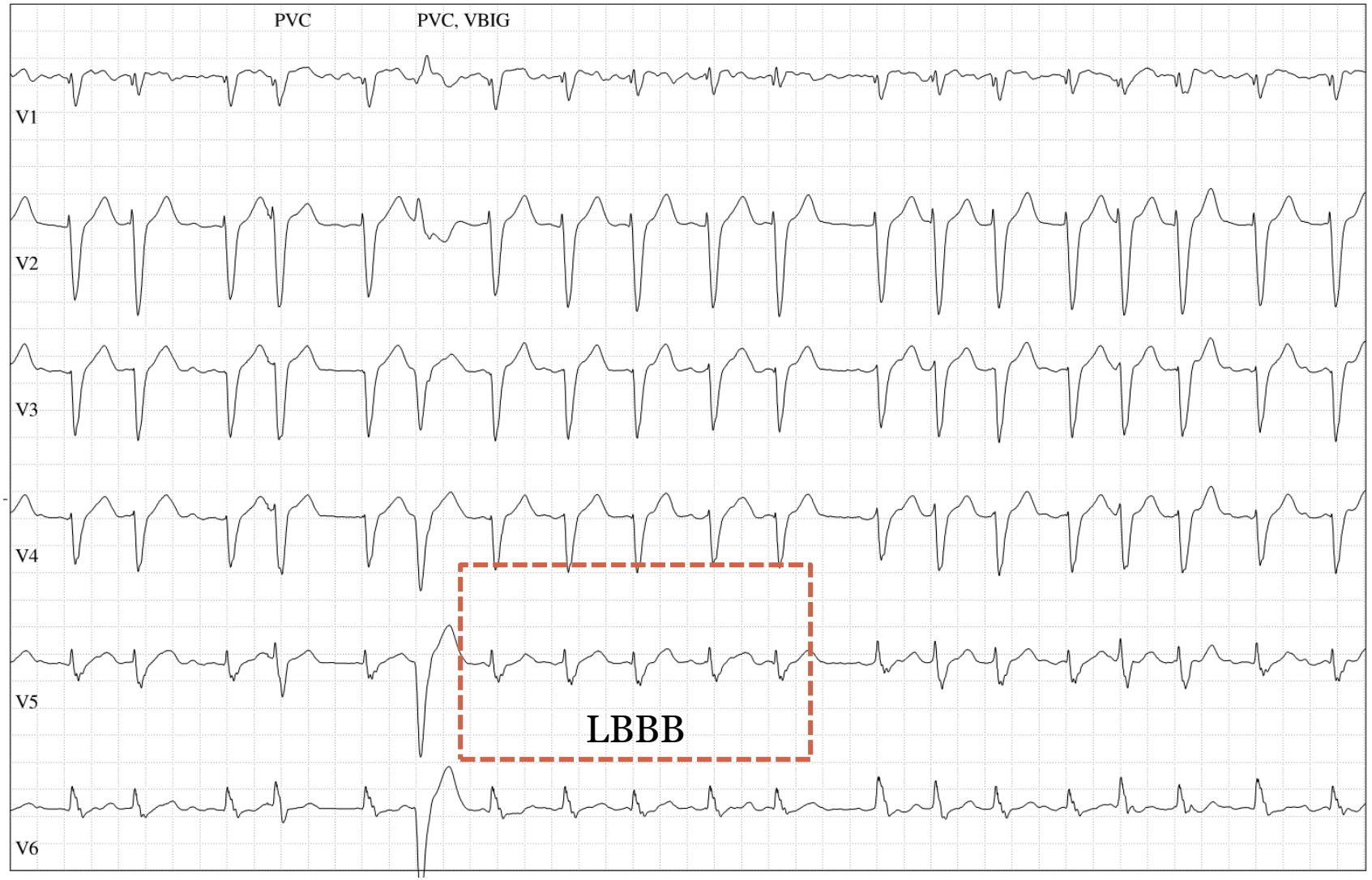
There are stress-induced LV wall motion abnormalities in the LAD territory.

Is this a positive stress echo?

DOBUTAMINE STRESS ECHO | A4C VIEW



DOBUTAMINE STRESS ECHO | EKG AT PEAK STRESS



TEACHING POINTS

- **LBBB** may lead to LV wall motion abnormalities that **mimic LAD ischemia**
- If possible, patients with baseline LBBB should undergo a form of stress testing that does **NOT** rely on heart rate increase.
- Baseline **LBBB** >>> order **vasodilator stress test**
  (vasodilator nuclear in the United States; vasodilator echo in Europe).

Thank you

New York University Medical Center