

## P1577

**Mitral regurgitant "splay": an important clue to severity of regurgitation**Wiener PC.<sup>1</sup>; Friend E.<sup>1</sup>; Bhargav R.<sup>2</sup>; Kadem L.<sup>3</sup>; Pressman G.<sup>2</sup><sup>1</sup>Albert Einstein Medical Center, Cardiology, Philadelphia, United States of America<sup>2</sup>Albert Einstein Medical Center, Philadelphia, United States of America<sup>3</sup>Concordia University, Engineering, Montreal, Canada

**Background:** Visual assessment of mitral regurgitation (MR) severity by color Doppler can be difficult, especially in eccentric jets. Examination of the proximal flow acceleration signal (PISA) on the ventricular side of the mitral valve can be helpful but, is not always intuitive. We describe a color signal ("splay") on the atrial side of the valve that can often be helpful in recognizing significant MR.

**Methods:** Clinical echocardiograms were reviewed to obtain two data sets: 100 patients with reported mild MR and another 100 with reported severe MR. All echocardiograms were reviewed to confirm that MR was truly mild or severe. Splay was defined as a non-physiologic arc of color (figure) centered at the point where the MR jet emerges into the atrium.

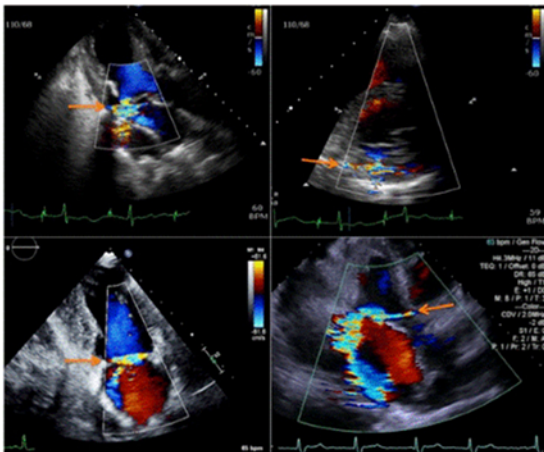
**Results:** Splay was present in the large majority of severe MR cases (table). It was seen across 3 vendors' machines and was present with normal and reduced EF as well as primary and secondary MR. Color scale and transducer frequency did not differ according to presence or absence of splay, but gain was higher when splay was present ( $57.5 \pm 6.8$  vs  $55.2 \pm 6.1$ ,  $p = 0.04$ ). In mild MR patients, splay was present on fewer frames and had lesser dimensions vs severe MR. Splay was particularly prevalent in patients with wall hugging jets (28/30, 93%).

**Conclusions:** The splay signal occurs as a side lobe artifact, at the point where a high energy MR jet emerges into the left atrium. Its presence often indicates significant MR and may be a useful clue in highly eccentric jets which are otherwise difficult to grade.

Table 1

	Mild MR	Severe MR	P value
Splay Present (%)	18	82	<0.0001
No. of Frames	$2 \pm 1.6$	$3.6 \pm 1.3$	<0.0001
Width of Splay (cm)	$2.2 \pm 0.5$	$3.2 \pm 0.9$	<0.0001
Depth of Splay (cm)	$0.36 \pm 0.11$	$0.47 \pm 0.16$	0.01

Abstract P1577 Figure. Splay Image



Clockwise: Off-axis PLAX, PSAX, apical 3-chamber, apical 2-chamber views each showing a prominent splay signal (arrows)