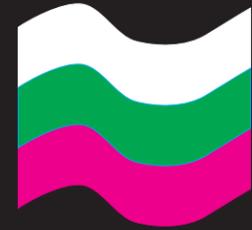




Coronary angioplasty abolishes postsystolic shortening in stable angina pectoris



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Background: Ischemic myocardium deforms predominantly during the isovolumic phases. Postsystolic shortening (PSS) has been proposed as a marker of ischemia and viability¹. Tissue Doppler imaging (TDI) can noninvasively detect PSS. The velocity obtained from the apical view represents a cumulative velocity of all segments apical to the analysed segment².

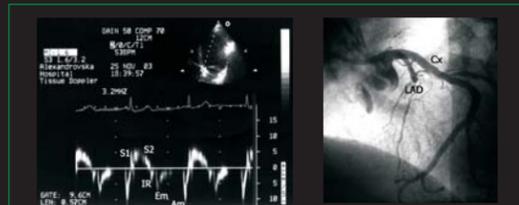


Fig 2. Patient without PSS in the effected region (IR - isovolumic relaxation).

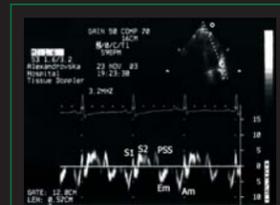


Fig 3. Patient with PSS in the effected region.

Table I. Preset for pulsed tissue Doppler for Sonos 5500

TCE1
power - 0.0 dB
doppler gain - 30%
doppler filter - 50 Hz
colorize - sepia
gate length - 0.56 cm
compress - 5, reject - 8
sweep speed - 50 mm/sec
scale +/- 20 cm/sec
temporal smooth (Setup) - 3
velocity smooth (Setup) - 5.

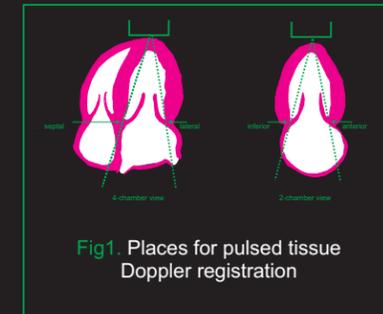


Fig1. Places for pulsed tissue Doppler registration

Methods: Pulsed TDI was performed at rest in 32 patients (21 male, 58.9±11.5 years) before and after balloon angioplasty for stable angina pectoris with Philips Sonos 5500, software version B2 with S3 transducer (table I). Mitral annular velocities were measured lateral and septal from apical 4-chamber view, anterior and inferior from 2-chamber view (figure 1). PSS was defined as positive velocity after main systolic velocity (figure 2 and 3).

Results: Before balloon angioplasty PSS (mean 3.7 ±1.8 cm/sec) was found in 24 of patients, in 19 of them they were on sites of mitral annulus, corresponding to affected coronary arteries (figure 3). After the angioplasty PSS disappeared on the site of mitral annulus matching the dilated artery in 14 of those 19 patients.

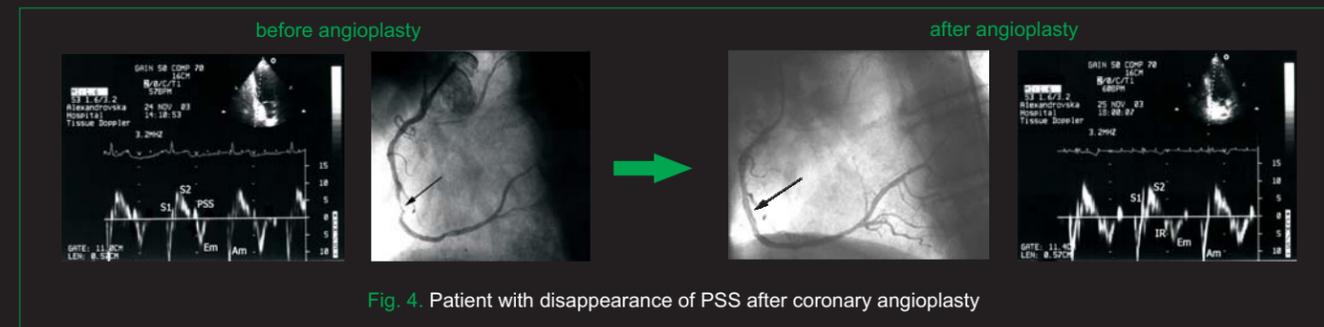


Fig. 4. Patient with disappearance of PSS after coronary angioplasty

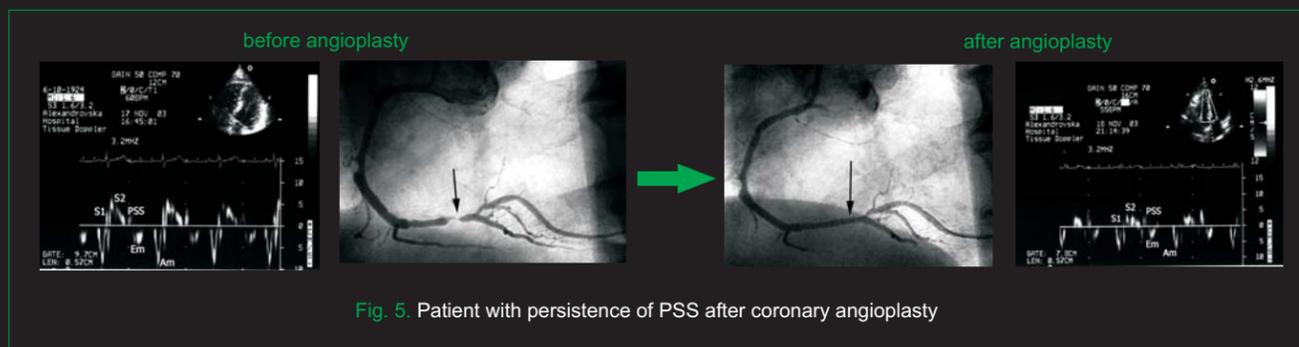


Fig. 5. Patient with persistence of PSS after coronary angioplasty

Conclusions: PSS might be important marker of myocardial wall ischemia.

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