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STUDIUM PRZYPADKU / *CLINICAL VIGNETTE*

Accuracy of the lowest Pd/Pa ratio measurement during induced hyperaemia (correct fractional flow reserve assessment)

Znaczenie sposobu pomiaru najniższego stosunku Pd/Pa podczas indukowanej hiperemii dla prawidłowej oceny cząstkowej rezerwy przepływu

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The lowest ratio of distal coronary pressure (Pd) to proximal coronary pressure (Pa) during induced hyperaemia (fractional flow reserve [FFR]) is an index of the physiological significance of a lesion. Minimisation of the risk of errors (which can result in significant signal drift > 3 mmHg and reclassification of even ~18% of FFR measurements) includes, among others, analysing the pressure waveforms in terms of signs of a ventricularised morphology (Pa dicrotic notch and horizontal/upsloping diastolic waveform, frequently with an 'A' wave) [Wakasa N et al. Circ J. 2016; 80: 1812–1819]. Figure 1 shows the results of subsequent FFR measurements (first — panel A; second — panel B; FFR 0.89 vs. 0.77, respectively) of a lesion in a proximal left anterior descending artery of a 65-year-old female. After the zeroing and 300 μg nitroglycerine IC administration, the FFR wire was advanced distally to the lesion. Pd (yellow) and Pa (red) waveforms were recorded simultaneously at baseline and during adenosine infusion. During the first measurement, attention was paid to the signs of a ventricularised morphology of the waveforms. While checking if pressure signal drift occurred and wire pull-back into the guide catheter, transiently Pd was greater than systolic and diastolic Pa (outlined with an ellipse) — both waveforms of a ventricularised morphology with artificially negative diastolic gradients and consequent FFR > 1.0 (flow pattern recognised in coronaries with myocardial bridges) [Tarantini G, et al. J Am Coll Cardiol. 2016; 68: 2887–2899]. Therefore, during the second measurement, attention was paid to disengage the guiding catheter from the coronary ostium into the aorta. PD waveform presented ventricularised morphology, whereas PA had the dicrotic notch, signifying the correct location of the catheter. During the final search for pressure signal drift during wire pull-back, pressure readings proximal to the lesion became equal (blue arrow), confirming the wire signal stability and accuracy of the FFR measurement [Seto AH, et al. Interv Cardiol Clin. 2015; 4: 419–434]. Although FFR performance appears simple, it can be difficult to master, and particular precautions need to be addressed every time the procedure is performed.

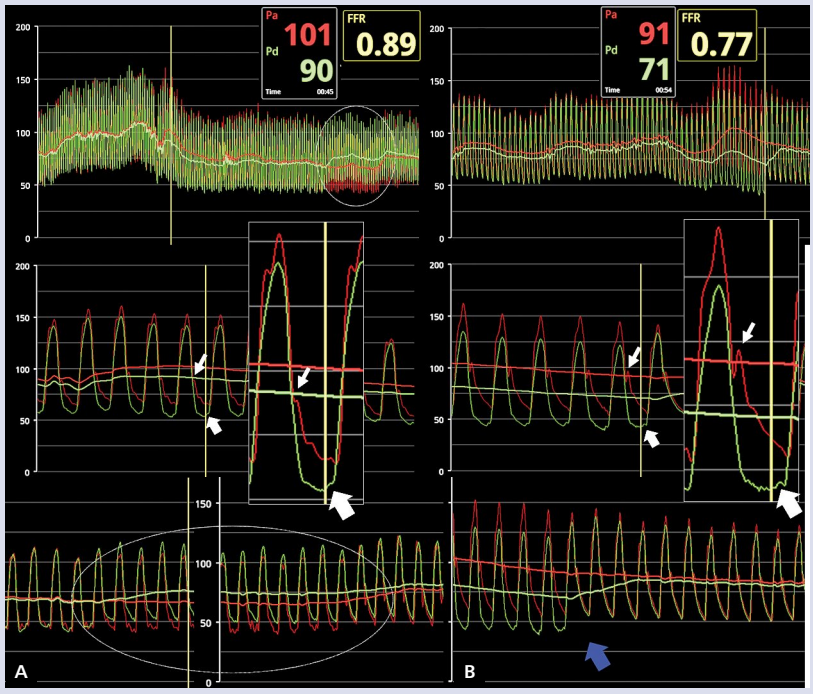

Figure 1. **A, B.** Different results from two fractional flow reserve measurements as a consequence of wedging of the guide catheter in a coronary ostium with damped pressure and absence of a dicrotic notch on a Pa waveform (thin arrow). 'A' wave indicated by bold arrows

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