

To stent or not to stent. That is the fractional flow reserve

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The lowest value of fractional flow reserve (FFR) is the basis for consideration of treatment strategy of borderline coronary lesions. A value ≤ 0.8 is considered an indication for interventional treatment. However, FFR reproducibility in routine clinical practice can be influenced by many factors including technical issues and a patients' hemodynamic condition.

Presented herein is a patient with atypical FFR recording, which may cause confusion in its interpretation.

A 70-year-old female patient with stable coronary artery disease (CCS I/II) was admitted for assessment of a borderline lesion (Fig. 1A, B) in the proximal left anterior descending coronary artery (LAD). Baseline ratio of pressure distal and pressure

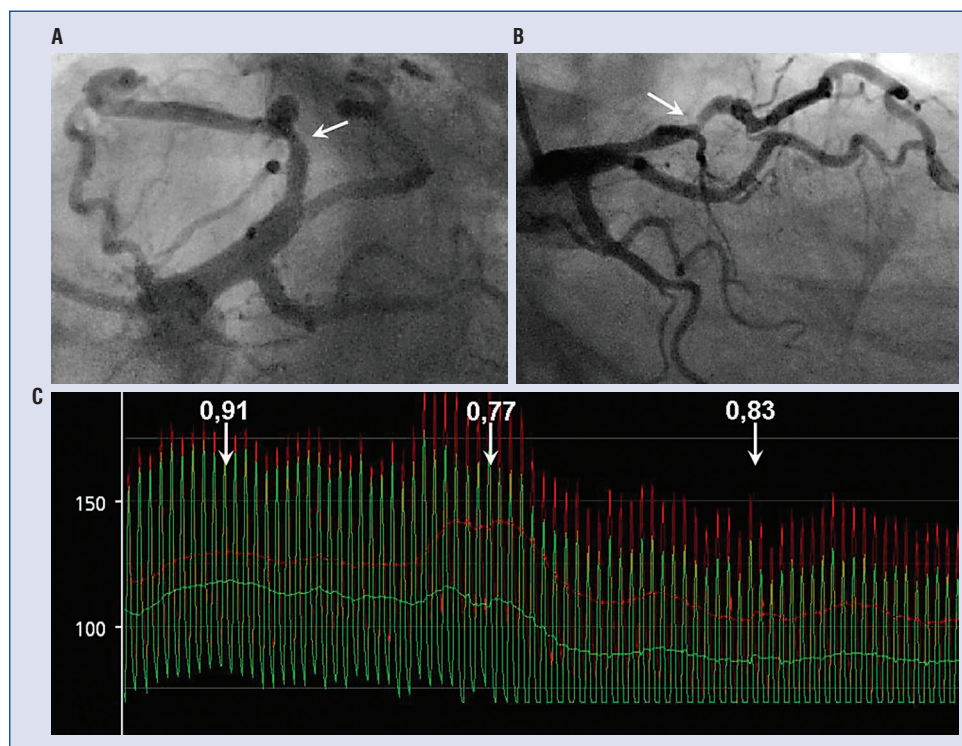


Figure 1. A. Borderline stenosis in proximal segment of left anterior descending coronary artery (LAD); B. Arrow indicates the position of fractional flow reserve (FFR) sensor; C. FFR below the third stenosis in LAD.

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proximal to the lesion was 0.91. Continuous adenosine infusion ($140 \mu\text{g}/\text{min}/\text{kg}$) was administered. The FFR value dropped to 0.77. However, subsequent FFR rise to 0.83 during steady-state hyperemia was observed (Fig. 1C), despite the increase of infusion rate to $160 \mu\text{g}/\text{min}/\text{kg}$. Based on the clinical presentation and FFR result, successful direct implantation of drug eluting stent was performed.

Fractional flow reserve pattern observed in our patient may cause some confusion in its interpretation. While the initial FFR value clearly drops below the threshold of significance, the stabilized FFR value at steady-state hyperemia does not reach the threshold of 0.8. Frequency of

such atypical tracing remains largely unknown. As much as seven different patterns of aortic pressure and distal pressure changes were observed in AFFECTS study [Tarkin JM, et al. *Circ Cardiovasc Interv.* 2013; 6: 654–661], resulting in an initial drop of FFR value and followed by a stabilized higher FFR value. To avoid misinterpretation, measurements under conditions of stable hyperemia should be considered.

Secondly, although intracoronary adenosine boluses may have less impact on the aortic pressure, they are not the preferred method to achieve steady-state hyperemia and this matters for borderline FFR values.

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