- 28 **Candido R**, Forbes JM, Thomas MC, *et al*. A breaker of advanced glycation end products attenuates diabetes-induced myocardial structural changes. *Circ Res* 2003;**92**:785–92.
- 29 **Liu JE**, Robbins DC, Palmieri V, *et al*. Association of albuminuria with systolic and diastolic left ventricular dysfunction in type 2 diabetes: the strong heart study. *J Am Coll Cardiol* 2003;**41**:2022–8.
- 30 **Fang ZY**, Najos-Valencia O, Leano R, *et al*. Patients with early diabetic heart disease demonstrate a normal myocardial response to dobutamine. *J Am Coll Cardiol* 2003;**42**:446–53.
- 31 **Hansen A**, Johansson BL, Wahren J, *et al*. C-peptide exerts beneficial effects on myocardial blood flow and function in patients with type 1 diabetes. *Diabetes* 2002;**51**:3077–82.
- 32 **Von Bibra H**, Hansen A, Dounis V, *et al*. Augmented metabolic control improves myocardial diastolic function and perfusion in patients with non-insulin dependent diabetes. *Heart* 2004;**90**:1483–4.
- 33 **Anon**. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS 38. UK prospective diabetes study group. *BMJ* 1998;**317**:703–13.
- 34 **Tuomilehto J**, Rastenyte D, Birkenhager WH, *et al*. Effects of calcium-channel blockade in older patients with diabetes and systolic hypertension. Systolic hypertension in Europe trial investigators. *N Engl J Med* 1999;**340**:677–84.
- 35 **Mottram PM**, Haluska B, Leano R, *et al*. Effect of aldosterone antagonism on myocardial dysfunction in hypertensive patients with diastolic heart failure. *Circulation* 2004;**110**:558–65.
- 36 **Asif M**, Egan J, Vasan S, *et al*. An advanced glycation endproduct cross-link breaker can reverse age-related increases in myocardial stiffness. *Proc Natl Acad Sci USA* 2000;**97**:2809–13.
- 37 **Liu J**, Masurekar MR, Vatner DE, *et al*. Glycation end-product cross-link breaker reduces collagen and improves cardiac function in aging diabetic heart. *Am J Physiol Heart Circ Physiol* 2003;**285**:H2587–91.

IMAGES IN CARDIOLOGY

doi: 10.1136/hrt.2005.068858

The coronary “echo-stenotic” reflex

A 71 year old woman underwent coronary angiography for typical stable angina symptoms. A bicycle ECG stress test showed a 4 mm horizontal V2–V4 downshift at 75 W. An intermediate lesion was observed on the mid left anterior descending coronary (panel A), and intravascular ultrasound showed a significant plaque burden (panel B). She was treated with a drug eluting stent but returned after five months complaining of persisting symptoms. A new ECG stress test showed a 3.5 mm horizontal V2–V4 downshift of the ST segment again at 75 W. There was no intimal hyperplasia and no new coronary lesions (panel C). Coronary flow reserve as measured by the Radi PressureWire system in response to intracoronary infusion of 15 mg papaverine showed a value of 1.3 (normal 3–6, pathologic < 2) (panel D). Resistance vessel disease (coronary syndrome X) was diagnosed and treatment with calcium antagonists was initiated.

The expression “oculostenotic reflex” refers to the tendency to overestimate the functional importance of intermediate coronary artery lesions, an effect that is emphasised by intravascular ultrasound. The case described here shows that functional assessment of plaque severity and small vessel function using recently developed techniques is particularly useful in order to avoid inappropriate revascularisation procedures.

M Fineschi
G Sinicropi
T Gori

tommaso.gori@utoronto.ca

(A) Baseline angiography. An intermediate lesion is evident in the left anterior descending coronary (arrow). (B) Intravascular ultrasound shows a minimum lumen area (MLA) of 4.3 mm², with an external elastic membrane (EEM) area of 9.8 mm².

(C) Follow up angiography showed no coronary (re)stenosis. (D) Coronary flow reserve measurement showing resistance small vessel disease.