

## THE CLINICAL PICTURE

**ABHISHEK SHARMA, MD**  
Division of Cardiology, Department of  
Medicine, State University of New York  
Downstate Medical Center, Brooklyn, NY

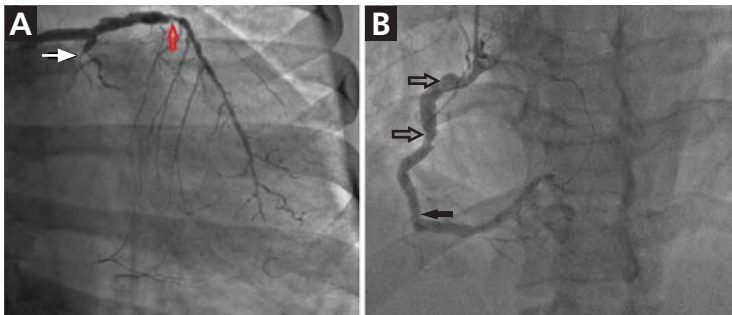
**CHUKWUDI OBIAGWU, MD**  
Department of Medicine, Maimonides  
Medical Center, Brooklyn, NY

**EKATERINA SIKORSKAYA, MD**  
Department of Medicine, The Brooklyn  
Hospital Center, Brooklyn, NY

# Bilateral earlobe creases and coronary artery disease



**FIGURE 1.** Earlobe creases (the Frank sign) were noted bilaterally.



**FIGURE 2.** In A, coronary angiography showed 80% stenosis of the mid-left anterior descending artery (red arrow), chronic total occlusion of the left circumflex artery (white arrow), and in B, mild to moderate diffuse atherosclerosis of the right coronary artery (arrows).

**A** 70-YEAR-OLD MAN with hypertension and hypercholesterolemia presented to the emergency department after the acute onset of substernal, pressure-like chest pain while

climbing a flight of stairs. His physical examination was normal, but he was noted to have bilateral diagonal earlobe creases (the Frank sign) (Figure 1), considered by some to indicate risk of coronary artery disease.<sup>1-5</sup>

Electrocardiography showed atrial fibrillation with a ventricular rate of 149 beats per minute, ST-segment elevation in leads V<sub>1</sub> and aVR, and ST-segment depression in leads V<sub>3</sub> to V<sub>6</sub>, II, III, and aVF.

Urgent coronary arteriography showed severe coronary artery disease (Figure 2). Left ventriculography showed an ejection fraction of 50% with mild anterior wall hypokinesis. A drug-eluting stent was placed in the mid-left anterior descending artery. The patient tolerated the procedure well, and his chest pain resolved afterward.

### ■ A STILL-UNCLEAR ASSOCIATION

Sanders T. Frank, in 1973, first described a diagonal wrinkle-like line on the earlobe as a sign of coronary artery disease.<sup>1</sup> Subsequently, autopsy studies suggested that deep bilateral earlobe creases could be an important sign of coronary atherosclerosis.<sup>2</sup> Diagonal earlobe creases have been shown to be independently associated with increased prevalence, extent, and severity of coronary artery disease.<sup>3,4</sup> They are also associated with major adverse cardiovascular events<sup>4</sup> and ischemic stroke.<sup>5</sup> The mechanism linking diagonal earlobe creases and atherosclerotic disease is not yet clear.

This patient's presentation and evaluation remind us that bilateral earlobe creases may be useful to include in the clinical examination of patients with suspected coronary artery disease and may facilitate early recognition of disease in a patient at high risk. ■

doi:10.3949/ccjm.83a.15160

**REFERENCES**

1. Frank ST. Aural sign of coronary-artery disease. *N Engl J Med* 1973; 289:327–328.
2. Patel V, Champ C, Andrews PS, Gostelow BE, Gunasekara NP, Davidson AR. Diagonal earlobe creases and atherosclerotic disease: a postmortem study. *J R Coll Phys Lond* 1992; 26:274–277.
3. Kaukola S, Manninen V, Valle M, Halonen PI. Ear-lobe crease and coronary atherosclerosis. *Lancet* 1979; 2:1377.
4. Shmilovich H, Cheng VY, Rajani R, et al. Relation of diagonal ear lobe crease to the presence, extent, and severity of coronary artery disease determined by coronary computed tomography angiography. *Am J Cardiol* 2012; 109:1283–1287.
5. Zapata-Wainberg G, Vivancos J. Images in clinical medicine: bilateral earlobe creases. *N Engl J Med* 2013; 368:e32.

.....  
**ADDRESS:** *Abhishek Sharma, MD, Division of Cardiology, Department of Medicine, State University of New York Downstate Medical Center, 450 Clarkson Avenue, Brooklyn, NY 11203; abhisheksharma4mamc@gmail.com*