Cinefluoroscopy as the gold standard for mechanical valve mobility

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A 35-year-old man with congenital aortic stenosis had several porcine valve replacements before receiving a mechanical St Jude bileaflet valve (St Jude Medical, USA) at the age of 18 years. For 17 years, he took only acetylsalicylic acid and refused to take warfarin. He then presented with dyspnea on exertion, at which time a transthoracic echocardiogram, followed by a transesophageal echocardiogram, showed aortic regurgitation. Both tests were suspicious, but inconclusive (due to acoustic shadowing) of one-leaflet immobility and possible thrombosis. Fluoroscopy showed free mobility of both leaflets (Figures 1A and 1B), sparing the patient a planned surgery.

This is a rare example of a patient with a St Jude's mechanical heart valve who survived for 17 years without anticoagulation and no definitive evidence of thrombosis. The incidence of major embolism in the absence of antithrombotic therapy is four per 100 patient-years. With antiplatelet therapy, this risk

is 2.2 per 100 patient-years, and with warfarin therapy, it is reduced to one per 100 patient-years (1).

A study of 229 mechanical disc prostheses (2) that were prospectively evaluated with cinefluoroscopy showed that although Doppler study allowed the measurement of gradients and areas, as well as the semiquantification of regurgitation, fluoroscopy was superior to echocardiography in identifying disc motion. Thus, cinefluoroscopy rapidly provides valuable information that is complementary to that obtained by echocardiography.

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Figure 1) Fluoroscopy showing the St Jude mechanical valve (St Jude Medical, USA) (arrows) in the open position (A) and the closed position (B)

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