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IMAGES IN INTERVENTION

Cardiovascular Interventions in the Modern Age

The Million Dollar Man

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This image was obtained from an 84-year-old male with a history of diabetes, heart failure, coronary artery disease, severe mitral regurgitation, sick sinus syndrome, and atrial fibrillation. Here, a single fluoroscopic still image of the patient's left chest illustrates the extent of his procedural treatment. The left and right panels are unannotated and annotated, respectively; annotations are in chronological order of implantation. Due to sick sinus syndrome, the patient underwent implantation of a dual chamber pacemaker with a passive fixation lead. Later, due to lead fracture, the atrial lead was replaced with an active fixation lead (**Figure 1A**). Percutaneous coronary intervention to the right coronary artery was performed because of the development of symptomatic coronary artery disease (**Figure 1B**). Subsequently, due to disease progression, the patient underwent coronary artery bypass graft surgery during which vascular clips (**Figure 1C**) and sternotomy wires (**Figure 1D**) were placed with wire fracture. He developed a bundle branch block in the setting of a decline in left ventricular ejection fraction, and the pacemaker was upgraded to a biventricular implantable cardioverter defibrillator with a coronary sinus lead (**Figure 1E**) and a right ventricular lead with defibrillation capability (**Figure 1F**). The patient eventually presented with heart failure requiring hospitalization, and a CardioMEMS device (St. Jude Medical, St. Paul, Minnesota) was implanted within the left pulmonary artery (**Figure 1G**) (1). The patient continued to have symptomatic heart failure despite aggressive management, thought to be due in part to worsening severe mitral regurgitation as a result of a combination of degenerative and functional etiologies. He was deemed to be at prohibitive risk for open repair, and underwent transcatheter mitral valve repair with a MitraClip (Abbott Vascular, Abbott Park, Illinois) (**Figure 1H**) (2). Finally, he was intolerant of oral anticoagulation and given his thromboembolic risk and rationale to seek a nonpharmacologic approach to stroke prevention, his left atrial appendage was closed using a WATCHMAN occluder (Boston Scientific, Marlborough, Massachusetts) (**Figure 1I**) (3).

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From the Division of Cardiovascular Diseases, Scripps Clinic, La Jolla, California. Dr. Groves has reported that he has no relationships relevant to the contents of this paper to disclose. Dr. Price has received consulting honoraria from Medtronic, Boston Scientific, St. Jude Medical, Terumo, W.L. Gore, AstraZeneca, Merck, and Boeringher-Ingleheim.

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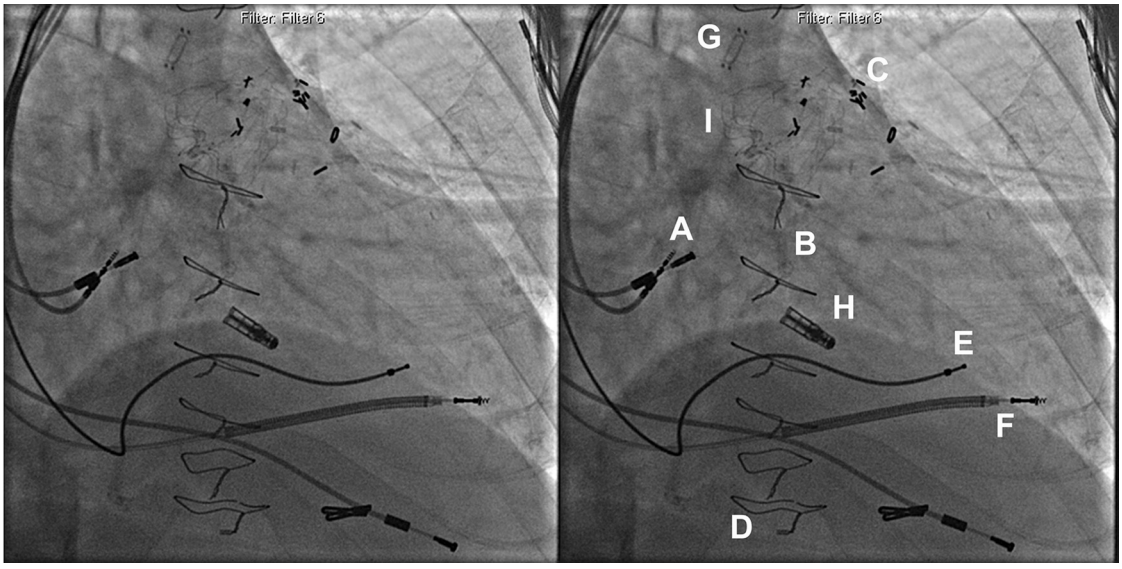
FIGURE 1 **Cardiovascular Interventions in the Modern Age**



(A) Active and passive fixation right atrial pacemaker leads; **(B)** right coronary artery stent; **(C)** surgically placed vascular clips; **(D)** sternal wires with fracture; **(E)** coronary sinus lead and **(F)** a right ventricular lead with defibrillation capabilities; **(G)** CardioMEMS device; **(H)** MitraClip; **(I)** WATCHMAN left atrial appendage exclusion device.

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