[redacted]

PATIENT: MAHER, JOHN
[redacted]

PREOPERATIVE DIAGNOSIS:
1. Out of hospital cardiac arrest.
2. Premature coronary artery disease.

POSTOPERATIVE DIAGNOSIS:
1. Easily inducible sustained ventricular tachycardia.
2. Out of hospital cardiac arrest.
3. Premature coronary artery disease.

PROCEDURE PERFORMED:
1. Electrophysiology study.
2. Implantable cardioverter-defibrillator implantation.

ANESTHESIA:
General.

INDICATION:
This is a 41-year-old gentleman with hyperlipidemia and a strong family history of premature coronary artery disease, who now presented with several days of malaise and then experienced an out of hospital cardiac arrest. He was shocked by the rescue squad into atrial fibrillation from ventricular fibrillation and he was noted to have inferior ST elevation. Cardiac catheterization showed three vessel coronary artery disease. He underwent stent placement to the RCA, given the hypotension, and then later underwent coronary artery bypass grafting. He is now here for further risk stratification, as it is unclear whether the ventricular arrhythmia preceded and resulted in the myocardial infarction or vice versa.

MEDICATIONS:

DESCRIPTION OF PROCEDURE:
The patient underwent informed consent and was taken to the electrophysiology laboratory in the fasting state.

The right groin was prepped and draped in a sterile fashion. The right groin was infiltrated with lidocaine 1%. Venous access was performed using the single entry needle technique. A 5 French sheath was placed into the right femoral vein. A single quadripolar electrophysiology catheter was advanced to the right heart under fluoroscopic guidance and placed in the right ventricular apex. The right ventricular effective refractory period at a pacing cycle length of 350 msec was 180 msec. The patient had very easily inducible sustained monomorphic ventricular tachycardia with a cycle length of 185 msec with a right bundle inferior axis morphology. This quickly degenerated into polymorphic ventricular tachycardia and then into ventricular fibrillation. He required a rescue shock of 200 joules. Given the ease of inducibility, it was felt that he is at high risk for recurrent malignant ventricular arrhythmias and, thus, it was felt that he needed an implantable defibrillator.

The left chest was then prepped and draped in a sterile fashion. The left infraclavicular fossa was infiltrated with lidocaine 1%. A two inch incision was made parallel to the clavicle. A device pocket was formed above the pectoralis fascia using

electrocautery dissection. Venous access was performed using the extrathoracic technique at the lateral subclavian vein over the first rib using two separate punctures. Two active fixation pacemaker leads were advanced to the right heart under fluoroscopic guidance through peel-away sheaths. The right ventricular/defibrillation lead was a Medtronic 6947 (serial number TDG160192V) and was actively fixated to the right ventricular apical septum, showing R waves of 7.8 mV with a threshold of 1.4 volts and an impedance of 599 ohms. The atrial lead was a Medtronic 5076 (serial number PJN1350557) and was actively fixated to the right atrial appendage showing P waves of 1.2 mV with a threshold of 0.9 volts and an impedance of 601 ohms; 10 volt pacing with each lead did not elicit any diaphragmatic stimulation. Both leads were secured to the pectoralis muscle using #0 silk onto the provided suture sleeves. The pocket was irrigated with antibiotic solution. The leads were then connected to a Medtronic Intrinsic implantable cardioverter-defibrillator generator model 7288 (serial number PUB130007H). The generator was placed into the pocket with the leads underneath the device. The incision was closed in two layers with absorbable running Vicryl sutures and then with Steri-Strips.

Defibrillation threshold testing was performed. Using a shock on the T wave, ventricular fibrillation was induced and was not terminated with the first shock of 15 joules but an immediate second shock of 25 joules restored sinus rhythm. Therefore, the defibrillation threshold was less than or equal to 25 joules but greater than 15 joules. The device was programmed to three zones. The VF zone had a rate cut off of 200 beats per minute to which he would receive 35 joules times six. The VT zone had a rate cut off of 188 beats per minute to which he would receive anti-tachycardia pacing only with no shocks programmed. A fast VT zone was programmed via the VF zone to provide a single burst of anti-tachycardia pacing followed by serial 35 joule shocks. Pacing was programmed to the AAI-DDD mode with a low rate of 50 beats per minute. The right groin sheath and catheter were removed and hemostasis was achieved using manual compression.

ESTIMATED BLOOD LOSS:
20 ml.

COMPLICATIONS:
None.

IMPRESSION:
1. Very easily inducible sustained ventricular tachycardia.
2. Successful implantable cardioverter-defibrillator implantation and defibrillation threshold testing.

HEMODYNAMICS:

SUMMARY OF FINDINGS:

RECOMMENDATIONS:

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