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## Intraoperative Pacemaker Malfunction during a Shoulder Arthroscopy

*To the Editor:*—We recently encountered a failure of ventricular capture that occurred during right-sided, elective shoulder arthroscopy in an 89-yr-old man with a dual-chamber pacemaker. The patient was treated 4 yr previously for a bradycardia-tachycardia syndrome by  $\beta$ -blockers and heart pacing with an atrioventricular sequential pacemaker (ELA Medical Chorum 7234; Montrouge, France). The generator, located below the right clavicle and connected to screwed endocardial pacing leads, was functioning normally on the DDD mode before surgery. Electrocardiography showed 100% atrial pacing at 70 beats/min, triggering atrioventricular-conducted ventricular events. Chest radiography showed that the pacemaker and pacing leads were correctly positioned (fig. 1A). After administration of oral propranolol and hydroxyzine, a brachial plexus block was performed with 0.5% bupivacaine (20 ml) and 2% lidocaine (20 ml) using a peripheral nerve stimulator. General anesthesia was then induced with propofol and maintained with propofol infusion and 50% nitrous oxide in oxygen (laryngeal mask). No electrocautery was used during the procedure. After 45 min of surgery, bradycardia at 35 beats/min occurred. Electrocardiography showed regular atrial pacing at 70 beats/min and one half loss of ventricular capture. Intravenous isoproterenol was used to keep the ventricular rate at more than 70 beats/min. Surgery was rapidly discontinued, and a major edema of the shoulder was noted, caused by an unexpected massive subcutaneous diffusion of the saline used for joint irrigation. Chest radiography showed that the generator was displaced toward the shoulder and that there was traction on both the atrial and the ventricular leads (fig. 1B). The wire did not seem to

be pulled from the pacer, and the most probable cause of the loss of ventricular capture was displacement of the tip of the electrode from the heart. Late lead displacement of a screwed pacing lead is rare.<sup>1,2</sup> The phenomenon observed in our case can be compared with the lead retraction from the heart seen in Twiddler syndrome, which occurs when the patient repeatedly rotates the pacer under the skin.<sup>3</sup> This hypothesis was supported by the resumption of ventricular pacing 2 h later, when the shoulder edema decreased and the pulse generator returned to its initial position. Pacemaker program and lead impedance were found to be unchanged 3 h after surgery. Other causes of pacing failure, including electromagnetic interference or increase in pacing threshold secondary to toxic plasma concentration of bupivacaine after brachial plexus block, are unlikely.<sup>4</sup>

It is important to monitor pacemaker function closely in the perioperative period because uncommon phenomenon may induce pacemaker failure.

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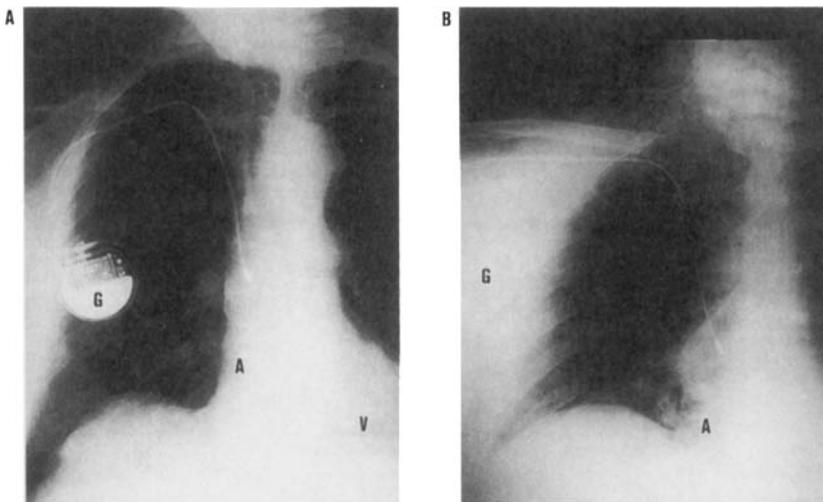
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**Fig. 1. (A) Preoperative and (B) immediate postoperative chest radiographs showing the position of pulse generator (G) and of atrial (A) and ventricular (V) electrodes. (B) Reveals displacement of the pulse generator toward the shoulder by edema and shows traction on both the atrial and the ventricular leads.**

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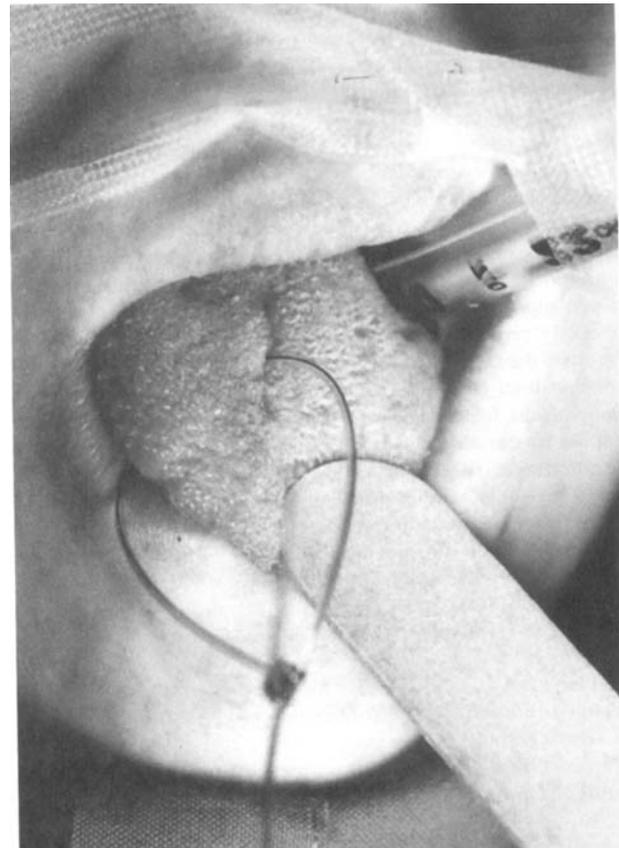
## Anesthetic Considerations of a Patient with a Tongue Piercing, and a Safe Solution

*To the Editor:*—A young woman presented for emergency dilation and curettage and requested general anesthesia. She recently had her tongue pierced and currently had a large, metal, barbell-shaped bolt in her tongue. While discussing the placement of the device, the patient relayed anecdotal stories of people swallowing the lower or upper portion in their sleep, even though the bolt was believed to be tightly screwed together. After the anesthetic risks of the tongue piercing were explained to the patient,<sup>1,2</sup> she was reluctant to remove the device for fear of having to get her tongue repierced, should the hole close.

After some consideration, I was able to alleviate both of our concerns. The patient removed the jewelry from her tongue, and I was able to easily pass an epidural catheter through the existing hole. I then tied the epidural catheter in a large loop, as not to impinge her tongue (fig. 1). This did not impede laryngoscopy, nor did it cause any trauma to her tongue or teeth. If the piercing is very new, one could also pass the epidural catheter alongside the bolt, through the hole, before the jewelry is removed. Such a procedure can satisfy the anesthesia provider's concern for safety and potentially spare the patient from having to undergo a second tongue piercing.

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**Fig. 1.** Tongue with epidural catheter through piercing hole.