Cardiac Device Infection Management: Creating Awareness in Your Institution

CASE STUDY

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Case Study

In June 2012, a patient was referred to me by the ENT (ear, nose and throat) service at my institution. At first I couldn't imagine how I could possibly get a referral to my extraction clinic from the ENT service, but it quickly became obvious when I met him. His fascinating story made me realize that even patients with device infections at a major medical center were not always recognized and appropriately treated.

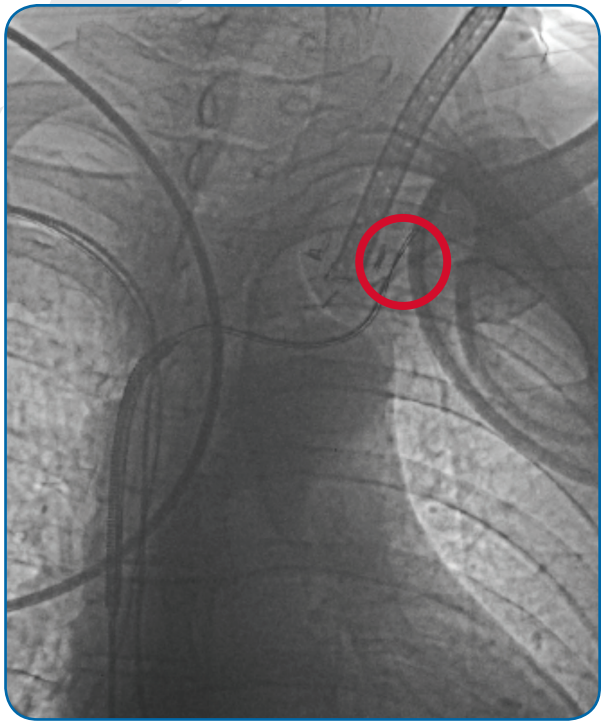

Image of cut and abandoned ICD lead that retracted into the vasculature

The patient was a retired pharmacologist who suffered his first MI in 1985 at the age of 40 while water skiing. As a result, he had an ischemic cardiomyopathy and in 1993 presented with syncope. He underwent an EP study and had inducible sustained monomorphic VT. An abdominal single chamber ICD system was placed at that time, and he did well until 2009 when he presented with an ICD pocket infection. The abdominal ICD generator was removed, and the lead which had been tunneled to the left subclavian at the time of implant was cut, and the extravascular portion was removed. The remainder of the abandoned lead retracted back into the subclavian vein. Blood cultures were positive for coagulase-negative Staphylococcus. He was treated with antibiotics and one month later underwent implantation of a right-sided, dual-chamber ICD system.

Four years after the initial infection, having undergone three ENT surgeries, numerous evaluations by different specialists and 12 positive blood cultures with the same organism, he underwent extraction of both the abandoned lead and the dual chamber ICD which cured his infection.

The patient did well until 2010, when he began experiencing pain on the left side of his neck. His primary care physician noted a lump and prescribed several courses of antibiotics. With completion of each course, the painful left neck mass recurred. In 2011 he was evaluated by an ENT physician, and a draining neck mass was noted. A cyst was suspected, and the patient underwent surgical resection of the lump. He did well, but four months later had a recurrent left neck mass. He then underwent a second surgical procedure, but the neck mass again recurred. In early 2012, he was referred to another ENT for further deep surgical resection. In May 2012, he underwent a third surgical procedure with dissection of a tract which was described as originating from the left subclavian. A CT scan was obtained, and the retracted ICD lead which was cut in 2009 was noted. He was referred to our extraction clinic with the thought that the retained lead might "possibly" be responsible for the recurrent, painful, draining left neck mass.

We evaluated him in our extraction clinic in June 2012 and were convinced the abandoned lead was infected and responsible for the recurring left neck mass. The patient did not believe this to be the case and declined extraction at that time.

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Between June 2012 and February 2013, he was evaluated six different times for fever and night sweats. Various physicians evaluated him during this time, including an internist, emergency department physician, hospitalist, dermatologist and an infectious disease specialist. A total of 10 blood cultures were obtained during this time period, all of which were positive for coagulase-negative Staphylococcus. Some of these were felt to be contaminants and others were treated with a course of antibiotics. He was finally transferred to our service from an outside hospital with fever, severe back pain and positive blood cultures after the patient was initially sent him home with a diagnosis of musculoskeletal back pain.

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Creating Awareness

This case made me realize that even at my institution where we have a large lead extraction program, infections in device patients may still be missed or not referred to our program for a consult. I realized that I needed to help create awareness within my institution and the referring community that if a patient has a CRM device, medical treatment alone may not be the answer. While not every patient is the right candidate for lead extraction, at minimum the patient should be evaluated by an extractor, since often complete hardware removal is the best shot at curing the infection. Since seeing this patient I have had discussions with multiple disciplines within my hospital about infections in device patients and have conducted multiple discussions and lectures in the referring community to raise awareness. If patients are being missed at a well-resourced major medical institution, I believe they are probably being missed at other institutions as well. While we may not be capturing all the infections at my institution yet, I know that there are at least six patients that have come to me for consult that we probably would have missed prior to having these discussions earlier this year.

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GlideLight™ Important Safety Information

The GlideLight Laser Sheath is intended for use with other lead extraction tools in patients who are suitable candidates for removal of implanted pacemaker and defibrillator leads. The use of the GlideLight Laser Sheath may be unsafe in some patients, or with certain leads, or when the leads cannot be extracted through the superior veins (that is, when groin or surgical extraction is required). Rarely a patient undergoing lead extraction may require urgent surgical treatment for a complication; therefore, patients should not undergo lead extraction with a laser sheath in centers where emergency surgical procedures cannot be performed. Leads not intended for extraction may be damaged during the procedure and may require replacement. Ask your doctor if you are a candidate for lead extraction with the GlideLight Laser Sheath.

Potential minor adverse events associated with lead extraction procedures that may or may not require medical or surgical treatment include: a tear or damage to the blood vessels, the heart or its structures; bleeding at the surgical site; or collapsed lung.

Rare but serious adverse events that require emergency medical or surgical procedures may include: a tear or damage to the blood vessels, the heart, lungs or their structures; blood clot or obstruction of the blood vessels or lungs by debris or lead fragments. Other serious complications may include: irregular heartbeat, weakened heart muscle, infection, respiratory failure or complications associated with anesthesia, stroke or death.

This information is not intended to replace a discussion with your healthcare provider on the benefits and risks of this procedure to you.

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