

What's New?

Laser Assisted Transvenous Lead Extraction

In the past, dealing with infected or dysfunctional transvenous pacing or defibrillator leads has been problematic due to the complexity, lack of availability and risk of lead extraction techniques. It is known that definitive management of device infection involves complete removal of all foreign body including the device, and the indwelling leads. Management of dysfunctioning or displaced leads that are scarred in place has been handled by trying to squeeze new leads through the same access point or more creative methods of connecting leads placed through different sites. In young people especially, this can be problematic creating venous thrombosis and challenging issues with central venous access. Recently, a commonly used ICD pace/sense/defibrillator lead has proven prone to fracture and ultimate ICD malfunction making lead extraction a necessity.

There now exists a safe, reliable and available technique of lead removal that can solve problems involving infection, venous access challenges and the need to revise or replace dysfunctional transvenous leads. Laser lead extraction involves two critical technologies, a lead locking device that allows traction to be placed on the lead without distorting or unraveling it, and a laser sheath that safely lyses any connections between the lead and surrounding tissues.

Laser lead extraction needs to be performed with the availability of TEE and cardiac surgical intervention with a coordinated effort including anesthesia, surgical staff and the physician operator. Our Heart and Vascular Team has taken the initiative to establish a lead extraction program. We have demonstrated the success and safety of the technology with several patient experiences. It is exciting to offer this unique service to the people of northeastern Wisconsin.

HRS Class I Indications for Extraction of Cardiac Leads*:

- Sepsis or endocarditis with documented infection of any intravascular portion of pacing system
- Pocket infection when the intravascular portion of the lead system cannot be aseptically separated from the pocket
- Life-threatening arrhythmias secondary to a retained lead fragment
- A retained lead that poses immediate or imminent physical threat to the patient
- Clinically significant thromboembolic events caused by a retained lead or lead fragment
- Obliteration or occlusion of all usable veins with the need to implant a new transvenous pacing system
- A lead that interferes with the operation of another implanted device

HRS Class II Indications for Extraction of Cardiac Leads*:

- Non-functional leads in young patients*
- Leads preventing access to the venous circulation for newly required implantable devices
- Localized pocket infection, erosion, or chronic draining sinus not involving the transvenous portion of the lead system (when the lead can be cut through a clean incision that is totally separated from the infected area)
- An occult infection for which no source can be found and for which the pacing system is suspected
- Chronic pain at the pocket or insertion site not manageable by medical or surgical technique without lead removal
- A lead that interferes with the treatment of a malignancy
- A traumatic injury to the entry site of the lead for which the lead may interfere with reconstruction of the site

* For complete indication description, see Love, Charles J. et al, NASPE Policy Statement – Recommendations for Extraction of Chronically Implanted Transvenous Pacing and Defibrillator Leads: Indications, Facilities, Training. Pacing and Clinical Electrophysiology, April 2000, Vol 23, No 4, Part 1.