



Case Report

The implantable loop recorder and its mammographic appearance: A case based approach



Sharon Steinberger ^{*,1}, Laurie R. Margolies ¹

Icahn School of Medicine at Mount Sinai, 1 Gustave L. Levy Pl, New York, NY 10029, United States

ARTICLE INFO

Article history:

Received 3 January 2017

Accepted 14 January 2017

Available online xxxx

Keywords:

Implantable loop recorder

Implantable cardiac device

Mammography

ABSTRACT

The normal radiographic appearance of implantable loop recorders has been illustrated in the radiology literature; however, their mammographic appearance has not been described. Breast imagers should become familiar with the appearance of loop recorders in order to create an accurate report. In this paper we report 3 cases of patients with implantable loop recorders who underwent mammography. We describe the types and components of implantable loop recorders, indications for their placement, and their classic appearance on mammography.

© 2017 Elsevier Inc. All rights reserved.

1. Introduction

The normal radiographic appearance of implantable loop recorders (ILR's) has been illustrated in the radiology literature [1], however, their mammographic appearance has not been described. Radiologists reading mammography should become familiar with the appearance of loop recorders in order to identify these devices and create an accurate report. Implantable medical devices may result in a suboptimal mammogram and increased patient discomfort [2]. Familiarity with these devices will enable radiologists to identify these patients and adjust their mammography protocol to minimize patient discomfort and improve image quality. In this paper, we briefly describe the types and components of ILR's, indications for their placement, and illustrate the classic appearance of ILR's on mammography using a case based approach. This information will enable radiologists to recognize their appearance and understand their function.

1.1. Types and components

Implantable loop recorders were originally developed in the 1990's. They are small, rectangular, subcutaneous, single-lead, electrocardiographic monitoring devices used for extended and continuous monitoring of a patient's cardiac rhythm. These titanium-encased devices are usually implanted in the left parasternal region although other locations

including the left axilla are currently being explored [3]. The ILR records episodes of bradyarrhythmia, tachyarrhythmia, or in response to patient or bystander activation using an external activator device in the event of symptom onset.

Available ILR's include the Reveal DX, XT, and LINQ by Medtronic® (Minneapolis, MN) (Fig. 1) and the Confirm by St. Jude Medical® (St.



Fig. 1. Samples of ILRs in current use for syncope. (a) Medtronic Reveal DX®. (b) Medtronic Reveal XT®. (c) Medtronic LINQ®. Reproduced with permission of Medtronic, Inc.

* Corresponding author.

E-mail addresses: Sharon.Steinberger@MountSinai.org (S. Steinberger),

Laurie.Margolies@MountSinai.org (L.R. Margolies).

¹ The Mount Sinai Hospital, New York, NY 10029.



Fig. 2. Frontal radiography of an ILR demonstrating the internal sensing electrodes.

Paul, MN). The ILR contains two sensing electrodes (Fig. 2), which record a bipolar electrogram. The electrodes are positioned at each end of the ILR to increase sensitivity to cardiac electrical activity [4] and information is downloaded via a radiofrequency programmer [5]. ILR's are implanted under local anesthesia and conscious sedation, with minimal risks including minor bleeding and infection.

Patients with ILR's can safely undergo mammographic evaluation and, if necessary, magnetic resonance imaging (MRI) as well. ILR devices are MRI compatible or conditional. Although prior to MRI examinations, ILR's should be interrogated and the stored data downloaded, as it may be erased by the magnetic field [6].

Indications for placement include patients with symptomatic arrhythmias and those who have experienced unexplained syncopal episodes [7,8,9]. Additional indications are currently under investigation including cryptogenic stroke, atrial fibrillation, and risk stratification after myocardial infarction [4,9,10]. The largest study of ILR's, the PICTURE registry, was a prospective, multicenter, observational study which included 570 patients with recurrent unexplained presyncope or syncope and found that the ILR directly contributed to a diagnosis in 78% of patients [11].

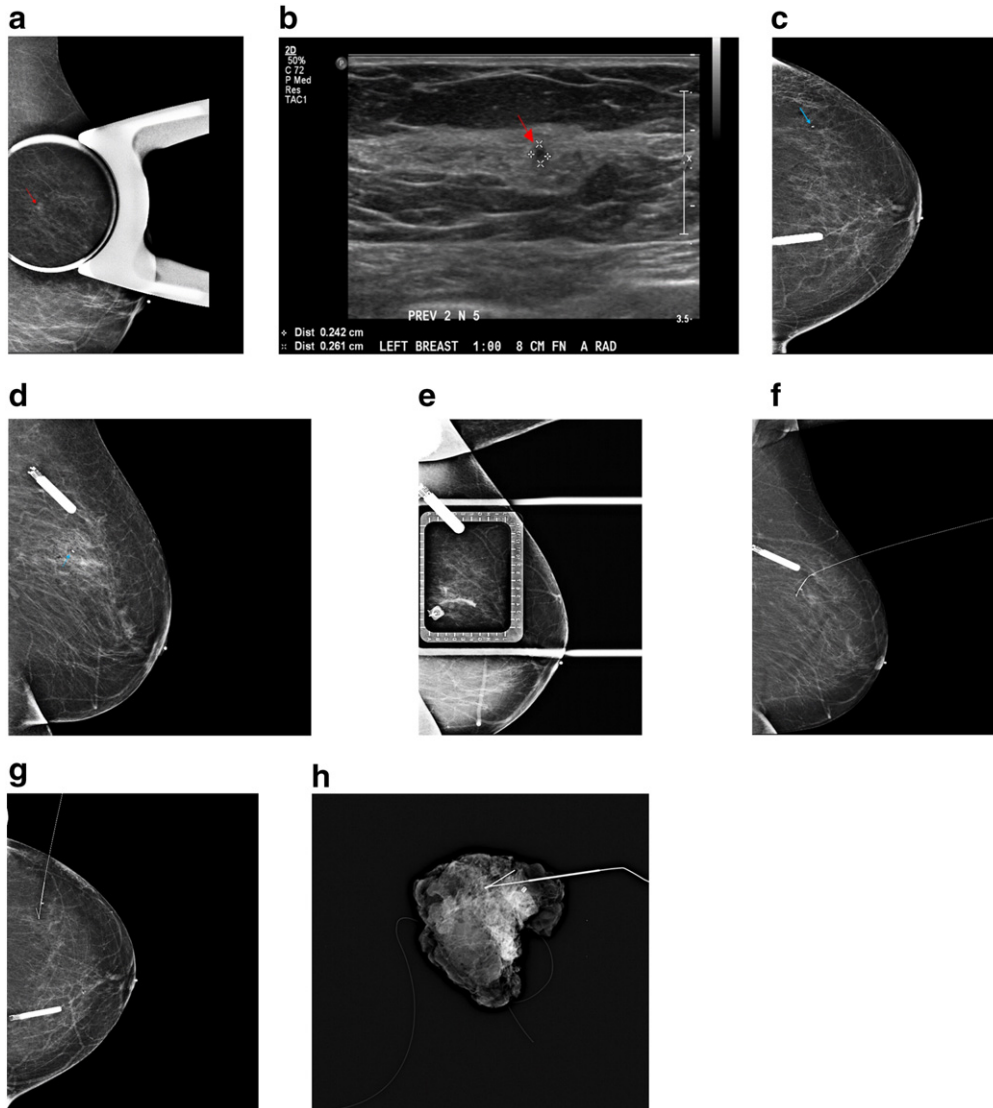


Fig. 3. 69 year old female with mass identified in the left breast on screening mammography. Diagnostic mammogram with spot compression view (a) demonstrates a high density 6 mm mass with indistinct margins (red arrow). A 3 mm hypoechoic irregular mass (red arrow) was identified on targeted diagnostic ultrasound (b) and demonstrated invasive lobular carcinoma. Post ultrasound guided core biopsy mammogram was performed displaying a coil shaped clip (blue arrow) on CC and MLO views as well as patient's Medtronic Reveal LINQ ILR (c, d). Stereotactic wire localization (e–g) was performed demonstrating additional views of the ILR. Intra-operative left breast specimen radiograph identifies the biopsy clip and localizing wire (h). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Download English Version:

<https://daneshyari.com/en/article/8821723>

Download Persian Version:

<https://daneshyari.com/article/8821723>

[Daneshyari.com](https://daneshyari.com)