CASE REPORT

Extraction of a foreign body from the breast parenchyma using radioguided occult lesion localisation (ROLL) technique: a new approach

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ABSTRACT. The radioguided occult lesion localisation (ROLL) technique is used for the excision of non-palpable breast lesions. This technique has not been described previously for the extraction of foreign bodies from the breast parenchyma. We report here a female patient who was admitted to our hospital with a foreign body in her right breast. The ROLL technique was used for the extraction of the foreign body.

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The most common foreign bodies encountered in the breast are surgical clips and fragments of hook-wires left after surgical excisional biopsies [1]. Pieces of glass, lead shot and other metallic objects have also been reported. Mammography is occasionally helpful in the diagnosis of these metallic foreign bodies within the breast [2]. In this case report, we describe the use of the radioguided occult lesion localisation (ROLL) technique to remove a fragment of a sewing needle that had penetrated the breast as a result of a trauma. To our knowledge, there has not been any previous report describing ROLL-assisted foreign body removal from the breast parenchyma.

Case report

A 34-year-old female patient was admitted to the breast clinic of Cerrahpasa Medical School with a complaint of pain in the lower inner quadrant of her right breast. She had a history of breast trauma owing to a sewing needle laceration of her right breast 2 years previously. Partial extraction of this foreign body had been performed in a medical centre. Even though she had not been unwell, she had been experiencing pain for the previous 2 months. The breast examination was unremarkable. Ultrasonography could not demonstrate the foreign body. Mammography detected the foreign body in the lower inner quadrant of her right breast, 3 cm under the skin surface (Figure 1). The foreign body was localised by perilesional injection of 0.2 ml ⁹⁹Tc^m-labelled macroaggregate albumin (MAA) under mammography guidance on the morning of the day of the

operation. The injection site was confirmed with an injection of contrast material on a check mammography (Figure 2). The excision was performed under local anaesthesia (2% lidocaine) with the aid of a hand-held gamma-detecting probe. During probing, the maximum radioactivity detection on the skin area was marked. The foreign object, which was 1.5 cm long, was removed by guidance of the ROLL technique through a small skin incision. As a result, successful extraction of the foreign material from the breast was performed with minimal breast destruction (Figure 3).

Discussion

Metallic foreign bodies within the breast are occasionally observed on mammograms [2]. The origin of these metallic particles can range from gunshot wounds to sewing needles or pencil lead fragments [1]. The most common foreign bodies in the breast are surgical clips and fragments of localisation hook-wires left during the course of surgical excisional biopsies [2]. Montrey et al [2] reported the frequency of retained wire fragments to be 0.2%. Retained fragments of localisation wires probably do not cause medical emergencies [2–4]. However, some studies reported possible wire migration to the chest wall and pleural and abdominal cavities [1–3]. In addition, some patients may have a sense of irritation and pain in their breasts [2, 3]. For the excision of non-palpable breast lesions, wire-guided localisation is the standard procedure [2]. Alternatively, Parker et al [3] reported the excision of a retained wire fragment with the use of the mammotome. Successful second-wire localisation for the excision of retained fragments of hook-wires can also be done [2, 5]. This procedure has a

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Figure 1. Foreign body seen in the mediolateral oblique mammography of the right breast.

similar risk of fragment retention for the second wire. We suggest the ROLL technique for the removal of retained wire fragments from the breast if radionuclide injections are available.

ROLL is a new method to localise and orientate the excision of non-palpable breast lesions [6]. It was reported that ROLL allows easier, more accurate and faster removal of breast lesions with extraction of smaller volumes of normal breast tissue than conventional localisation techniques [7, 8]. Although the role of ROLL has been well documented for the removal of non-palpable breast lesions, we have not encountered any reports documenting the use of this procedure to localise foreign bodies in the breast.

However, the ROLL technique also has some disadvantages: injection of the radionuclide in the wrong site or intraductal injection of the radionuclide may result in a ductography-like appearance, contamination of the skin with the radionuclide, and necessitate the use of a probe. If intraductal injection of the radionuclide occurs, the use of contrast material will alert the

Figure 2. Contrast material injected around the foreign body.

physician to this potential complication. In this case, the localisation should be performed with another technique. To avoid skin contamination, covering the skin with a drape before the procedure is recommended. Since the dosage of the radionuclide used in the ROLL technique is negligible, protection against radiation is not necessary [9].

We believe that removal of a foreign material from the breast by the ROLL technique is an easy, time-saving procedure which requires neither larger skin incisions nor larger breast excisions.

Figure 3. Foreign body.

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