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Case Report

Use of radioactive seed localization to guide removal of a non-palpable endometriotic lesion: a case report

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Institutional Review Board/ Ethics committee approval was not necessary for this case.

Written informed consent was obtained from the patient.

Precis

Radioactive seed localization was used for the first time, to our knowledge, to localize and excise a non-palpable extrapelvic endometriotic lesion.

Abstract

Extrapelvic endometriosis is a rare and usually misdiagnosed entity. Some extrapelvic endometriotic lesions are small and non-palpable, which makes them difficult to locate and remove. Here we report the use of radioactive seed localization (RSL) to locate and guide the excision of a small, non-palpable endometriotic lesion. A 32-year old woman presented with disabling pain in the right inguinal area. Magnetic resonance imaging and abdominal ultrasound results showed an 11-mm nodule in the abdominal wall, in the vicinity of the groin, consistent with an endometriotic lesion. The radioactive seed was placed within the lesion with the help of ultrasonography, and excision was guided with a portable gamma camera. Complete excision of the endometriotic nodule was achieved. We propose RSL as an accurate and feasible technique for the treatment of non-palpable endometriotic lesions.

Keywords: radioactive seed localization, non-palpable lesions, extrapelvic endometriosis, abdominal endometriosis.

Introduction

Endometriotic lesions typically occur in the pelvic area, i.e.: ovaries, vagina, retrocervical space, rectosigmoid colon, bladder and round ligaments; however, endometriotic tissue can also grow outside the pelvic cavity, including the abdominal wall and the inguinal area [1]. These extrapelvic lesions are rare and often difficult to diagnose [1].

Complete removal of lesions is the recommended treatment to relieve extrapelvic endometriosis symptoms [1]. Accurate lesion localization is essential for optimal surgical procedure, and small, non-palpable lesions are challenging to the surgeon. In the recent years, several methods have been developed to localize and guide excision of non-palpable lesions during surgery, mainly in the context of breast surgery [2]. Among them, radioactive seed localization (RSL) has proved to be an effective and safe procedure in the removal of non-palpable breast lesions [2,3]. Here we present a case of extrapelvic endometriosis where RSL was applied for the first time, as we haven't found it described on the literature, to remove a non-palpable endometriotic lesion in the inguinal area.

Case report

In 2018, a 32-year-old nulliparous woman presented with 3-years history of disabling pain in the right iliac fossa and right inguinal area. According to a visual analog scale for pain, the severity of dysmenorrhea was 10/10. She had no complaints of dyspareunia, dyschezia or dysuria. In 2015, previous magnetic resonance imaging (MRI) identified a suspected endometriotic nodule in the right suprapubic abdominal wall that measured 2 x 2 x 1.2 cm. The patient had been in continuing therapy with oral contraceptives during the previous year. Continuous contraceptive treatment substantially reduced her pain in the right inguinal area, but she reported pain recurrence when the treatment was interrupted.

Physical examination identified no palpable lesions and confirmed pain close to the right inguinal ligament. MRI revealed a nodule of 11 mm in the right suprapubic abdominal wall, between the insertion of the abdominal oblique and anterior rectus abdominis muscles, adjacent to the groin (Figure 1). An abdominal ultrasound with assessment of the contralateral groin revealed a poorly-defined hypoechoic nodule of 12 mm related to the MRI results, consistent with an endometriotic lesion in the

abdominal wall in the inguinal area (Figure 2). No signs of deep endometriosis or ovarian endometriomas were found in the MRI or vaginal ultrasound exploration.

Patient asked for surgical treatment, as she desired to conceive in the near future and was scared of pain recurrence once treatment with oral contraception would be stopped. The case was presented to the hospital Endometriosis Committee, where, due to the localization and small size of the lesion together with the impossibility of contraceptive continuation, the treatment approach decided was surgery with previous localization of the lesion using RSL.

RSL was carried out using a titanium seed containing 7.4 MBq of Iodine-125 (I-125). This radionuclide has a half-life of approximately 60 days and is a 27 keV source of gamma radiation. The 4-mm radioactive seed was introduced within an 18-gauge needle and guided into the lesion by ultrasonography (Figure 3). Finally, the exact position of the seed was confirmed with a portable gamma camera fitted with adequate I-125 photopeak energy (Figure 4a and 4b).

Dissection by layers was guided by the gamma probe until the I-125 seed was reached. Once localized, excision of the fibrotic nodule was performed by dissecting the tissue 1.5 cm around the radioactive seed. Hemostasis was achieved without complications. Fascia was sutured with 2-0 polyglactin 910, and subcutaneous layer with 3-0 polyglactin 910. The radioactive seed was confirmed to be placed in the center of the excised nodule and a detailed visual inspection of the piece to check the excision margins were free of endometriosis was done. Radioactive seed localization and excision surgery were performed during the same day. The patient had a good postoperative course and was discharged the same day of the intervention. Endometriosis was confirmed in the histopathological exam and the margins of the excised nodule were free of endometriotic tissue. -At the three months follow-up visit,

the patient was actively looking for pregnancy and reported not pain during the two postoperative menses.

Discussion

Here we report a case where RSL was successfully used to localize and excise a non-palpable extrapelvic endometriotic lesion. To our knowledge, this is the first time that RSL has been used in a patient with endometriosis.

Endometriotic lesions in the abdominal wall and the inguinal area are rare and commonly misdiagnosed [1,4]. Inguinal endometriosis is defined as the presence of endometriotic tissue in the inguinal area, which includes the inguinal canal, the extraperitoneal portion of the round ligament, the inguinal lymph nodes, and the subcutaneous adipose tissue [1]. In abdominal endometriosis, lesions grow in the muscle or the subcutaneous adipose tissue of the abdominal wall [1]. These types of lesions can be non-palpable due to its size and location, which complicates their detection and removal. Traditionally, those nodules have been removed by classical surgical resection which sometimes, due to a wide surgical excision to get negative margins, can lead to subcutaneous defects with poor aesthetics outcomes [10]. This is why, local management techniques using High-intensity Focus Ultrasound, Radiofrequency ablation or Cryoablation have been proposed as an alternative to avoid surgery.

Our patient presented with a non-palpable endometriotic lesion in the abdominal wall. Moreover, contraceptive discontinuation was not possible due to previously reported pain recurrence after treatment interruption, which kept the endometriotic nodule small and non-palpable. As most of the local techniques are still under study [10], we decided to use RSL to guide excision of the lesion. We maintained contraceptive treatment up to its removal to manage associated pain. We believe that with the use of RSL we were minimizing the risk of a wide excision, and its subsequent subcutaneous

defect, as the nodule was perfectly localized and the surgical excision could be accurate.

There are different methods available to accurately locate non-palpable lesions, including RSL, wire-guided localization (WGL), and radioguided occult lesion localization (ROLL), but their use for the treatment of endometriosis is rare. As far as we know, only two studies using WGL in scar and pulmonary endometriosis [5,6], and one study using ROLL for the excision of an endometriotic lesion in the abdominal wall, have been described [7].

Studies comparing WGL, RSL and ROLL in breast surgery show similar results for all methods in the successful excision of non-palpable lesions [2]; however, ROLL and RSL are sometimes favored over WGL because they facilitate a better access to the lesion and minimize patient inconvenience. RSL is a precise technique, as the radioactive marker is encapsulated and migration of the radioactive seed is minimal [8].

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In our study, RSL allowed the rapid detection and complete excision of the endometriotic lesion in the abdominal wall. Similarly, Vitral et al. report the rapid surgical identification and ability to have complete excision of the lesion with ROLL [7]. Complete removal of endometriotic lesions is important to reduce recurrence and reoperation rates. In this sense, a recent systematic review and meta-analysis showed better margin negativity and reduced reoperation rate of RSL vs. WGL for the removal of non-palpable breast lesions [3]. In our case, we suggest that the clean margins achieved by using RSL for the excision of the endometriotic lesion would translate in a reduction of recurrence and better prognosis for our patient.

RSL has been extensively used in breast surgery, and it has been recently proposed as a suitable technique for preoperative localization of other lesions, such as non-palpable lymph-nodes[9]. Our experience adds preoperative localization of non-palpable endometriotic lesions to the list of potential applications for RSL.

Lastly, a disadvantage of RSL is that it uses a radioactive agent. However, the radioactive energy of the I-125 seed is low, and RSL has been extensively shown to be a safe procedure. Therefore, we propose RSL as an accurate and feasible technique for the removal of non-palpable endometriotic lesions.

Conclusion

We have used RSL to locate and remove an endometriotic lesion in the abdominal wall for, as far as we know, the first time. The use of RSL allowed the rapid detection and complete excision of the small, non-palpable endometriotic nodule.

Disclosures

The authors declare that they have no conflict of interest and nothing to disclose.

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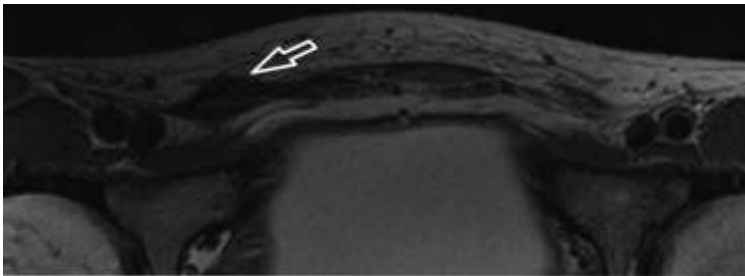
Figure legends

Figure 1

Axial T2 weighted MR image. An ill-defined hypointense nodule of 11 mm in the right suprapubic abdominal wall, between the insertion of the abdominal oblique and anterior rectus abdominis muscles, adjacent to the groin.

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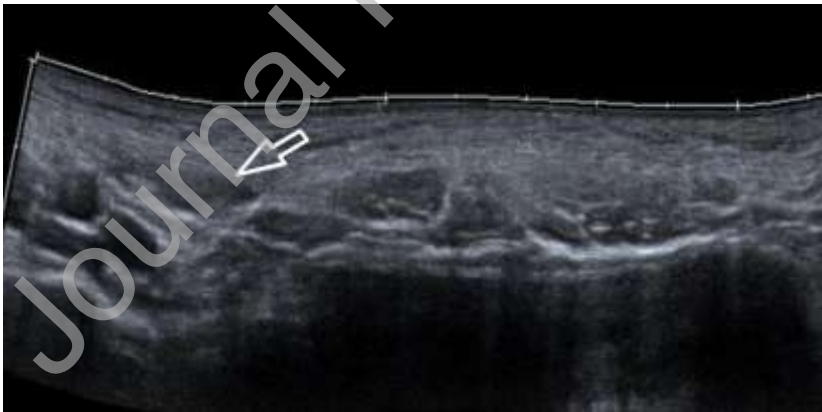


Figure 2

Corresponding ultrasound image of the abdominal wall where the hypoechoic nodule (arrow) is identified



Figure 3

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The radioactive seed was introduced within an 18-gauge needle, and placed guided by ultrasonography into the lesion.

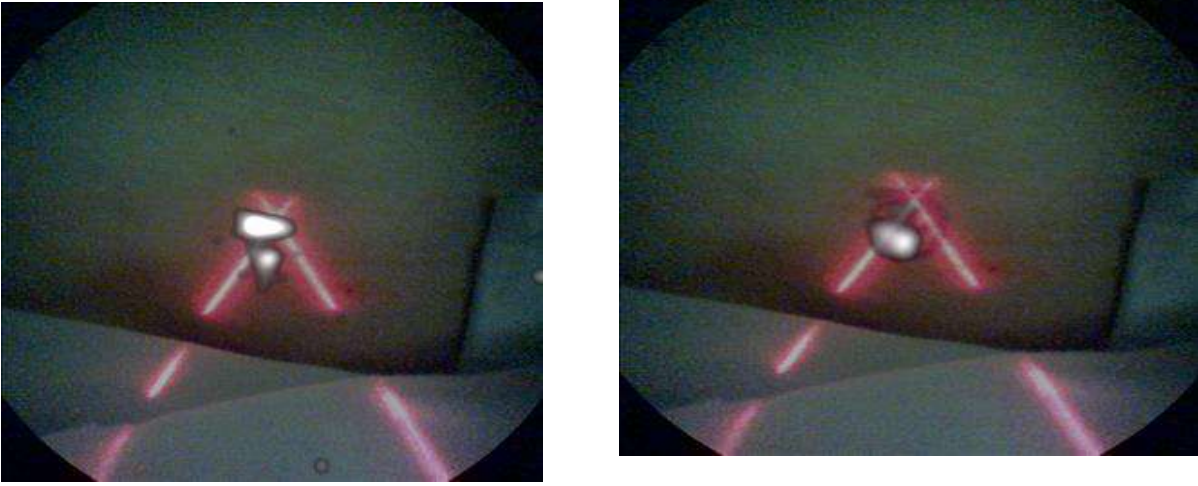


Figure 4a and 4b

The exact position of the seed was confirmed with a portable gamma camera fitted with adequate iodine-125 photopeak energy.

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