SHORT COMMUNICATION

Sonographically guided triamcinolone injection for the treatment of chronic post-operative mammary fistula

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ABSTRACT. We describe ultrasound-guided intralesional triamcinolone (ILT) injection for the management of chronic post-operative mammary fistula (MF). Seven patients with chronic post-operative intraglandular MF were enrolled in this study. The initial response to treatment was assessed as complete in three cases; of the remaining four, three were resolved successfully with an additional ILT injection and the other had no resolution with an additional ILT injection. In five cases there was no recurrence after more than 1 year of follow-up. One patient had recurrence at 7 months, which was treated with a further ILT injection; this patient is without recurrence after a further 9 months' follow-up. This simple, safe procedure is suggested as an option for the treatment of chronic post-operative intraglandular MF and may be an alternative to surgery.

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Mammary fistula (MF) was described by Zuska et al [1] in 1951. This entity is commonly associated with a non-lactating subareolar abscess [2–4]. The pathogenesis of MF is commonly considered to be closely linked to squamous metaplasia with keratinisation and/or epidermisation of the duct [4–6]. Nevertheless, one article [7] postulated that MF might be due to a chronic inflammatory process of the pilosebaceous follicles in an areolar-periareolar location. Furthermore, ultrasound findings showed that most lesions were of an inflammatory type: superficial, extraglandular and periareolar [8]. We therefore consider that the location of MF is extraglandular. However, MFs can also be intraglandular, especially after surgical procedures such as incision and drainage of a non-lactating abscess, or can result from biopsy of a breast mass.

The conservative management of the patients in the present study was based on our belief that a chronic inflammatory process such as MF is susceptible to an anti-inflammatory local therapy by means of infiltration with steroids. In this study we describe for the first time intralesional triamcinolone (ILT) injection in the management of chronic post-operative intraglandular MF.

Methods and materials

Between January 2009 and July 2011 seven patients (age range 28–71 years; mean age 43.2 years) were diagnosed with chronic post-operative intraglandular MF. Chronic post-operative intraglandular MF was defined as the presence of a fistula not resolved after 8 weeks'

conservative treatment, with scarce but constant suppuration, no abscess formation, and ultrasound examination showing an intraglandular hypoechoic tubular image corresponding to the fistulous tract of the MF (Figure 1a). The patient information is shown in Table 1. All the patients had a history of surgery: incision and drainage of a non-lactating abscess ($n=4$), reduction mammoplasty ($n=2$) and excisional biopsy of a benign lesion ($n=1$). This study was approved by our institutional ethics committee and informed consent was obtained from the participants.

All the ultrasound-guided procedures were carried out using 12–5 MHz or 14–5 MHz linear array transducers and were performed by a single radiologist with 23 years' experience in breast imaging. Rigorous aseptic measures were applied. Local anaesthetic (1–2 ml) was injected at a predetermined site. Ultrasound guidance was used to introduce a 14-gauge needle into the fistulous tract. After catheter placement the fistulous tract was aspirated, a minimum quantity (<1 ml) of purulent-looking material was obtained, and the tract was then irrigated several times with saline solution. Samples of purulent material were sent for microbiological examination. Subsequently, 1 ml of 40 mg ml⁻¹ triamcinolone (Trigon®; Bristol-Myers Squibb, Anagni, Italy) was injected through the catheter (Figure 1b). After withdrawal of the catheter, gentle massage was applied with moderate pressure for a few minutes in order to achieve distribution of the medication. Follow-up clinical and ultrasound examinations were performed at 3 days, 2 weeks and 1, 3, 6 and 12 months.

The response to treatment was assessed as complete (CR) or no response (NR). A successful outcome was regarded as CR when there were no residual symptoms and ultrasound examination showed disappearance of the hypoechoic appearance of the fistulous tract (Figure 1c).

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Figure 1. A 71-year-old female with mammary fistula. (a) Sonogram showing hypoechoic tract (arrows). (b) Sonogram showing corticoid injection into the tract (arrows). (c) Sonogram 3 days after treatment showing disappearance of the hypoechoic tract (arrows).

NR was considered when there was partial disappearance of the hypoechoic tubular image and the patient continued with suppuration. In those patients with NR, additional ITL was administered at 2-week intervals.

Results

The average duration of suppuration was 5.8 months (range 3–12 months). Bacteriological examination was negative in all cases. Pre-treatment sonographic findings revealed a single hypoechoic tract in six patients and several hypoechoic tracts in the remaining patient.

In the initial post-treatment evaluation, CR of the lesions was seen in three cases and NR in four cases. One therapeutic ILT injection was performed in three patients, two injections in two patients and three injections in the two remaining patients. After the first ILT injection, suppuration was observed in just two patients. In one of these two cases drainage stopped after the second ILT injection; in the other, however, drainage continued despite three ILT injections. This NR case corresponded to the patient with several fistulous tracts. Post-treatment ultrasound findings commonly revealed an increase in echogenicity in the fistulous tract. Mean follow-up was 17.5 months (range 7–29 months). Recurrence was observed in one patient at 7 months, which was resolved with a further ILT injection. The patient has since had no recurrence during a further 9-month follow-up.

The treatment administered was tolerated very well by all the patients and no complications were observed.

Discussion

The management of MF is difficult. The incision and drainage technique is insufficient. Various surgical

procedures for the management of MFs have been reported [9–12]. The main problem is recurrence [12, 13].

ILT injection is a widely used therapy [14–16]. ILT injection was based on our belief that a chronic inflammatory process such as post-operative MF is susceptible to an anti-inflammatory local therapy. In this study CR of the MF after a single ILT injection was observed in three patients; in three patients with NR the process was resolved with additional injections and NR was observed in the remaining case. In the six cases in which ultrasound examination showed a single fistulous tract the MFs were resolved with ILT injections. However, no resolution was observed in the patient with several fistulous tracts and surgery was recommended.

Ultrasound examination was an excellent method for diagnosis, administration of treatment and follow-up. The great majority of patients are without recurrence after a mean follow-up period of more than 1 year. Recurrence occurred in one case, which was resolved with a single ILT injection. No adverse effects were attributed to ILT injection, although soft-tissue atrophy and local depigmentation are possible with any steroid injection into soft tissue, especially at superficial sites.

In conclusion, the results of this study, although the series is short, serve to demonstrate that the conservative management of chronic post-operative MF with ILT injection is effective, simple and well tolerated. We recommend ultrasound-guided ILT injection as an alternative to surgical intervention in the management of chronic post-operative intraglandular MF.

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Table 1. Patient information

Patient number	Age (years)	Previous surgery	Duration of suppuration (months)	Number of injections	Resolution of mammary fistula	Follow-up (months)	Recurrence
1	28	I & D	4	3	Yes	29	No
2	71	I & D	12	1	Yes	25	No
3	32	I & D	6	2	Yes	24	No
4	51	I & D	5	2	Yes	12	No
5	36	RM	5	1	Yes	7	Yes
6	37	RM	6	1	Yes	8	No
7	48	Biopsy	3	3	No	–	–

I & D, incision and drainage; RM, reduction mammoplasty.

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