Case Report

Dislodgement of tissue expander ports in a patient without trauma or MRI history

Catherine F. Lowenthal, Albert Y. Truong, Jeffrey A. Ascherman*

Columbia University Division of Plastic & Reconstructive Surgery, Herbert Irving Pavilion, 5th Floor, Rm 511, 161 Fort Washington Avenue, New York, NY 10032

ARTICLE INFO

Article history:
Received 22 June 2021
Accepted 20 October 2021
Available online 24 October 2021

Keywords:
Magnetic port
Breast reconstruction
Port dislodgment

ABSTRACT

Tissue expansion is involved in the majority of breast reconstruction procedures in the United States. We describe a case of a 56-year-old woman who was found to have bilateral dislodged magnetic ports in her breast tissue expanders at her surgery to replace the expanders with permanent implants. An awareness that this can occur would be helpful for all plastic surgeons who perform breast reconstruction.

© 2021 The Authors. Published by Elsevier Ltd on behalf of British Association of Plastic, Reconstructive and Aesthetic Surgeons. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/)

Background

According to the American Society of Plastic Surgeons member surgeons, tissue expansion was involved in approximately 69% of breast reconstruction surgeries performed in the United States in 2018 (69,921 of the 101,657 reported breast reconstruction cases).

Most FDA-approved tissue expanders in current use have a port on their anterior aspect that allows for expansion of the implant with simple, minimally invasive saline injections. The port contains a magnetic component that allows the surgeon to locate the port using a small, hand-held magnet. In an extensive literature search, we found no documentation of magnetic ports spontaneously dislodging without a history of trauma or exposure to the strong magnetic field of a magnetic resonance imaging

* Corresponding author: Jeffrey A. Ascherman, Columbia University Division of Plastic & Reconstructive Surgery, Herbert Irving Pavilion, 5th Floor, Rm 511, 161 Fort Washington Avenue, New York, NY 10032.
E-mail address: jaa7@cumc.columbia.edu (J.A. Ascherman).

https://doi.org/10.1016/j.jpra.2021.10.005
2352-5878/© 2021 The Authors. Published by Elsevier Ltd on behalf of British Association of Plastic, Reconstructive and Aesthetic Surgeons. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/)
FIGURE 1. Bilateral port dislodgement. Intraoperative photo demonstrating bilateral port dislodgement from the tissue expanders as observed immediately after the expanders were removed.

(MRI). In this case report, however, we describe and discuss this unusual phenomenon occurring in both expanders of a patient who did not have an MRI or any known trauma.

Case report

A 56-year-old woman with right breast cancer underwent a bilateral skin-sparing total mastectomy with immediate placement of bilateral pre-pectoral tissue expanders covered with AlloDerm in May 2020. The expanders were Allergan’s Natrelle 133S-MV-12-T 300 cc tissue expanders with Magna-Site® Injection Site, an injection site attached to the expander via a mechanical snap-on design and with a magnet attached to the underside of the injection site. The surgery and postoperative period were uncomplicated. From June to November 2020, the tissue expanders were filled five times from their initial intra-operative fill of 180 cc of normal saline to a final volume of 480 cc of saline. There were no difficulties related to the tissue expansion.

In February 2020, the bilateral tissue expanders were replaced with bilateral Natrelle SSX 545 cc silicone implants. During this procedure, it was noted that both the tissue expanders, once removed, contained completely dislodged magnetic ports (Figure 1). The patient’s surgery and postoperative recovery were uneventful and without complications. When questioned following the procedure, the patient denied exposure to any magnetic resonance imaging or trauma since her last expansion several months earlier, during which the magnetic ports were in place.

Discussion

While essential for port identification, the magnetic component of the port has occasionally proven to be problematic, primarily if exposed to an MRI procedure. Issues include magnetic polarity reversal and magnetic port overheating. A case report of a patient with an implantable cardioverter
defibrillator (ICD) for cardiomyopathy had ICD pacing and shocks temporarily suspended by its interaction with the patient’s unilateral breast tissue expander.4

One type of magnetic port dysfunction well-documented in case reports is port dislodgement following MRI exposure.5,6,7,8 Of note, in a study of 71 patients with tissue expanders who received abdominal and pelvic magnetic resonance angiography (MRA) at 1.5 Tesla, no patient had magnetic port migration, indicating that adjustments made during magnetic resonance imaging can make this exam safer.9

Our presented case is notable because the patient had no MRI exposure and, furthermore, the spontaneous port dislodgement was bilateral. Although the incidence of spontaneous dislodgement appears to be very low, its consequences could be far-reaching. If additional filling of a tissue expander is required, one may be unable to accurately identify the location of the port. Furthermore, attempting to fill a tissue expander with a dislodged port may result in a puncture of the tissue expander, requiring reoperation to replace it. Thus, although rare, it would be helpful for all clinicians and trainees to be aware that spontaneous magnetic port dislodgement can occur, particularly if the surgeon is having difficulty locating a port prior to a planned injection.

Declaration of Competing Interest

None.

Ethical approval

Not required.

Funding

None.

References

1. American Society of Plastic Surgeons. Plastic surgery statistics report. https://www.plasticsurgery.org/documents/News/Statistics/2018/plastic-surgery-statistics-full-report-2018.pdf. [Accessibility verified May 26, 2021]
2. Ascherman JA. Reversal of expander port polarity following magnetic resonance imaging. Plast Reconstr Surg. 2004;114(3):817.
3. Duffy Jr FJ, May Jr JW. Tissue expanders and magnetic resonance imaging: the “hot” breast implant. Ann Plast Surg. 1995;35:647–649.
4. Khan MMKS, Khan MMHS, Tolan A, Elmouchi D, Tavera CE. Breast tissue expanders and implantable cardioverter-defibrillator: An unusual interaction. HeartRhythm Case Rep. 2015;1(4):167–168.
5. Zegzula HD, Lee WP. Infusion port dislodgement of bilateral breast tissue expanders after MRI. Ann Plast Surg. 2001;46(1):46–48.
6. Sowder LL. The case of the floating injection port. Plast Reconstr Surg. 2002;110:3:991.
7. Dibbs R, Culo B, Tandon R, Hilaire HS, Shellock FG, Lau FH. Reconsidering the “mr unsafe” breast tissue expander with magnetic infusion port: A case report and literature review. Arch Plast Surg. 2019;46(4):375–380.
8. Henderson PW, Dosanjh J, Rohde CH. Successful breast reconstruction despite dislodgement of tissue expander magnetic ports. Aesthet Surg J. 2016;46(1):307–309.
9. Thimmappa ND, Prince MR, Colen KL, et al. Breast tissue expanders with magnetic ports. Plast Reconstr Surg. 2016;138(6):1171–1178.