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Case report

Complications 15 years after breast augmentation with polyacrylamide

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ABSTRACT

Polyacrylamide hydrogel (PAAG) has been used as an injectable, permanent filler for soft-tissue augmentation for more than two decades. Several complications have been reported worldwide. In this case report, we present a woman with long-term complications 15 years after bilateral breast augmentation with PAAG injections.

Introduction

Fillers for the augmentation and correction of soft-tissue contours are increasing in popularity, and numerous biomaterials have been developed. The fillers can be grouped as biodegradable, nonbiodegradable (permanent), and combinations thereof.[1]

Polyacrylamide hydrogel (PAAG) is a permanent filler that may be used to correct soft-tissue contours in the face or in breast augmentation.[2] PAAG is a jellylike, transparent substance containing approximately 2.5% cross-linked polyacrylamide and 97.5% water. Since the discovery of PAAG, it has been widely used for industrial purposes and in ophthalmologic procedures. It was first used for

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"cosmetic purposes" in the 1990s when Ukrainian surgeons started using PAAG for breast augmentation.[3] In 2001, it attained European community certification, and since then it has been in clinical use.

PAAG is considered to be a safe tissue filler.[4,5] However, an increasing number of complications after PAAG injection have been reported.[6,8] In this case report, we present a 47-year-old woman who experienced complications 15 years after bilateral breast augmentation with PAAG injections.

Case report

A 44-year-old, Ukrainian woman presented with a tender and painful left breast, exhibiting asymmetry and palpable masses in March 2009 (Figure 1). In 1994, she underwent a bilateral breast augmentation with the permanent filler PAAG. According to the patient, the breasts lost their volume slightly over the years. In August 2008, a subcutaneous nodule measuring 5 × 5 cm emerged in the medial lower quadrant of her left breast. After a mammography showed that the nodule was benign, the nodule was excised. Six months later, the area of excision was filled with a liquid substance, which was again removed surgically. Culture of the removed material showed no bacterial contamination. A few weeks later, a fistula formed at the area of excision, and the patient was treated with antibiotics without any effect. In March 2009, the patient was referred to the Department of Plastic Surgery, Aarhus University Hospital.

A blood sample from March 2009 showed increased levels of CRP (C-reactive protein) (1889 nmol/l), sedimentation reaction (49 mm), and leukocytes (11.6 × 10^9/L). Magnetic resonance imaging (MRI) scan showed a large amount of fluid in the pectoral muscle and in the retro-pectoral space, mostly on the right side (Figure 3). Another MRI scan, 8 months later, showed decreased collection of fluid on the right side but increased collection of fluid on the left side, thus indicating further migration of the filler (Figure 4).

Two years later, in September 2011, the left breast was still painful and twice its original size. In April 2012, the patient underwent surgery. An incision was made in the inframammary sulcus on the left side, and through subpectoral dissection 930 cc of yellow, clear liquid containing white nodules was removed from the encapsulated cavity. Postoperatively, the patient received 400 mg of moxifloxacin orally daily for 7 days as recommended by the distributor (Contura, Copenhagen, Denmark). The drains were removed 36 h after the operation, and she was discharged the first postoperative day (Figure 2). Neither a regular culture nor PCR analysis of the samples removed during surgery revealed any pathogens.

Two months postoperatively, the left breast was asymptomatic and natural looking. The right breast, however, was enlarged and tender. The patient is still being followed up in the outpatient clinic with regular clinical and radiological examinations.

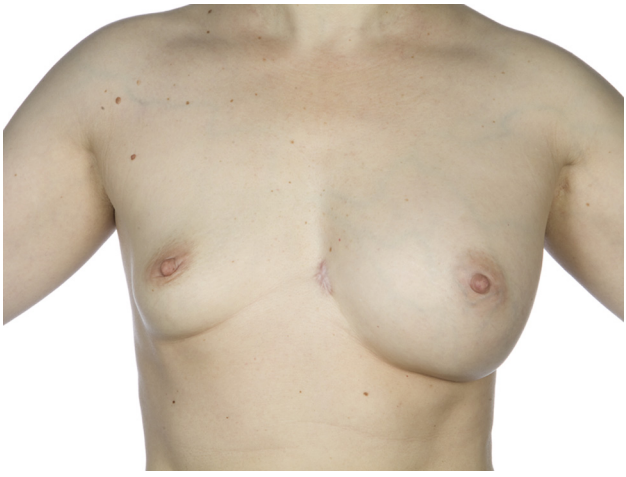

Figure 1. Swelling of the left breast before operation (September 2011).