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CASE REPORT

Complex regional pain syndrome after breast implant exchange: a case report

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Abstract

Complex regional pain syndrome (CRPS) is a regional, neuropathic pain disorder, with disproportionate symptoms, that does not respect dermatomes or nerve distribution. A 28-year-old female patient with personal history of two breast augmentation surgeries consulted for breast reduction after dissatisfaction with the size and form of her breasts. Breast reduction was undertaken with prosthesis exchange. During the first 10 days, she presented swelling, hyperesthesia, and burning pain mainly around her left breast. An ultrasound showed seroma collection which was drained in two occasions. She was referred to physical therapy to desensitize and initiate additional treatment for symptoms. Three weeks after surgery, bilateral pain persisted, as well as hyperesthesia, edema, and local hyperthermia; thus, referral to an anesthesiologist specialized in pain management with a CRPS type II diagnosis was undertaken which confirmed the diagnosis and additional analgesics were initiated. A week into treatment, she referred decreased signs and symptoms in her breasts. During the second month, symptoms decreased and medication was gradually lowered. At the end of the third month, medication was suspended and she began her normal activities with no symptoms. This case report highlights the importance of clinical suspicion of CRPS. Signs and symptoms should be interpreted in a timely fashion to allow a prompt treatment and speedy recovery.
Level of evidence: Level V, risk study.

Keywords Complex regional pain syndrome · Breast implant exchange · Pain · Breast surgery

Introduction

Complex regional pain syndrome (CRPS) is a regional, neuropathic pain disorder, with disproportionate symptoms, that does not respect dermatomes or nerve distribution. It is more frequent in women and increases with age [1]. It typically develops after some traumas [2, 3] such as "paper cuts," soft tissue injuries, fractures, as well as surgery [4–7], these last two being the most common causes. CRPS has been well documented after surgery, mainly in upper extremities [6]. In the past 10 years, there have been articles documenting CRPS post-radical mastectomy [7, 8], but in plastic surgery, there is only one case report regarding CRPS post-breast reduction [1]. Herein we report a case on a patient who developed CRPS following mastopexy with implant exchange.

Case report

A 28-year-old woman consulted for an implant reduction and shape improvement. She had two previous breast augmentation surgeries: one was performed at the age of 16; the size of the breast implant was 280 cm^3, placed in a subglandular position and presented no problems. Four years later, there was correction of some breast ptosis and increased size to 305 cm^3.

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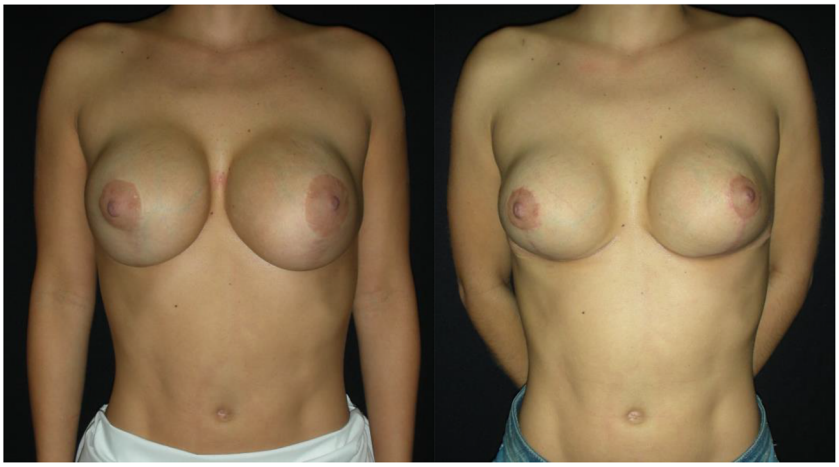

Fig. 1 Pre-operatory vs. 3 months post-operatory (anterior view)

These implants were located in a submuscular position causing deformity in the post-operatory; thus, the surgeon changed them to a subglandular position. Expressing unhappiness with the shape and size, she consulted 8 years later for an implant reduction, presenting poor mammary tissue, stretch marks, and visible rippling at the superior poles of her breasts (Fig. 1).

The pectoralis major muscle was thin and retracted, because of this breast implants were reduced in size from 305 to 190 cm^3 and placed under the posterior wall of the previous periprosthetic capsule; 43 g of soft tissue was removed from the right breast and 53 g from the left one. During surgery, she was given tramadol 150 mg IV, local block with bupivacaine hydrochloride 20 cm3, and Xylocaine 20 cm3 and discharged with celecoxib 200 mg every 12 h (b.i.d.), paracetamol 500 mg + codeine 30 mg every 8 h (t.i.d.), and antibiotics.

During the first 10 days, she presented swelling, hyperesthesia, and burning pain (scale 8/10), mainly around her left breast; additionally, intramuscular nonsteroidal anti-inflammatory drugs were given for 3 days without improvement. An ultrasound showed a small seroma in both breasts; 43 cm^3 was drained from the right breast and 40 cm^3 from the left one. After 4 days, another 10 cm3 from her left and 17 cm3 from the right breast were drained. Patient was then remitted to physical therapy (PT) and a new analgesic scheme with pregabalin 75 mg b.i.d., amitriptyline 25 mg, and zolpidem 10 mg at night was prescribed.

Three weeks after surgery, bilateral pain persisted (9/10), as well as hyperesthesia, edema, and local

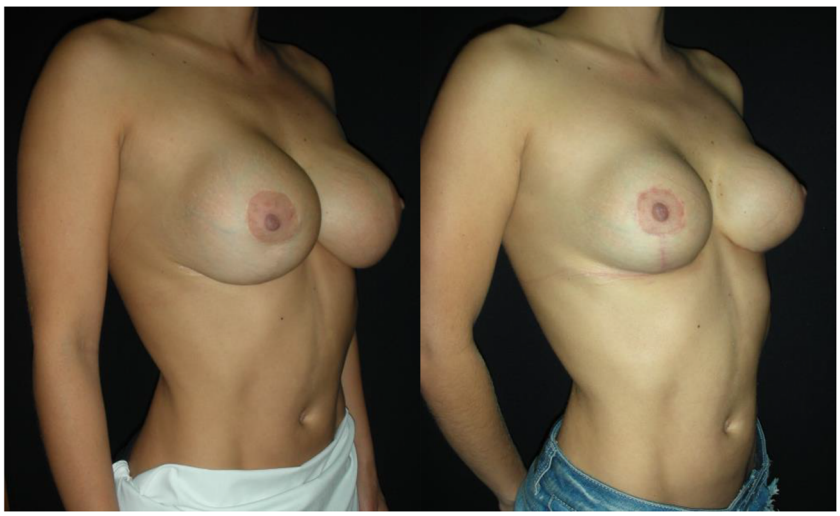

Fig. 2 Pre-operatory vs. 3 months post-operatory (anterolateral view)

hyperthermia; thus, we decided to refer her to an anesthesiologist specialized in pain management with a CRPS type II diagnosis. Diagnosis was confirmed, initiating pregabalin 75 mg/b.i.d., hydrocodone 5 mg + paracetamol 500 mg/b.i.d., betamethasone sodium phosphate 2 mg + betamethasone dipropionate 5 mg/ intramuscular single dose, and amitriptyline. A week later, she referred less pain (8/10) and decreased signs and symptoms in her breasts; thus, same treatments were continued. During the second month, the pain decreased (5/10) as well as the edema. She continued PT and pain management with pregabalin and hydrocodone + paracetamol daily, gradually diminishing doses and amitriptyline and zolpidem at night. During the third month, the doses decreased to pregabalin 75 mg, half the dose of hydrocodone + paracetamol, and the same doses of amitriptyline and zolpidem daily, until the end of the third month when she discontinued them and began her normal activities with no pain or swelling (Fig. 2).

Discussion

CRPS is a form of chronic pain that typically develops after an injury or a surgery. The pain is out of proportion to the severity of the initial injury. At first, it was thought that CRPS pathophysiology was only sympathetically mediated, but nowadays it is known that there is a central nervous system condition and other multiple mechanisms such as inflammatory, genetic, and psychological factors are involved [9–11]. The differential diagnosis could be a rheumatoid disease, local infection, or vascular problems [8].

CRPS key feature symptoms are burning pain, allodynia, hyperesthesia, color and temperature alteration, edema, sweating, and weakening/atrophic alterations of nails and hair [6, 7]. CRPS is classified as types I and II by the International Association for the Study of Pain (IASP) criteria [12] and the Budapest criteria [13] which is a modification of the first, making it more specific. CRPS II has evidence of a major nerve lesion.

CRPS can be divided into three different stages:

Stage I (acute/hyperemic): hyperalgesia, edema and vasomotor, and sudomotor dysfunction.

1 (dystrophic): courses 3–6 months after the onset, with increasing pain and motor/trophic alterations.

2 (atrophic): reduction in pain but increased motor and trophic changes [2, 7].

PT is the "cornerstone and first-line of treatment" [6] of CRPS and secondly analgesia with antidepressant agents, gabapentin, corticosteroids, topical analgesics, opioids, and regional block anesthesia [6, 7, 12]. This case report highlights the importance of clinical suspicion of CRPS. Signs and symptoms should be interpreted in a timely fashion to allow a prompt treatment and speedy recovery.

Compliance with ethical standards

Conflict of interest Felipe Mesa, Sofia Diaz, and Santiago Restrepo declare that they have no conflicts of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. For this kind of study formal consent from a local ethics committee is not required.

Informed consent Patients signed informed consent regarding publishing their data and photographs. Patient consent The participant has consented to the submission of the case report to the journal.

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