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Breast Cancer-Related Lymphedema, 12 Years Later, After Fracture

Meme Kanseri İle İlişkili Lenfödem, 12 Yıl Sonra, Fraktür Sonrası
Fizik Tedavi ve Rehabilitasyon

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Özet

Meme kanseri ile ilişkili lenfödem, meme kanseri ve tedavisinin en önemli komplikasyonlarından birisidir. Lenfödem, hastalarda uzun dönem fiziksel ve psikososyal sonuçlara yol açar. Lenfatik sistemde defekt nedeniyle, proteinden zengin sıvının interstisyel alanda birikmesi sonucu oluşur. Klinisyenler meme kanseri ile ilişkili lenfödemin tetiklenmesine sebep olan risk faktörleri konusunda dikkatli olmalıdır. Kolun travması ve/veya operasyonu, yıllar önce meme kanseri tanısı ve tedavisi alan hastalarda dahi, kısa zaman içerisinde kolda beklenmedik ve aşırı şişlik için tetkikleyici olabilir. Biz burada, 3 ay önce sol humerus kırık operasyonu geçiren ve operasyondan sonra on gün içinde sol kolunda şişlik oluşan ve kolundaki şişliği 3 aydır devam eden 69 yaşındaki kadın hastayı sunmaktayız. Hastamız, 12 yıl önce meme kanseri teşhisi alıp, modifiye radikal mastektomi ve aksillar lenf nodu diseksiyonu (sol) geçirmiş, ve kemoterapi ve radyoterapi tedavisi almıştır.

Anahtar kelimeler: *Lenfödem, Meme kanseri Kırık Cerrahi*

Abstract

Breast cancer-related lymphedema is one of the main complications and most dreaded sequela of breast cancer and its therapies. Lymphedema can have long-term physical and psychosocial consequences for patients. It consists of the accumulation of protein-rich fluid in the interstitial spaces, caused by a defect in the lymphatic system. Clinicians must be aware of the risk factors which can induce breast cancer related lymphedema. Arm trauma or/and operation can be a trigger for unexpected and extreme swelling of the arm in a short time, also after long years of breast cancer diagnosis and treatment. Here, we present a 69-year-old female patient with the complaints of swelling of the left arm for three months which started within ten days after the humeral fracture operation. She had a history of breast cancer diagnosed 12 years ago. She had modified radical mastectomy, axillary lymph node dissection, chemotherapy and radiotherapy.

Keywords: *Lymphedema, Breast cancer Fracture Surgery*

Introduction

Secondary lymphedema occurs as a result of obstruction or disturbance of lymphatic system, due to tumour, surgery, trauma and radiation therapy; mechanical insufficiency and accumulation of protein rich-fluid in the interstisial tissue. [1,2]. Every year in the world 1.38 million women are diagnosed with breast cancer [3]. Despite of the high incidence of the illness, long term survival is increased with early diagnosis and modern treatment [2]. Breast cancer-related lymphedema which can cause swelling in the arm, hand, shoulder, breast or chestwall is one of the main complications and most important sequela of breast cancer and develops in 21% of the breast cancer patients [2-4]. Breast cancer related lymphedema incidence increases up to 2 years after diagnosis or surgery of breast cancer [3]. Althought, more extensive treatment including greater number of lymph nodes dissection and mastectomy are major risk factors for breast cancer related lymphedema, other risk factors may play a role in lymphedema development [1-3,5-7].

The purpose of this case report is to present a rare etiology for lymphedema after 12 years of breast cancer diagnosis.

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Case Report

A 69-year-old female patient presented to our clinic with the complaints of swelling of the left arm for three mounts which started within ten days after the humeral fracture operation. She had pain, discomfort, heaviness, and difficulties with physical mobility. She had a history of left breast cancer diagnose twelve years ago. She had left modified radikal mastectomy, axillary lymph node dissection, chemotheraphy, radiotheraphy and five-year hormonal theraphy for breast cancer treatment. She had no metastasis history. She had diabetes mellitus and hypertension. Her body mass index was 43.72 kg/m².

Physical examination revealed the swelling extended from the left fingers to axilla (Figure 1).

Figure 1
69 year patient with the swelling of the left arm

Skin color and temperature were normal. Left shoulder, elbow and wrist range of motion were restricted and her left shoulder and elbow motion were painful. Left shoulder abductor and flexor, elbow extansor, finger extansor, flexor and abductor weakness were present. Stemmer sign was positive. Circumferential measurements showed 87,3% volume difference between both upper limbs. Laboratory tests were normal. Upper extremity arterial-venous doppler ultrasonography were normal. Lymphoscintigraphy was reported as absence of flow at the left axillary lymph nodes and radiopharmasotic transmission was seen to soft tissue. These findings suggested stage III lymphedema of left arm.

Plain radiography of left humerus showed internal fixator of humerus and partial recovery of the fracture (Figure 2).

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Figure 2
Plain radiography of left humerus shows internal fixator of humerus and partial recovery of the fracture

For exclusion reflex symphatic dystrophy (RSDS), bilateral hand radiography were performed (Figure 3).

Figure 3
Plain radiography of left hand shows mild osteopenia

Mild osteopenia was shown. For underlying etiology of muscle weakness electromyography (EMG) was planned. While needle electromyograph couldn't performed because of risk for progression of lymphedema. Surface EMG couldn't performed effectively due to swelling of the arm.

Complete decongestive therapy including; skin care, manual lymph drainage, compresion bandages, and exercise; was administered to the patient and treatment was achieved by reduction in circumferential measurements. Volume difference between both upper limbs was 61,9% after treatment. Physical examination revealed increase of muscle strength after six mounts.

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Discussion

Secondary lymphedema is a chronic and progressive condition which can compromise quality of life, usually occurs after breast cancer treatment due to the protein–rich fluid accumulation in body tissues [1,3,4]. Breast cancer related lymphedema can cause physical consequences like pain, heaviness, numbness, limitation of joint motion in the upper extremity [4]. It can cause psychological consequences such as decreasing self-confidence due to a disturbance in body image [4]. Our patient had pain, discomfort, heaviness, muscle weakness and difficulties with physical mobility.

Althought more extensive treatment including greater number of lymph nodes dissection and mastectomy are major risk factors for breast cancer related lymphedema [2,3,6], other risk factors such as adjuvant radiation, low physical activity, chemotherapy, hypertension, infection, pre-diagnostic BMI ≥30 kg/m^2 and trauma are also identified [5,7]. Even developing lymphedema risk couldn't prevented exactly with sentinel lymph node biopsy, researchers proposed that sentinel lymph node biopsy and breast-conserving surgery decrease the risk of lymphedema [1]. Preliminary evidence for a genetic predisposition to seconder lymphedema after breast cancer is suggested with animal models and a human being study [3]. Blood draws and blood pressure of the affected arm, exposure to extreme temperatures and air travel is believed to increase the secondary lympedema [4]. Chronic lymphedema induced by constriction from a bracelet is reported by Jeong et all [7]. They indicated that physical trauma reduces the capacity of lymphatic transport [7]. While fracture can be a reason of lymphedema, some researchers proposed that lymphedema negatively affects fracture healing in rats due to affecting access of oxygen and nutrients and discharge of the toxins and inhibitory factors from tissues [8]. In our case, lymphedema was induced by humerus fracture operation. She had a history of left modified radikal mastectomy, axillary lymph node dissection, chemotheraphy, radiotheraphy. She had hypertansion and her BMI was 43.72 kg/m². Mild osteopenia at hand radiography was evaluated as presence of complex ragional pain syndrome component.

For diagnosis of breast cancer related lymphedema various technics can be used such as circumferential measurements, water displacement volumetry, optoelectronic perometry, and bioimpedance spectroscopy (BIS) [4]. Circumference at various points along the arm is used in circumferential measurements which can be evaluated with truncated cone formula for arm volum or a stand alone measurement [4]. We evaluated our patient with circumferential measurement. Difference between both upper extremity volume was 87,3% before treatment and 61,9% after treatment.

Early diagnose and early treatment is important for preventing progresion of lymphedema [7]. Treatment of breast cancer related lymphedema involves manual lymphatic drainage (MLD), self/partner massage, pneumatic pumps, low level laser therapy, compression bandaging, compression garments, limb exercises and limb elevation [2]. Our case receieved 5 days per week complex physical therapy including daily MLD followed by compression bandage and limb exercises for three weeks. She was informed about skin care.

Patients who receieved breast cancer treatment should be advised about avoidance of thermal, mechanic, chemical and barotrauma of the affected side for preventing lymphedema. Preventive measures include; skin care, avoidance of extreme temperatures, use of compression garments especially for air travel, prevention avoidance of injections, blood draws or constriction of the affected arm [4].

In conclusion; breast cancer related lymphedema may rarely occur even years after the operation with the influence of various trigger factors. Therefore, patients should be informed comprehensively in terms of risk factors for lymphedema and preventive methods should be explained.

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