

Prevalence of cellulitis and erysipelas in post-mastectomy patients after breast cancer

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Abstract

Introduction: Cellulitis and erysipelas are common complications of lymphedema but have been reported in few cases following treatment for breast cancer. These are superficial skin infections which are spread by lymphatic vessels and can result in permanent injury of vessels. The possibility of these infections triggering or aggravating lymphedema may result in greater discomfort for patients in the post-operative period of breast cancer. The object of the current report was to evaluate the prevalence of cellulitis and erysipelas in post-mastectomy patients.

Material and methods: Ninety women from the region of Catanduva, São Paulo, who submitted to a mastectomy for breast cancer were evaluated and selected using the patients' records from a Government Health Clinic and the School of Physiotherapy in Catanduva-IMES. The patients were assessed with respect to the occurrence of events of erysipelas which were confirmed and treated by a physician. As a control, the contralateral limbs were investigated. The Fisher exact test was used for statistical analysis and an alpha error of 5% was considered acceptable.

Results: Episodes of erysipelas and cellulitis of the ipsilateral limb were reported by 25.5% of the women whereas no cases of the involvement of contralateral limbs were described giving a statistically significant difference.

Conclusions: There is a significant association between cellulitis and erysipelas with the surgical treatment of breast cancer.

Key words: erysipelas, cellulites, lymphangitis, breast cancer, lymphedema, prevalence.

Introduction

Cellulitis and erysipelas are common complications of lymphedema with confirmed diagnoses in about 20 to 30% of cases. These are skin infections which are spread by lymphatic vessels and can result in permanent injury of vessels [1].

Cellulitis is a spreading bacterial infection of the dermis and subcutaneous tissues. It causes local signs of inflammation such as warmth, erythema, pain, lymphangitis, and frequently systemic upset with fever and raised white blood cell count. Erysipelas is a form of cellulitis and is characterised by pronounced superficial inflammation [2].

The stasis of the protein-rich fluid together with a reduction in the immunological activity of the limb predisposes the affected limb to repetitive episodes of lymphangitis and cellulitis [3].

Treatment in the acute phase consists mainly in the use of antibiotics, analgesics and antipyretics [4]. Breast cancer patients are at risk for delayed cellulitis after conservative surgery and radiotherapy [5].

Cellulitis and erysipelas have been reported in few published cases following treatment for breast cancer [6-8]. The lack of studies associating these two conditions and the frequent reports of post-mastectomy patients with complications suggests a need for further studies.

The aim of this study was to evaluate the prevalence of cellulitis and erysipelas in patients following treatment for breast cancer.

Material and methods

A total of 90 female patients who submitted to the surgical treatment of breast cancer in the region of Catanduva, Brazil were evaluated. The ages of the patients ranged from 23 to 80 years old with a mean of 54±11 years at the time of surgery.

This project was approved by the Research Ethics Committee of the School of Physiotherapy in Catanduva and participants signed written consent forms.

The women were randomly selected using the patient records in the Government Health Clinic and from the School of Physiotherapy both in Catanduva. After identification, post-mastectomy patients were contacted either by telephone or by home visits.

The inclusion criteria were to have been submitted to mastectomy with axillary lymphadenectomy followed by cellulitis and erysipelas confirmed and treated using antibiotics prescribed by a physician. As a control, erysipelas of the contralateral limb was evaluated. Time between surgery and occurrence of infection was not considered in this study.

The exclusion criterion was not to have been submitted to lymph node resection.

For statistical analysis, the Fisher Exact test was utilized with an alpha error of 5% being considered acceptable.

Results

Cellulitis and erysipelas were reported in 23 (25.5%) of the limbs involved in the surgical treatment for breast cancer but in no cases of the contralateral limb (p-value <0.05). All patients were submitted to similar lymphadenectomy surgery. Of these 23 patients 4 did not have clinical diagnosis of lymphedema.

Discussion

The prevalence of cellulitis and erysipelas in this study serve as a warning in respect to the occurrence of these two complications, mainly as there have been few publications reporting this situation in the post-treatment period of breast

cancer [5-8]. Although it is obvious that the involvement of lymphedematous limbs in the occurrence of infection is more common than that of healthy limbs, there have been very few publications discussing this condition.

It is important to stress that the prevalence in the current study is higher than in a previous publication, which reported a prevalence of 2.85% of cases [8]. There may be certain differences about the study populations of this study with the current study that caused such a large difference. One important consideration is the cultures of these two countries. Many entrances to infections of the limb are injuries attained during manicure or performing manual tasks. It is possible that these aspects differ greatly between the two countries. Another important hypothesis is air humidity. Although Brazil and Tunisia are both hot countries, Brazil has a much higher air humidity which may be a factor for the proliferation of microorganism.

This lack of information suggests the necessity of further long-term prospective studies. Another interesting aspect observed in this study was that cellulitis and erysipelas were detected in four patients without clinical manifestations of lymphedema, which demonstrates a possibility of subclinical lymphedema in these patients. This hypothesis was confirmed in a study that evaluated the prevalence of lymphoscintigraphic alterations in patients after two or more episodes of erysipelas in the lower limbs, in which alterations were found in 77% of the cases even in patients with subclinical lymphedema [9].

A study of patients with chronic wounds and lymphedema demonstrated the presence of opportunist infections caused by gram-negative and methicilin-resistant *Staphylococcus aureus* in 35% of the cases [10]. These data highlight the necessity of prevention mainly concerning hygiene, wounds on limbs and infections that might allow the entrance of bacteria. The possibility of these infections triggering or aggravating lymphedema may result in greater emotional discomfort for patients in the postoperative period of breast cancer.

Another aspect worth considering is the number of patients with repetitive episodes of erysipelas in the lymphedematous arms, highlighting the necessity of preventive guidance for these individuals.

As this was a retrospective study, there are certain limitations related to the methodology. Future studies should compare the age of patients and the time after surgery at the onset of the disease.

Conclusions

In conclusion the occurrence of episodes of erysipelas is significantly higher in the ipsilateral limb following breast cancer surgery compared to the contralateral limb.

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