Post-Mastectomy Lymphocele after Breast Cancer Surgery: Risk Factors Evaluation

Sidy KA*, Mohamed Ezzet Charfi, Jaafer Thiam, Adja Coumba Diallo, Papa Souleymane Dieng and Ahmadou Dem

Department of Oncology, Cheikh Anta Diop University, Senegal

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*Corresponding author: Sidy KA, Department of Oncology, Cheikh Anta Diop University, Senegal

Abstract

Aim of study: The main postoperative complication of mastectomies with axillary lymph node dissection is the lymphocele that can last many months after the operation. The purpose of our study was to analyze the factors that can contribute to its production.

Methods: Sixty-one patients have been included in our study. The follow-up was 6 months. All patients had a mastectomy with axillary node dissection following the Madden technique. All quantities of lymphoceles during postoperative hospitalization and ambulatory care have been noted. Factors linked to patient, disease and treatment have been collected.

Results: Sixty-one patients (61) operated at Joliot Curie Institute of Dakar between January and June of 2018 for breast cancer have been included in our study. Amongst the factors linked to patients, the lymphocele production is more significant for obese patients and those with prolonged aPTT (partial thromboplastin time). The weight of surgical specimens from 1001 to 1250 g was associated with greater production. It was the same for a more extensive dissection. Neither surgical factors nor chemotherapy influenced the lymphocele production. However, the extended use of a suction drain causes a more significant production.

Conclusion: The production of postoperative lymphocele is heterogeneous, varying from a patient to another. Nevertheless, several factors may influence the production of this lymphocele. These factors are bound to patient, sickness and treatment.

Keywords: Mastectomy; Lymph nodes; Lymphocele; Factors.

Introduction

Breast cancer is the most widespread women cancer worldwide [1]. In many cases, mastectomy with axillary node dissection is required [2-4]. The main complication of this surgery is the lymphocele that can last several months after the operating procedure. It deeply affects the patient’s quality of life. The lymphocele weighs down patient care and can delay the administering of adjuvant treatment [5]. Preventing a lymphocele currently relies on the use of a suction drain. However, numerous risk factors may influence the production of postoperative lymphocele. These factors are linked to patient, disease and the surgery itself. Several factors have been reported in literature [6]. The aim of our study was to identify the main lymphocele risk factors in our practice.

Methods

This was a prospective study which evaluate the production of lymphocele post-mastectomy and axillary dissection and its relative risk factors. Inclusion criteria were the following: unilateral mastectomy, documented biological and clinical history. All patients have been hospitalized postoperatively until the quantity of lymphocele produced did not exceed 50 mL. Then, each patient had been monitored for 6 months after surgery. We had indexed many parameters linked to patient, sickness, and treatment.

Results

The study occurred at Joliot Curie Institute of Dakar. The period of inclusion was from the 1st January to 30th June 2018. In total, 61 patients have been included in our study. The characteristics linked to patient, sickness and treatment are summed up in Table 1.

Factors linked to the patient

We had noticed that the total production of lymphocele grew with BMI. The mean quantity moved from 725.00 mL to 1992.25...
mL for obese patients. Furthermore, this same quantity was affected by aPPT ratio. The more prolonged the aPPT was, the more significant was the quantity, varying from 633.33 mL if the ratio was less than 0.80 to 2213 mL if the ratio was more than 1.21.

Table 1: Patients, Disease and Treatment parameters.

| Parameters                      | Number of patients (n = 61) |
|---------------------------------|-----------------------------|
| Linked to patients:             |                             |
| Age                             | 45.36 years (25-77)         |
| Arterial hypertension           | 28                          |
| Diabetes                        | 4                           |
| Anticoagulant treatment         | 1                           |
| Gravidity                       | 5.16                        |
| Parity                          | 4.44                        |
| Menarche age                    | 14.68                       |
| In menopause                    | 24                          |
| Weight                          | 69.33 kg (35-122)           |
| height                          | 1.66 m (1.53-1.86)          |
| BMI                             | 25.04 kg/m² (12.11-49.49)   |
| Biology:                        |                             |
| Hemoglobin levels               | 11.83 g/dl (10.00-18.40)    |
| Hematocrit                      | 35.79% (29.90-59.90)        |
| Serum creatinine                | 0.20 g/l (0.07-0.53)        |
| GFR                             | 116.10 ml/min/1.73 m² (42-261) |
| INR                             | 1.05 (0.90-1.20)            |
| aPPT ratio                      | 1.02 (0.72-1.55)            |
| Linked to sickness:             |                             |
| Discovered per mass             | 59                          |
| Ipsilateral lymphedema          | 1                           |
| Breast size                     | 13.24 cm (6-25)             |
| Reach of left breast            | 34                          |
| Upper Internal Quadrant         | 28                          |
| Tumor size                      | 7.09 cm (2-22)              |
| T4b / N1 / M0 stages            | 25 / 34 / 39                |
| Histology type: Non-specific    | 56                          |
| SBR grade: 2                    | 37                          |
| Weight of surgical specimen     | 1065.69 g (200-3000)        |
| Complete histological response  | 14                          |
| Number of nodes extracted       | 12.60 (5-21)                |
| Number of metastasis nodes      | 1.91 (0-11)                 |
| Linked to treatment:            |                             |
| Neoadjuvant chemotherapy        | 59                          |

Factors linked to the disease

We had noted that surgical specimens weighing between 1001 and 1250 g corresponded with the most important productions (2409.67 mL). This quantity lowered as the weight decreased. On the other hand, the more nodes the dissection brings, the more significant the quantity was, independently of nodes metastasis.

Factors linked to the treatment

No factors linked to surgery or chemotherapy had an important effect on production. However, the more prolonged the use of the suction drain was, the more the total production after 6 months was significant, going from 176.37 mL for drainage of fewer than 2 days to 1839.18 for drainage surpassing 6 days.

Discussion

The early complications of mastectomies mainly include the lymphocele which is a lymphatic effusion from the armpit and mastectomy compartment [7]. Extremely frequent, it can vary in volume, being very abundant and even rebellious in some cases [6-10]. It can be responsible for prolonging the duration of hospitalization, as well as an infection, sutures disunion and a delay in administering adjuvant treatment. It can also originate plastic skin lesions and chronic pain [11,12].

Currently, the prevention of lymphocele hinges on setting up a postoperative suction drain, but this procedure elongates the duration of hospitalization until its ablation [13]. However, this production is extremely variable between individuals and is largely influenced by several factors.

Amongst the factors linked to the patient, we have not noticed a major influence of age, gravidity and parity, menarche age, menopausal status and age of menopause, weight, height, breast size, arterial hypertension, diabetes, diagnosis method (biopsy or cytology) and of the following biological parameters: hemoglobin, hematocrit, number of white blood cells, number of platelets, serum creatinine, GFR and INR.

Hypertension may play a role in the production of lymphocele [14,15,16]. This phenomenon is probably due to the excessive formation of exudate by detached surfaces. This result has not been confirmed by all studies. Likewise, they show that diabetes and the use of anticoagulants do not modify the quantity of lymphocele either in the short or the long run [17]. On the other hand, factors such as age, diabetes, tobacco, and breast size, with varying grades of evidence do not influence the quantity of lymphocele [18,19]. For BMI and aPPT ratio our notice shows a
correlation with lymphoceles production with strong evidence. It was not well studied parameters by other authors excepted the patient’s weight. It was shown in prospective studies as well as meta-analysis, a strong link between weight and lymphoceles production [20-23], and between obesity and lymphoceles [24].

In our study, analysis shows that aPPT ratio is linked to the production of lymphoceles. This production goes from the simple, to the moderate, to the severe. However, the duration of surgery does not affect the quantity of lymphoceles [19,20]. However, the duration of surgery does affect the severity of lymphocele. However, the quality of surgery does affect the quantity of lymphoceles. However, the use of the dressing compression, contrary to what is commonly thought, do not affect the lymphocele production [26,27].

Conclusion

Some factors can influence the total production of lymphoceles after mastectomy for breast cancer. These factors are relative to the patient such as BMI and aPPT ratio, to the disease such as weight of surgical specimen and number of extracted nodes, and to the treatment such as surgical drainage. It is the same for other factors like clinical tumor size and the number of metastasis nodes. It is unclear whether other factors like patient weight, hypertension, duration of surgery and the use of a pressure dressing have a link with lymphocele volume and duration.

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