

## Vulva and lower limb cancer: Results of inguinal lymph node staging on 81 cases

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### Abstract

**Background:** The objective of this work completed at the Cancer Institute in Dakar is to report the results of inguinal lymph node dissection in cancers of the lower limb and of the lower genital tract. **Methods:** This is a retrospective study over a 10-year period. The parameters being studied are histological type, lymph node involvement, postoperative morbidity, recurrence, and survival. **Results:** 81 patients received surgery over a period of 7 years. The average age of our patients was 61. The sex ratio is 0.74 with 34 men and 47 women. There were 70 cases of cancer of the lower limbs (86%) and 11 cases of cancer of the vulva (14%). The most common histological type was squamous cell carcinoma (SCC) with 41 cases (51%). Clinical inguinal involvement was noted in 58 patients (72.5%) with palpable lymph nodes. All vulvar cancer patients developed histologically positive nodes. Melanoma patients were more susceptible to developing positive nodes. In sarcoma there were more matches between clinical and histological positive nodes. No vascular and nerve damage was reported. The average length of hospitalization was 5 days, with 3 days being the shortest stay, and 40 days the longest stay. Local complications consisted of suture releases in 9 cases, and 6 surgical necrosis of the wound. A seroma was found with an average duration of 35 days in 69 patients (85%). Postoperative deaths occurred in 5 cases (6%), 1 after a renal failure, 1 due to thromboembolic disease, 1 due to sepsis, and 2 deaths occurred after patients experienced respiratory distress. **Conclusion:** After five years of follow-up care, no patient presented chronic sequelae after inguinal dissection, 7 patients (8.75%) had local recurrence, and 4 patients (7.7%) had lymph node metastases. We recorded 33 cancer-related deaths (41%). Chronic complications, including lymphedema are underestimated and require better assessment methods for prevention and treatment.

**Keywords:** inguinal; limb; vulvar; node; dissection

### Introduction

Lymph node dissection is done for the staging and removal of metastatic node involvement. Most inguinal nodes are primary lymphoma or secondary localization of skin cancers, soft tissue sarcomas, and osteosarcomas of the lower limb or lower genital tract organs [1].

After inguinal lymph node dissection, many complications can occur [2]. More than 16% of women with vulvar cancer will develop lymph node involvement [3]. The objective of this work is to report the results of inguinal lymph node dissection of lower genital tract and lower limb cancers conducted at the Joliot Curie Cancer Institute.

### Methods

We performed a retrospective study over a 10-year period that included patients over 15 years old. We selected all the patients who had surgery on their lower limbs or lower genital tract such as the vulva and vagina. We found no case of vaginal or penile cancer. The parameters studied were the site of the lower limb or the vulva (the parameters studied were cancer sites), histological type, lymph node involvement, operative morbidity, recurrence, and survival. The settings have been listed on Excel (We used Excel to codify the data). In this analytical study, we

report the incidence of different parameters without using a comparative study with a control group, because in our practice we systematically perform inguinal dissection.

### Results

There were 81 patients operated on over a period of 7 years. The average age of our patients was 61 years. The sex ratio was 0.74, with 34 men and 47 women. The limb localization accounted for 70 patients (86%), while 11 patients (14%) presented vulvar carcinoma.

The most common histological type was squamous cell carcinoma (SCC) with 41 cases (51%), followed by acral

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melanoma in 25 cases (31%), and sarcomas in 15 cases (18.5%). All lower genital tract cancers were SCC, and we had 11 such cases (Figure 1).

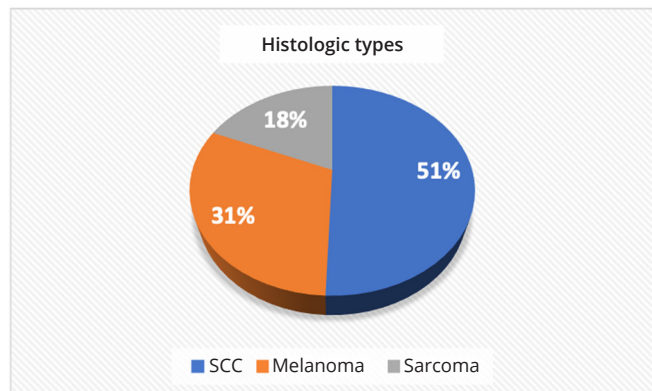


Figure 1 Distribution of patients by histological types of primary tumors.

Clinical inguinal involvement with palpable lymph nodes was noted in 58 patients (72.5%). Among those 58 patients, 15 had malignant fungi which are clusters of ulcerated lymph nodes fistulized on the skin. All patients with vulvar cancer underwent complete vulvectomy because they presented with advanced stages and histologically positive nodes. Lymph nodes were affected clinically in limb cancer cases, and on histology in cases of sarcomas (Table 1).

Table 1 Clinical node involvement according to limb cancer histological type.

Histologic type	Non palpable nodes	Palpable nodes
Melanoma	6(24%)	19(76%)
SCC	9(30%)	21(70%)
Sarcoma	3(20%)	12(80%)
Total	18(25,7%)	52(74,3%)

Histological results of node examination were obtained in 32 of 58 patients (55%). While patients with melanoma were more susceptible to develop positive nodes, in patients with sarcoma there were more matches between clinical and histological positive nodes (Figure 2).

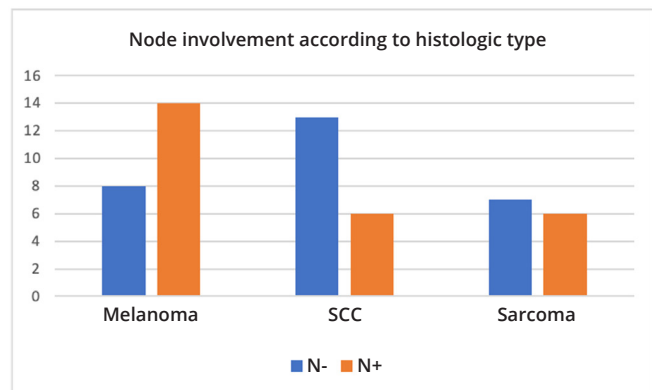


Figure 2 Histologic node involvement.

No vascular or nerve damage was reported. The average length of hospitalization was 5 days. Local complications consisted of suture releases in 9 cases, and 6 surgical

necrosis of the wound. A seroma was found with an average duration of 35 days in 69 patients (85%). Postoperative death occurred in 5 cases (6%), 1 in a context of renal failure, 1 in thromboembolic disease, 1 in sepsis, and 2 in a context of respiratory distress. After five years of follow-up, no patient presented with chronic sequelae after inguinal dissection, 7 patients (8.75%) had local recurrence, and 4 patients (7.7%) had lymph node metastases. We recorded 33 cancer-related deaths (41%).

**Discussion**

The average age of onset of cancers of the lower limbs is 50 years, and 60 years for vulvar carcinoma [1, 3]. The mean age of inguinal dissection according to the authors depends on the histological type, and it ranges from 20 to 60 years for sarcomas to more than 70 years for SCC [4, 5]. The sex ratio varies according to the histological type with a general tendency in favor of men. However, it is shown that women are more likely to develop squamous cell carcinoma in lower extremities and vulvar carcinoma in advanced ages [6, 7]. Clinical lymph node involvement varies according to the histological type. Melanoma is more likely to involve the lymph nodes than other histological types [8]. It is common to find inguinal lymph nodes in large, inflammatory, undifferentiated, and high-grade sarcomas [9]. In vulvar and lower vaginal carcinomas, clinical lymph nodes are found in 25% of cases [3]. In our study, because of locally advanced cases, all patients underwent complete vulvectomy and were node positive. Inguinal dissection in these cases is strongly recommended [3, 10].

The lymph node ratio is correlated with tumor size and stage. It appears to be a consistent and independent prognostic parameter for progressive free survival (PFS) and overall survival (OS), and it allows patients to be stratified into three distinct risk groups. In survival analyzes, the lymph node ration (LNR) is more indicative than the lymph node status and the number of positive nodes [11].

Histological lymph node involvement is also variable depending on the histological type [12]. Capsular invasion and the number of lymph nodes affected are important prognostic factors, particularly in melanoma. It remains unclear whether the inguinal clearance limited to the groin or extended to the iliac area is dependent on whether the Cloquet's node is affected or not [5, 7]. Squamous cell carcinoma and sarcomas of any stage are unlikely to affect the inguinal lymph nodes [9]. The morbidity of inguinal lymph node dissection is close to 70%, and there is considerable variation between authors [12]. There is a high frequency of postoperative complications such as ruptured sutures, skin necrosis, seroma and early lymphedema. Oblique incisions are less deleterious than vertical incisions, while deep dissection is a better [13]. We had no weakening of the groin, which sometimes can be responsible for inguinofemoral hernia [14]. Bilateral inguinofemoral lymphadenectomy has now been replaced by selective inguinal lymphadenectomy depending on the choice of unilateral dissection in unilateral and non-medial vulvar lesions, and the use of lymph node mapping to minimize perioperative complications [15]. In case of melanoma surgery, morbidity is shown to be high, and the

use of laparoscopy-assisted inguinal dissection seems to decrease complications [16]. Mortality directly related to inguinal dissection as well as postoperative mortality is very low, and is linked to co-morbidities and the underlying cancer [17]. Recurrences are mainly seen at the site of the primary cancer. They are very rare at the inguinal site, with the exception of malignant fungi [18]. Although rare in our series, the most common chronic complication is lymphedema. It is more common after radiotherapy to the limb or groin [12]. Many methods are increasingly used for lymphedema evaluation, prevention and treatment. Such methods include endoscopic and micro-invasive surgical techniques, drainage, dissection and physiotherapy. As with all comparisons between open and keyhole surgery, the focus should be on improving the open technique to its limit [3, 19]. Whether prophylactic are performed after sentinel node biopsy, inguinal lymph node dissection has not shown any significant benefit in terms of overall survival. However, it can prevent crippling inguinal disease [20].

## Conclusion

Clinical and histological inguinal lymph node involvement is more frequent in our practice than in the literature pertaining to lower limbs and genital tract. This justifies a maximalist therapeutic attitude to avoid inguinal recurrence. Chronic complications, including lymphedema are underestimated and require better assessment methods for prevention and treatment. It is important to educate the general public in order to help with the early diagnoses and screenings of cancers so as to optimize the results of their treatments.

## Ethics approval and consent to participate

This article follows our institution's ethics committee rules.

## Competing interests

There are no competing interests.

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