The Debulking of Recurrent Right Testicular Seminoma with Anterolateral Thigh Flap Reconstruction

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ABSTRACT
Introduction: Radical orchidectomy is considered both a therapy and a part of the staging procedure. Stage I seminoma may be treated with orchiectomy alone while the remaining 15% to 20% may have a relapse if they receive no additional treatment during the five-year surveillance. Most recurrences occur within the first 2 years after diagnosis, and the location of the recurrence is typically in the retroperitoneum. This article aims to share the experience in the management of testicular seminoma recurrence in a multidisciplinary approach.

Case Presentation: We are reporting a case of a 26-year-old male with a growing mass at the right scrotum just two months after right radical orchidectomy. This patient was previously treated with a stage I seminoma and underwent surveillance. Tumor debulking and right inguinoscrotal reconstruction using a pedicled anterolateral thigh (ALT) flap were done through collaborative surgery between urology and plastic surgery. However, according to National Comprehensive Cancer Network (NCCN), with the relapsed mass, this patient can be classified as having a stage III seminoma and considered as having a good-risk disease due to no evidence of non-pulmonary visceral metastasis. With the risk of bleomycin causing lung fibrosis, four cycles of etoposide and cisplatin can be considered the chemotherapy regimens for this patient. Evaluation after chemotherapy should be done by checking tumor markers and imaging studies.

Conclusions: The reappearance of testicular seminoma in this patient unexpectedly occurred quite in a short period, that is in two months after surgery. Immediate multidisciplinary intervention by a urologist and plastic surgeon was done through tumor debulking with a wide incision margin and ALT flap reconstruction. Unfortunately, however, after the second month of follow-up, there was a bulging mass growing beneath the flap which needed further evaluation with ultrasonography to confirm the possibility of tumor recurrence or seroma. If tumor recurrence is confirmed, chemotherapy should be scheduled as soon as possible.

INTRODUCTION

Testicular cancer accounts for 5% of all urological tumors, which mostly (> 90%) consist of germ cell tumors: pure seminoma, non-seminoma, or mixed germ cell tumors [1]. Seminoma accounts for about a third of all testicular germ cell malignancies [2]. Seminoma testicular cancer is known to be treatable in the majority of cases. It can be classified into intermediate and good risk groups with five-year progression-free survival of 79% and 89%, and five-year survival of 88% and 95%, respectively [1].

Radical orchidectomy is considered both therapeutic and a part of the staging procedure. Stage I seminoma may be treated with orchiectomy alone while the remaining 15% to 20% may have a relapse if they receive no additional treatment during the five-year surveillance. Most recurrences occur within the first 2 years after diagnosis, and the location of the recurrence is typically
in the retroperitoneum [2]. In this article, we aim to report our experience in the management of testicular seminoma recurrence in a multidisciplinary approach.

**CASE PRESENTATION**

We are reporting a case of a 26-year-old male with a growing mass at the right scrotum. The patient underwent radical orchidectomy in another hospital in April 2021, with pathological results of testicular seminoma. The history of undergoing chemotherapy was denied. The patient has been diagnosed with stage I seminoma and was on surveillance. Two months after the surgery, a mass started to appear at the right scrotum which began to enlarge over time. There was no fever, no difficulty in voiding, and no hematuria. From the physical examination, the mass has extended to the right inguinal, and the area at the right scrotal looked ruptured, filled with pus, and produced a foul smell (Figure 1). The patient is married and already has a son.

An abdominal-pelvic contrast CT scan was done (Figure 2), showing a right scrotal mass, sized 9.6 x 7.8 cm, with a central necrotic area, with bilateral inguinal, parailiac, right obturator, and left obturator lymphadenopathy. However, no abnormalities were seen in other intra-abdominal and pelvic organs. The chest x-ray, nonetheless, showed an evident coin lesion at the left lung, suspected to be a metastasis.

A collaborative surgery with a plastic surgeon was done in October 2021 in Dharmais Cancer Hospital. Debulking of the tumor was made by making a wide excision. The left testicle and penis were preserved. The tumor was removed and sent to the Anatomical Pathology Department (Figure 3). Surgery was then proceeded by the plastic surgeon team for wound reconstruction. An ALT flap was harvested by preserving the pedicle from the descending branch of the lateral circumflex femoral artery, circumflex femoral artery. The flap donor site was reconstructed using a split-thickness skin graft (STSG), taken from the medial right thigh (Figure 4).

The histologic specimen showed the tumor cells arranged in a diffuse pattern, interrupted by fibrous septae (Figure 5). The septae were containing a considerable amount of lymphocyte infiltrates. The tumor cells are polygonal. The nuclei showed mild to moderate pleomorphism with finely granular chromatin.

**Figure 1.** (A) The tumor growth over 1-month period: during the first visit to the outpatient clinic; (B) Day 1 of surgery.

**Figure 3.** Right testicular tumor debulking by the urology team.

**Figure 2.** (A) CT scan showed a large mass at the right scrotum extending to the right inguinal area with multiple lymphadenopathies; (B) Metastatic lesion at the left lung showed from the chest x-ray.
Large nucleoli were observed occasionally. The cytoplasm was abundant, clear to pale eosinophilic. Tumor cell emboli within the vascular channel were observed. The pathological results of the specimen were similar to the previous one, which is a testicular seminoma with lymphovascular invasion. The patient currently is still on a routine visit for his wound care and was planned to be given chemotherapy.

In the second month after tumor debulking, the right pedicled ALT flap seemed to be bulging which might indicate a possibility of tumor recurrence or seroma (Figure 6). The patient was scheduled to undergo ultrasonography to confirm the mass.

DISCUSSION

This patient had a relapsed right testicular tumor which grew bigger over four months. The huge size of the scrotum causes inconvenience for the patient in carrying out daily activities, socializing, and impairing his sexual function. Moreover, the foul smell causes more discomfort for the patient and the surrounding people. It was informed that the patient was diagnosed with stage I right testicular cancer and was on active surveillance. However, there was no information about the previous tumor markers or imaging. The pathological examination concluded a testicular seminoma. The
patient denied having a history of chemotherapy or radiation therapy. He was planned to be evaluated in the third month after orchidectomy, but unfortunately, the mass started to appear by the second month, which indicates such a quick relapse.

An abdominal-pelvic contract CT scan was done to evaluate the mass. There was a mass on the right ilioinguinal region extending to the scrotum that involved the skin and lymphadenopathy of the inguinal, which indicates distant metastasis. To add more, lung metastasis was also detected from the chest x-ray. Tumor debulking was done and followed by a flap reconstruction.

The groin is a challenging area to be reconstructed. A pedicled ALT flap is one of the options for groin/inguinal reconstruction. A design from the anterolateral right thigh was made to cover the defect at the right inguinal area. The pedicled ALT flap was preferred for the closure of groin defects because it offers both flexibilities in flap design and a lower risk of donor-site morbidity [3]. Due to the large area of the donor site at the right thigh, it was decided to close the raw surface using STSG taken from the anterior and medial right thigh and meshed to cover the large donor area.

A study by Petrelli et al found that adjuvant treatment with chemotherapy and radiotherapy may decrease the risk of recurrence by 80% in stage I seminoma patient, despite improving the overall survival [4]. This finding is supported by the study conducted by Mortensen et al, which stated insignificant difference in 10-year overall survival regardless of the primary treatment [5].

This patient had a relatively rapid relapse time even though generally seminomas may relapse in 1 year. According to NCCN, this patient can be classified as a stage III seminoma patient and is considered to have a good-risk disease due to no evidence of non-pulmonary visceral metastasis [6]. With the risk of bleomycin causing lung fibrosis, four cycles of etoposide and cisplatin can be considered the chemotherapy regimens for this patient. Evaluation after chemotherapy should be done by checking tumor markers and imaging studies.

CONCLUSIONS

The reappearance of testicular seminoma in this patient unexpectedly occurred within a fairly short time, specifically within two months after radical orchidectomy. Immediate multidisciplinary intervention by a urologist and plastic surgeon was performed through tumor debulking with a wide incision margin and pedicled ALT flap reconstruction. It was hoped that the patient may have an improvement in carrying out daily activities, thus restoring his quality of life. This patient needs to undergo chemotherapy and have a routine evaluation to prevent future tumor recurrence. Unfortunately, however, after the second month of follow-up, there was a bulging mass growing beneath the flap which needed further evaluation with ultrasonography to confirm the possibility of tumor recurrence or seroma. If tumor recurrence is confirmed, chemotherapy should be scheduled as soon as possible.

DECLARATIONS

Competing of Interest
The authors declare no competing interest in this study.

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