Excision of Postchemotherapy Residual Retroperitoneal Mass in Testicular Cancer

Muhammad Nauman, Mudassir Hussain, Pardeep Kumar, Rehan Mohsin, Gauhar Sultan and Altaf Hashmi

Department of Urology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan

ABSTRACT
In this study, patients, who underwent excision of retroperitoneal mass following chemotherapy for testicular cancers from 2006 to 2016, were studied and followed till 2021. The clinical and oncological outcomes were measured. Among 338 patients, who were treated for TC during the entire study period, 38 (11.2%) underwent excision of the residual retroperitoneal mass. The mean age of these patients was 26.9±6.3 years. The majority were stage 3 testicular cancer. Complete resection with negative microscopic margins was achieved in the majority of cases i.e. 31 (81.6%). Damage to the collateral structures was seen in 12 (31.6%) cases. On histopathological examination, teratoma was seen in 18 (47.4%) of the cases followed by necrosis in 10 (26.3%). Complications were recorded in 12 (31.5%) cases, most were low grades. At five years of follow-up, 19 (50%) were disease-free, 25 (65.8%) were alive, and 9 (23.6%) were lost to follow-up. Five-year survival rates are lower than standard template-based retroperitoneal dissection, however, complications rates are comparable. Such complex surgeries should only be performed in high-volume centres.

Key Words: Testicular neoplasms, Lymph node excision, Seminoma, Germ cell and embryonal.

The surgical outcomes included operative time, blood loss, hospital stay, Clavin-Dindo grade of postoperative complication, and pathology of the resected specimen. The oncological outcomes were also recorded including recurrence and survival at five years of follow-up i.e. till 2021.

The data analysis was performed using SPSS version 20 (SPSS: An IBM Company, IBM Corporation, Armonk, NY, USA). The categorical variables were represented as counts and percentages while continuous variables as mean, median, and standard deviation.

A total of 338 patients were treated for testicular cancer during the entire study period, among them, 38 (11.2%) underwent excision of the residual retroperitoneal mass. The mean age of these patients was 26.9 ± 6.3 years. Pain and swelling were found to be the predominant modes of presentation i.e. 60.5% and 57.9%, respectively. A history of cryptorchidism was found in 5 patients i.e. 1.4% of all the patients visited for testicular cancers during the study period. There was an approximately equal distribution of sides of the involved testis.

The majority of the patients were classified into stage 3 testicular cancer, and therefore received chemotherapy. The BEP (Bleomycin, etoposide, and cisplatin) was the most commonly used regimen i.e. 71.0% followed by EP (etoposide and cisplatin) at 13.1% (Table I).

Complete resection with negative microscopic margins was achieved in the majority of cases i.e. 31 (81.6%). Damage to the collateral structures was seen in 12 (31.6%) cases including vascular, bowel, and renal injuries that were managed during the surgery. On histopathological examination of the resected specimen, teratoma was the most frequent finding seen in 18 (47.4%) of cases followed by necrosis in 10 (26.3%). Complications were recorded in 12 (31.5%) cases, most of them were low grades on the Clavin-Dindo grade of postoperative complications. At five years of follow-up, 19 (50%) were disease-free, 25 (65.8%) were alive and 9 (23.6%) lost to follow-up (Table I).

Testicular cancer is the commonest solid organ malignancy of young adolescent males with overall good and disease-free survival following the treatment with chemotherapy and surgery. In this study, we have presented data from a single high-volume uro-oncological centre.

The mean age of the study population was 26.9 ± 6.3 years which is comparable to the regional and international studies. The mean age of the patients with non-seminomatous tumours were younger i.e. 25.05 years compared to those with seminomatous tumours i.e. 33.0 years.

Pain and swelling were the common modes of the presentation i.e. 60.5 and 57.9%, respectively. Among the patients who presented with swelling, 31.8% had abdominal or lymph node swellings indicating an advanced stage of disease. The number of the patients identified at an asymptomatic stage with the routine clinical examination or self-examination was negligible.
This relates to a higher stage of presentation in this study population.

Among the entire population of the patients with testicular cancer treated during the study period (338), a history of cryptorchidism was recorded in 5 patients (1.4%), family history of testicular cancer in 1 (0.29%), and personal history of testicular cancer in 1 (0.29%). These values are lower than reported in the literature and are probably caused by the retrospective nature of data where some information is often missed.

The standard chemotherapy regimen was BEP (Bleomycin, etoposide, and cisplatin) followed by EP (etoposide and cisplatin). The details of chemotherapy cycles and their complications were not recorded in this study.

The median operative time of excision of the retroperitoneal mass was 167.5 minutes compared to an operative time of 185 (IQR 150-240) minutes for unilateral and 300 (IQR 214-405) minutes for bilateral retroperitoneal lymph node dissection. An estimated blood loss of 500 (IQR 80) ml was recorded that was comparable to the other studies i.e. 300-700 ml. This entails that the perioperative parameters of the two approaches are comparable.

Damage to the collateral structures was recorded in 12 (31.5%) cases including vascular, bowel, bladder, and renal injuries. Several factors are responsible for these injuries such as invasion by tumour, surgical technique, and postchemotherapy fibrosis. There are variations in the literature on the reported incidence of injury to surrounding organs. Vascular injuries were reported to be 8.6% by Heidenreich et al. compared to 10.4% in the provided data. An injury to the bowel was also reported in 6.4% to 7.9% of cases in the different series cited above.

Considering the invasiveness of the surgery, high complications are expected. In this analysis, postoperative complications were recorded in 12 (31.5%) cases and most of them were low grades 10 (83.3%) on Clavien-dindo grading. These results are equivalent to the published data in the other studies. About half of the patients i.e. 19 (50%) were disease-free at five years of follow-up and 25 (65.8%) were alive, however, 9 (23.6%) lost to follow-up.

There were some limitations to this study including a retrospective nature of data and a significant proportion of patients who lost to follow-up.

Excision of postchemotherapy residual retroperitoneal mass is a challenging and morbid surgical procedure. Survival rates at five years are lower than standard template-based retroperitoneal dissection, however, complications rates are comparable. Such complex surgeries should only be performed in high-volume centres.

**DISCLOSURE:**
This study is part of a thesis.

**COMPETING INTEREST:**
The authors declared no competing interest.

**AUTHORS’ CONTRIBUTION:**
MN, MH, PK: Conception of design, data collection, analysis, and manuscript writing.
RM: Data collection and analysis.
GS: Revision of the manuscript and critical appraisal.
AH: Final approval of the version to be published.
All the authors have approved the final version of the manuscript to be published.

**REFERENCES**