

# The Impact of Prophylactic Para-aortic Lymph nodes Radiotherapy in Small Cell Carcinoma of the Cervix: A Case Report and Literature Review

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## Abstract

Cervical small cell carcinoma is a rare disease, with a high degree of malignancy and a poor prognosis. Para-aortic lymph nodes are common recurrence sites after pelvic chemoradiotherapy.

A 26-year-old female patient with cervical small cell carcinoma who underwent two times of para aortic lymph node relapses, the lesions can be effectively controlled by definitive radiotherapy.

Prophylactic para-aortic lymph nodes radiotherapy may be an effective option for patients with cervical small cell carcinoma who need radical whole pelvic radiotherapy. A study with a larger sample size and long-term follow-up of cervical small cell carcinomas would be needed to confirm this result.

Small cell; Carcinoma; Cervix; Radiotherapy

## Introduction

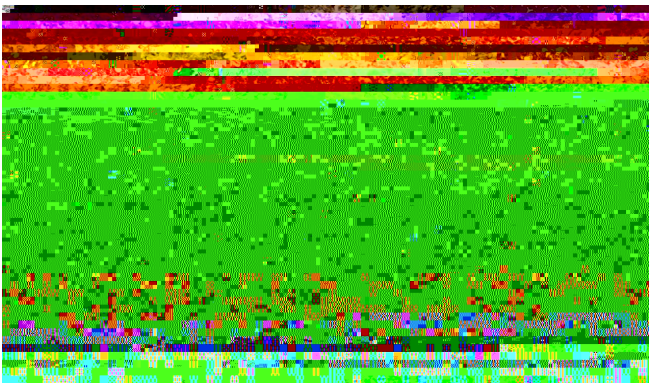
Female reproductive system neuroendocrine tumors represent 2% of all female reproductive system malignancies. [1]. Small cell carcinoma of the female reproductive system is a high-grade neuroendocrine tumor, which occurs in the cervix and accounts for 1% to 2% of all cervical cancers [2]. Cervical small cell carcinoma has a high degree of malignancy, poor prognosis, and a high probability of early lymph node and distant metastasis. The clinical manifestations of cervical small cell carcinoma are relatively rare; currently there is no exact diagnosis and standard treatment. The common recommendation is to apply individualized comprehensive treatment based on radical surgical, chemotherapy, radiotherapy ]

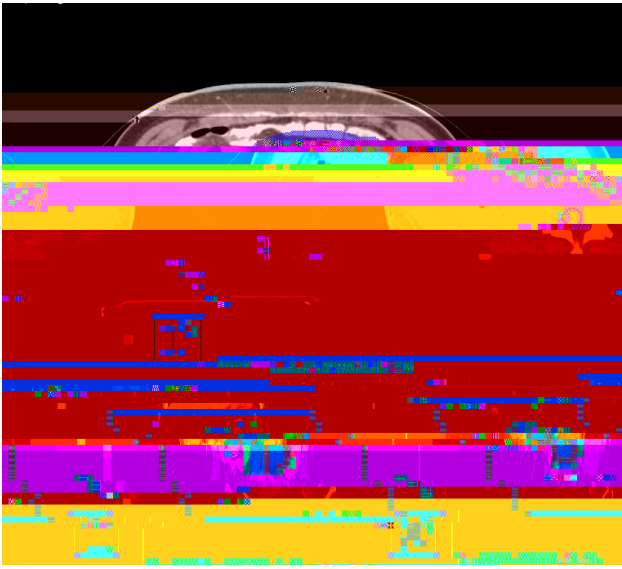
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**Figure 4:**

the PALN region and 2 patients with vaginal recurrence [9]. Literature suggests that because of the high degree of cervical small cell carcinoma malignancy, although sensitive to local and systemic treatment, most patients have a poor prognosis, there is still a high probability of local recurrence and distant metastasis, prophylactic PALN extension field radiotherapy can reduce the recurrence rate in the PALN area, and improve the overall survival rate [10]. Therefore, prophylactic PALN extension field radiotherapy can improve the prognosis of patients [10,11]. In the present case, the patient underwent two times of PALN relapses, no recurrence was found within the radiation field, and radiotherapy can effectively control the PALN recurrence. It is worth investigating whether PALN recurrence can be avoided when prophylactic PALN radiotherapy is given at the same time with the pelvic radiotherapy. Based on the characteristics of recurrence, we analyzed the following reasons:

Radiotherapy plays an important role in the treatment of cervical small cell carcinoma, and the lesions in the radiation field can be effectively controlled.

The lymph node metastasis of cervical small cell carcinoma is mainly regional, and skip lymph node metastasis is rare, and recurrences of this patient were consistent with this characteristic.

It is also questionable, whether metastatic tumor cells existed in the PALN area before the positive imaging results.

Besides, the microenvironment in the radiation field is not suitable for the growth of tumor cells, which induced the skip of tumor cells outside the radiation field.

## Conclusion

Small cell carcinoma of the cervix is a rare and highly malignant tumor. Our findings suggest that cervical small cell carcinoma, is prone to distant metastasis and local recurrence, and the abdominal para-aortic lymph node is a preferential common recurrence site. Prophylactic para-aortic lymph node radiotherapy may be an effective option for patients with cervical small cell carcinoma who need radical whole pelvic radiotherapy. A study with larger sample size and long-term follow-up of cervical small cell carcinomas would be needed to confirm this result.

## Contributors

LIU Hong identified the patient, LIU Hong, CHEN Xi and KEITA Mamady managed treatment of the patient, CHEN Xi and KEITA Mamady drafted the manuscript, NIU Shuhuai and NIU Huixian provided radiology images, FANG Zhaohui and provided pathology slides, BAH Malick, DIALLO Fatoumata Binta, TRAORE Bangaly, LIU Hong revise the paper.

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## Competing Interests

None declared.

## Patient Consent for Publication

Not required.

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