



## Low-dose radiation fraction using palliative radiotherapy in extensive stage small cell lung cancer with VCSS: A case report

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### ABSTRACT

**CASE REPORT:** *The patient with ECOG 4 performance, vena cava superior syndrome (VCSS), also positive for Covid 19. Due to the large size of the tumor, low-dose fractional radiotherapy (RT) was planned for the primary tumor area instead of hypofractionated RT. There was a significant decrease in the patient's dyspnea 2-3 days after starting lung RT. An adaptive plan was made due to more than 30% regression in mediastinal LAMs and primary tumor at a dose of 5x170 cGy. Due to a complete response at 20x170 cGy and the poor general condition of the patient, RT was terminated at a dose of 23x170 cGy. Palliative 20x170 cGy RT to the pancreas and T12 region was planned for the patient. Only 2x170 cGy radiation later, there was a significant decrease in abdominal and back pain, and his appetite improved.*

**CONCLUSION:** *In extensive stage SCLC with VCSS, low dose radiation can be using with best palliation.*

**Key words:** *lung SCLC, Rovalpituzumab tesirin (Rova-T), notch pathway, extensive stage, low dose radiation*

### INTRODUCTION

When small cell lung cancer is left untreated, the median survival rate is only 5-6 weeks. This rate decreases even more in metastatic disease. Primary treatment is chemotherapy (1-3). However, since the results are not good, research is being carried out on this subject. Rovalpituzumab tesirin (Rova-T) is an antibody-drug conjugate and Notch pathway inhibitor and has started to be used in SCLC in recent years especially relapsed SCLC (4).

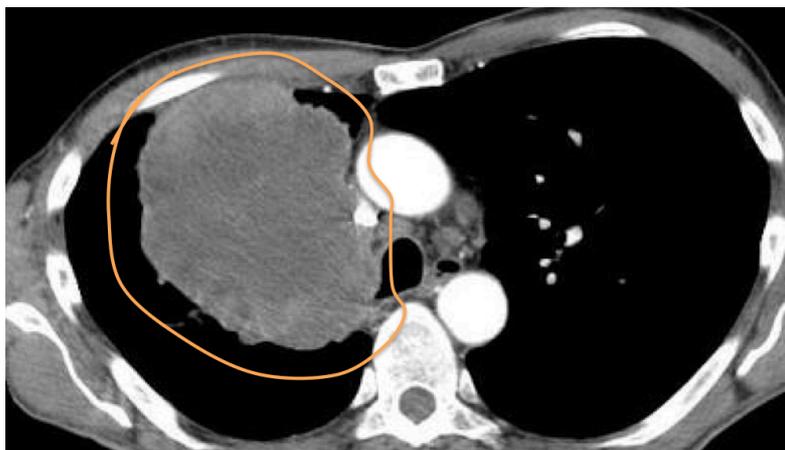
In the presence of VCSS and metastasis, palliative RT is performed in patients with SCLC. Although high fraction doses such as 300-800 cGy are used for rapid palliation in the presence of VCSS, toxicity may sometimes increase and lead to decreased performance or even death of the patient (5-7). since SCLC is a tumor sensitive to radiation, a good tumor response can be achieved even with lower radiation doses. Therefore, in cases where patient performance is poor in the presence of a large volume tumor, low-dose radiation should be preferred.

Hypofractionation is generally preferred in palliative radiotherapy (RT) in all metastatic cancer. The

patient has vena cava superior syndrome (VCSS) palliative radiation must be urgently start with high dose hypofraction methods even extensive stage small cell lung cancer (SCLC). In some studies and in our case, it has been observed that even low-dose radiation fractions scan be effective palliatively.

**CASE REPORT:** A 42-year-old male patient with ECOG 4 performance, vena cava superior syndrome (VCSS), dyspnea, edema in the face and neck, and fatigue was also positive for Covid 19. Due to the large size of the tumor in the lung (7x8 cm), 25x170 cGy low-dose fractional radiotherapy (RT) was planned for the primary tumor and mediastinal lymphadenomegaly (LAM) areas instead of hypofractionated RT. Since 2 metastases were detected in

the brain at the beginning of RT, whole brain 12x250 cGy RT was planned. In the PET CT scan, metastatic foci, the largest of which was 3 cm, were seen in the liver and pancreas, and in the T12 vertebra. There was a significant decrease in the patient's dyspnea 2-3 days after starting lung RT. An adaptive plan was made due to more than 30% regression in mediastinal LAMs and primary tumor at a dose of 5x170 cGy. Due to 80% regression at 12x170 cGy, RT was continued with an adaptive plan. PTK was applied to the patient due to abdominal pain and icterus (Total Bilirubin 6.5 mg/ml). Due to a complete response at 20x170 cGy and the poor general condition of the patient, RT was terminated at a dose of 23x170 cGy (31.9 Gy) (Figure 1).



**Figure 1.** The lung tumor which caused VCSS in right side lung contoured with red brush for apply radiation

Palliative 20x170 cGy RT to the pancreas and T12 region was planned for the patient, whose icterus improved after PTC, but his abdominal and back pain became increasingly severe. Even at 2x170 cGy, there was a significant decrease in abdominal and back pain, and his appetite improved. The patient, whose pathology result showed SCLC, was referred to medical

oncology at the end of RT. At the last check-up of the 4-month follow-up, the patient's general condition was good and ECOG was 1, and he continues CT. Key words: SCLC, palliative low dose RT, pancreas, lung RT

## DISCUSSION

Since SCLC is a tumor sensitive to RT and CT, keeping the palliative RT dose

low may reduce toxicity and provide better results in terms of patient immunity, performance and comfort (5,6). It has been reported in some publications that performing palliative RT at the beginning, before or along with CT, without delay in SCLC may yield better results (7).

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