

# Role of Palliative Radiotherapy in Advanced Tumors: A Single Institutional Experience

Muhammad Khalid, Muhammad Adeel

## ABSTRACT

**Background:** In the low resource countries like Pakistan, the majority of cancer patients are seen in advanced stages due to lack of awareness and resources. Different studies have discussed palliative radiotherapy for the treatment of the advanced and metastatic cancer. **Objective:** The aim of this study is to observe the role of palliative radiotherapy for patients with advanced cancer to give them symptomatic control and improvement in quality of life. **Study Design:** Retrospective observational study. **Settings:** Department of Radiotherapy, Allied Hospital / Faisalabad Medical University Faisalabad, Pakistan. **Duration:** January to December 2018. **Methodology:** A total of 148 patients with metastatic cancer were selected for this study. All patients received palliative radiotherapy in different short course radiation protocols like 30 Gray (Gy) in 10 fractions, 20 Gy in 5 fractions and single fraction of 8 to 10 Gy. Then the patients were assessed after treatment to 6 weeks for relief of their symptoms. **Results:** The under study patients were suffering from advanced cancer of different types including breast (42), brain (25), prostate (21), face and neck (20), carcinoma of unknown primary origin (9), hepatocellular carcinoma (7), sarcoma (6), lymphoma (5), renal cell carcinoma (5), gynaecological (5), transitional cell carcinoma (2), colon (1). Out of a total of 148 patients 118 patients (79.72%) got complete symptomatic relief, 23 patients (15.54 %) got partial relief, and 7 patients (4.72 %) had no relief who received palliative radiotherapy. **Conclusion:** It was concluded that majority of the patients with metastatic disease got benefit and became symptom free, thus short course radiotherapy is very good tool for palliation to relieve the symptoms in metastatic cancer patients.

**Keywords:** Metastatic cancer, short course radiotherapy

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## INTRODUCTION

Cancer is a big health problem for the world. Annually more than 18 million patients are diagnosed worldwide and annual mortality is more than 9.5 million<sup>1</sup> and majority of them belong to the low resource countries. In Pakistan the annual new cancer patients are more than 0.17 million and mortality is more than 80 thousand. The major factors of malignancy are the tobacco,<sup>2</sup> radiations, industry, insecticide and genetics. The disease presents in advanced or metastatic phase in a different ratio in different areas depending upon the initial stage of the disease.<sup>3</sup> The low resource countries like Pakistan are lacking in cancer awareness programs, vaccinations, screening programs, early diagnostic facilities.

Cancer has potential to relapse and metastasize to other organs depending upon the stage and grade of the disease. The major portion of cancer patients in Pakistan present in advanced and metastatic phase in which the palliative treatment like palliative radiotherapy<sup>4-6</sup> is one of the best tools to provide symptomatic control and improve the quality of life.

The study was conducted in the cancer department Allied Hospital Faisalabad during the year of 2018 in which 148 patients were retrospectively enrolled. The patients were offered palliative radiotherapy for their metastatic disease in different short course protocols as 10 fractions,<sup>5</sup> 5 fractions or single fraction.<sup>7,8</sup> It can be offered in poor performance status patients.<sup>9</sup> The objective of this study is to assess the response of palliative radiotherapy in metastatic disease.

The metastatic lesions were found in bone, brain, lungs and skin. The main symptoms of the patients were bony pain, fracture, headache, vomiting, bleeding etc. The majority of the patients got symptomatic relief and improvement in quality of life.<sup>10</sup>

## METHODOLOGY

**Study Design:** Retrospective observational study.

**Settings:** Department of Radiotherapy, Allied Hospital / Faisalabad Medical University Faisalabad, Pakistan

**Duration:** January to December 2018

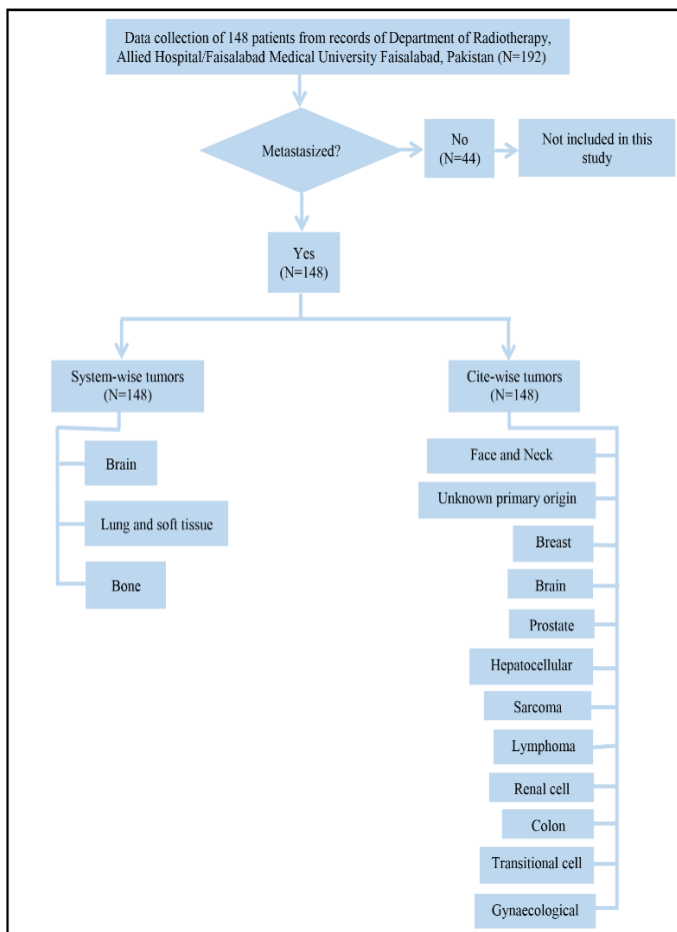
**Sample Technique:** Targeted Population

**Sample Size:** 148

**Inclusion Criteria:** All cancer patients with advanced and metastatic disease patients were included in the study.

**Exclusion Criteria:** Early stage disease patients were excluded.

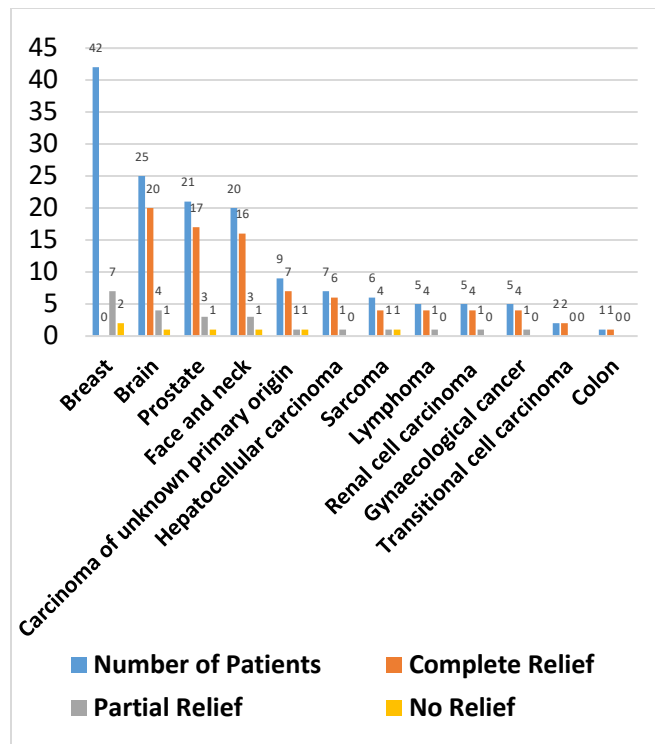
**Methods:** A total of 148 patients with metastatic cancer (separating for different types) were selected for the study. Figure 1 shows this process. All patients received palliative radiotherapy in different short course radiation protocols like 30 Gy in 10 fractions, 20 Gy in 5 fractions and single fraction of 8 to 10 Gy. Then the patients were assessed after treatment to 6 weeks for relief of their symptoms to evaluate the benefit of the treatment clinically. The study was conducted to observe the response of palliative radiotherapy in different metastatic tumors.



**Figure 1: Flow chart for data collection, filtration and separation**

## RESULTS

The observations in this study showed that out of 148 patients 118 patients (79.72%) got complete symptomatic relief, 23 patients (15.54 %) got partial relief, and 7 patients (4.72 %) had no relief who received palliative radiotherapy. Graph in Figure 2 shows the results of this study. After receiving palliative radiotherapy out of 42 breast tumor patients 33 got complete relief, 7 got partial relief and 2 got no relief. Out of 25 brain tumor patients 20 got complete relief, 4 got partial relief and 1 got no relief. Out of 21 prostate cancer patients 17 got complete relief, 3 got partial relief and 1 got no relief. Out of 20 face and neck cancer patients 16 got complete relief, 3 got partial relief and 1 got no relief. Out of 9 patients of carcinoma of unknown primary origin 7 got complete relief, 1 got partial relief and 1 got no relief. Out of 7 patients of hepatocellular carcinoma 6 got complete relief and 1 got partial relief. Out of 6 sarcoma cancer patients 4 got complete relief, 1 got partial relief and 1 got no relief. Out of 5 lymphoma cancer patients 4 got complete relief and 1 got partial relief. Out of 5 patients of renal cell carcinoma 4 got complete relief and 1 got partial relief. Out of 5 gynaecological cancer patients 4 got complete relief and 1 got partial relief. All patients of transitional cell carcinoma and colon tumor got complete relief after receiving palliative radiotherapy. Table 2 shows the system-wise division of the tumors were given palliative radiotherapy.



**Figure 2: Different types of tumor patients got symptomatic relief after palliative radiotherapy**

**Table 2: System-wise tumor patients received palliative radiotherapy**

System	Number of Patients	%
Bone	81	54.7
Lung and soft tissue	42	28.4
Brain	25	16.9

## DISCUSSION

This study concludes that short course radiotherapy is very good tool for palliation to relieve the symptoms in metastatic cancer patients. Malignancy is a major health problem in the world, especially in the developing countries like Pakistan where the resources are limited. More than 50% of the cancers can be prevented and cured provided the patients come in early stage. The role of awareness for the cancer is well established for early detection and better recovery. There are certain factors which are major aetiology in the malignancy like junk foods, industrial hazards and environmental pollution, tobacco in different forms like cigarette, niswar, beri, insecticide, obesity and unnecessary radiations. Role of vaccination in different cancers like cervical cancer and liver cancer is well documented. We can prevent cancer of tongue, buccal mucosa, larynx and lungs by prevention of tobacco. Tobacco is the universal carcinogen at the same time we have no control on genetics. Cancer is presented in different stages usually in four, the early stage can be cured up to 90% in different cancers but the late stages can only be offered palliative treatment in which symptomatic control and improvement in quality of life is the target. Regarding the

metastatic disease, it presents in different organs of the body like bone, brain, lungs, liver and in soft tissues. Palliative treatment includes chemotherapy and radiation therapy and sometime hormone therapy. The symptoms of the metastatic disease are bony pains, obstructive symptoms, bleeding, headache, vomiting, dysphagia and dyspnea. The radiation has very good palliative treatment for the above symptoms and gives symptomatic control and improves the quality of life. It is cheaper and easy to deliver and short course as it can be given in few days or in single fraction along with minimum toxicity. In the above study the radiation therapy was used brain metastasis to relieve headache and target symptoms and bony involvements by the malignancy relieve the pain and reduce the risk of bony fractures. Obstructive symptoms and bleeding can be well controlled by radiation. In our setup majority patients present in late stages where the role of palliation is increased so that there is need to improve the cancer awareness program by different means and early detection by latest equipment and good resources for cancer treatment so that the disease can be prevented and controlled in early stage to decrease metastatic issues.

## CONCLUSION

It was concluded that majority of the patients with metastatic disease got benefit and became symptom free, thus short course radiotherapy is very good tool for palliation to relieve the symptoms in metastatic cancer patients.

## LIMITATIONS OF THE STUDY

However, some limitation should be noted for this study. Due to being overloaded as having single machine in the region, we could not deliver palliative radiotherapy in time to all patients.

## SUGGESTIONS

Treatment should be provided in time to get better results in symptomatic relief. Surgical support may improve the output of the treatment. Further a big sample size should be used for better conclusion.

## CONFLICT OF INTEREST

The authors report no conflicts of interest in this work.


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<b>Muhammad Adeel</b> Lecturer, Department of Computer Science, Faculty of Science, National Textile University, Faisalabad, Pakistan	Analysis of Data, Study Designing & Paper Witting with Final Approval	