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in oral and technical presentation,
recognition and appreciation of research contributions to

5TH INTERNATIONAL HEALTH SCIENCES AND INNOVATION CONGRESS
held on December 18-21, 2021 / Antalya, Turkey

with the paper entitled

RADIOTHERAPY OF BENIGN DISEASES IN DAILY PRACTICE

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RADIOTHERAPY OF BENIGN DISEASES IN DAILY PRACTICE

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ABSTRACT

Following technological and scientific advances, radiotherapy plays a key role in the treatment of a wide variety of diseases. Radiotherapy is a treatment modality in the management of some benign conditions as well as malign diseases. Benign diseases can reduce the quality of life by causing many symptoms and dysfunctions. Radiotherapy can be used as a successful treatment modality for some of the benign diseases by mainly alleviating the symptoms. The mechanism of radiotherapy in the treatment of benign diseases is various. For example, in the hyperproliferative diseases such as keloid scars, Peyronie's disease and desmoid tumors; radiotherapy suppresses fibroblast differentiation and proliferation. It acts by causing damage on the endothelium and stimulating endothelial sclerosis when it used for symptomatic treatment of hemangiomas and arteriovenous malformations. Another purpose of radiotherapy is to suppress inflammation in Graves' ophthalmopathy. The anti-inflammatory effect of ionizing radiation used in the treatment of heel spurs to relieve degenerative pain caused by chronic inflammation. In the treatment of diseases such as heterotopic ossification, aneurysmal bone cysts and Dupuytren's contracture, radiotherapy acts with similar mechanisms and provides treatment success.

From January 2019 to November 2021, 38 patients were treated for benign diseases in Akdeniz University Radiation Oncology Department. Of all these patients 17 received radiotherapy for vertebral

hemangioma, while Graves' ophthalmopathy was the second most common indication for radiotherapy. A total of 15 patients received radiotherapy to the retroorbital region due to thyroid eye disease and finally 5 patients treated for heel spurs. Only one patient received post-operative radiotherapy for heterotopic ossification.

Although there are many treatment methods available for benign diseases, radiotherapy is quite important for resistant cases. Being aware of the effectiveness of radiotherapy is the key for the correct management of these painful and undesirable conditions.

INTRODUCTION

Although external beam radiotherapy mostly used as a treatment modality for cancer, many benign conditions have been treated with radiotherapy all throughout the time (1).

The use of Radiotherapy in the treatment of benign diseases began at the end of the 19th century to alleviate pain arising from rheumatological diseases (2). Although they are not life-threatening, benign diseases can reduce the quality of life by bringing about a wide range of symptoms and dysfunctions. Radiotherapy can be used as a successful treatment modality for some benign diseases. By reducing symptoms and tumor size.

Some of these include thyroid eye disease, epin calcanei, vertebral hemangiomas, keloid scars, and heterotopic ossification. as well as arteriovenous malformations, Peyronie's disease, and Dupuytren's contracture. Although these conditions are usually treated with caution, they can be exploited to treat other conditions. There are certain conditions that are considered more appropriate for treatment by clinicians. For example, most departments treat patients with a thyroid eye disorder, but not pterygium (3).

There are various mechanisms of action of radiotherapy in the treatment of benign diseases. For example, in the treatment of hyperproliferative diseases such as keloid, Peyronie's, and desmoid tumors, radiotherapy suppresses fibroblast differentiation and proliferation. In the symptomatic treatment of hemangiomas and arteriovenous malformations, it acts by causing damage on the endothelium and stimulating endothelial sclerosis. The anti-inflammatory effect of radiotherapy can be commonly exploited in soft tissue inflammatory conditions such as Graves' ophthalmopathy (4). Another use of this anti-inflammatory effect of ionizing radiation is to relieve degenerative pain caused by chronic inflammation such as heel spurs (5). Although radiotherapy has no effect on degeneration in the treatment of heel spurs, it plays an important role in increasing the quality of life by reducing pain. Radiotherapy also exploited to reduce the risk of ossification after hip replacement (3).

Radiotherapy treatment for benign diseases is also performed at the Radiation Oncology Clinic of Akdeniz University. As the number of patients treated for benign conditions in Radiation oncology clinics declining. The aim of this study was to examine the number of patients who were treated for benign diseases in our clinic during the past 2 years.

Material and Method: The number of patients who received radiotherapy for benign diseases between January 2019 and November 2021 in the Department of Radiation Oncology at Akdeniz University were detected by retrospective archive scans and file examinations. The number of patients who were consulted and applied to our clinic for radiotherapy due to benign diseases were examined.

RESULTS

Between January 2019 and November 2021, 38 patients were treated for benign diseases. 17 of these patients received treatment for vertebral hemangioma. The second most common indication for

radiotherapy was Graves' ophthalmopathy, and a total of 15 patients received radiotherapy to the retro-orbital region due to thyroid eye disease. Radiotherapy was applied to 5 patients in total in 2 years in our clinic due to heel spurs. Only 1 patient received radiotherapy for heterotopic ossification. The distribution of the patients by month is shown in Table 1. In cases of vertebral hemangioma, which is the most frequently treated benign disease in our clinic, radiotherapy fields include body of effected vertebra. The dose range for this condition varies between 34-45 Gy, in the literature. In our daily practice, routinely used dose is 36 Gy in 2Gy per fraction for vertebral hemangioma patients (6,7). The patients diagnosed with graves orbitapathy, the second most commonly treated benign disease, the target volume is retroorbital space and a dose of 20 Gy is routinely administered (8). The lower doses are preferred for benign diseases when compared with malign conditions.

DISCUSSION

Although there are many treatment methods available for benign diseases, radiotherapy is one of the important treatment modalities in resistant cases. The risk of Radiotherapy induced cancer is one of the major concerns while treating these conditions, however, the risk is very low and potential risks of using anti-inflammatory drugs for long periods should be kept in mind. The use of radiotherapy in the treatment of benign diseases in Turkey is limited. Being aware of the effectiveness of radiotherapy in these diseases is very important for the correct management of the treatment of patients.

KEY WORDS

Radiotherapy, benign diseases, vertebral hemangioma, heel spur

Table1. Distribution of Cases among months

	Heel Spur	Graves'	Vertebral hemangioma	Heterotopic ossification
January - February 2019	0	0	0	0
March – April - May 2019	0	2	2	0
June – July - August 2019	0	0	0	0
September – October - November 2019	0	3	1	0
December 2019 January - February 2020	0	2	1	0
March – April - May 2020	0	0	1	0
June – July - August 2020	0	1	3	0
September – October - November 2020	3	0	4	1
December 2020	0	1	1	0

January - February 2021				
March – April - May 2021	0	3	1	0
June – July - August 2021	1	1	2	0
September – October - November 2021	1	2	1	0

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