

## Morphological Changes and Apoptosis of Buccal Mucosa Basal Epithelium in Heads and Necks during Cancer Radiotherapy

<b>Title</b>	Morphological Changes and Apoptosis of Buccal Mucosa Basal Epithelium in Heads and Necks during Cancer Radiotherapy
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<b>Abstract</b>	<p>Background: Radiotherapy is generally used to treat head and neck malignancy through high radiation, focusing on killing cancer cells. However, some adverse effects in oral mucosal tissue, including cell morphology changes and apoptosis, are commonly found. This study aims to determine the morphological changes and apoptosis of buccal mucosa epithelium after radiotherapy in head and neck cancer (HNC) patients. Methods: This study involved 8 subjects of patients diagnosed with HNC. Buccal mucosal smear samples were collected using cytobrush two times, before and after radiotherapy, with a dose of 70 Gy in 7 weeks. The specimens were prepared and stained using Feulgen and Rosenbeck technique. Observations were made using a light microscope with a count per 1000 epithelial cells. Statistical analysis was performed using statistical software with Pearson's correlation test and significance t-test (<math>p &lt; 0.05</math>) between irradiated and non-irradiated samples. Results: Data analysis showed significant changes in cell morphological damage and apoptosis in patients before and after radiotherapy. It increases in the number of micronuclei (<math>p = 0.001</math>), broken egg (<math>p = 0.001</math>), binuclei (<math>p = 0.003</math>), pyknosis (<math>p = 0.033</math>), karyorrhexis (<math>p = 0.020</math>), and karyolysis (<math>p = 0.004</math>). Conclusions: The effects of radiation reflect morphological changes and apoptosis in the buccal mucosa basal epithelium in HNC patients.</p>
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