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LATTICE Radiotherapy for Advanced Adenoid Cystic Carcinoma: Case Report on Efficacy and Quality of Life Improvement

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Abstract

Objectives:

Adenoid cystic carcinoma (ACC) is a rare malignancy with limited treatment options in advanced stages. This case report evaluates the efficacy of Lattice Radiotherapy (LRT) in managing a bulky, inoperable ACC of the buccal mucosa, focusing on local control and quality of life improvements.

Methods:

A 52-year-old male presented with locally advanced ACC involving the right buccal mucosa, extending to the lip commissure and mandible, precluding surgical resection. The tumor measured 5 cm grossly and was exophytic and bulky. He underwent LRT followed by IMRT/VMAT radiation therapy and concurrent chemotherapy. VMAT based LRT was delivered upfront. Seven 1 cm sphere diameter vertices within the tumor volume (GTV) were treated with 8 Gy per fraction while the surrounding peripheral area received 6 Gy in 2 Gy per fraction. The primary site including elective nodal radiation were treated to a total of 71 Gy delivered over 38 fractions. Daily CBCT and weekly clinical evaluations were conducted.

Results:

The patient demonstrated a complete clinical response with tumor resolution on completion of the treatment. Although typical side effects, such as mucositis and dermatitis, were observed, the patient tolerated the treatment well, reporting symptom relief and improved quality of life. Follow-up imaging at one-month post-treatment showed minimal tissue thickening without significant enhancement, consistent with post-treatment changes and radiographic local control.

Conclusion(s):

A complete clinical and radiographic response was achieved using LRT followed by radiation and chemotherapy in this bulky, unresectable tumor. The primary tumor remained controlled despite evidence of metastatic disease to the bones four months after completion of treatment. Despite this progression, LRT was associated with a marked improvement in the patient's quality of life. This outcome highlights LRT's potential for managing bulky adenoid cystic carcinoma (ACC), offering local control and symptom relief in cases where conventional therapies are typically ineffective. This underscores the importance of exploring LRT as a feasible option for advanced, non-operable tumors. Future studies should investigate its effectiveness across various tumor types and treatment-resistant conditions.