

## DOSIMETRIC ANALYSIS FOR SPARING THE OBTURATOR NERVES USING IMRT TECHNIQUE FOR CERVICAL CANCER

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***Purpose:*** Obturator neuropathy is a late complication of radiotherapy (RT) and chemo-radiation in cervical cancer patients. We studied the feasibility of sparing the obturator nerves in patients receiving intensity-modulated radiotherapy (IMRT) by delineating the obturator nerves in obturator canals near to the high dose region in pelvis irradiation.

***Materials and Methods:*** Volumetric computed tomography (CT) images of ten patients with cervical cancers were retrieved. Anatomical orientation of obturator canals were gathered based on published knowledge in textbooks. Target volume of obturator nerves and pertinent normal structures were contoured and reconstructed for IMRT planning. Dosimetric parameters including dose-volume histograms (DVHs), maximal dose, prescription dose coverage and conformal index were compared between plans with and without obturator nerves as organ of avoidance.

***Result:*** A guideline for delineation of obturator canals for IMRT on axial contrast CT images was derived. The use of sparing the obturator nerve technique resulted in an average of  $18.3 \pm 4.1$  % decrease in the calculated maximum dose of the obturator nerves ( $p < 0.05$ ). No significant impact on the conformality and coverage of planning target volume (PTV) of cervical cancer and neither significant dosimetric impact on other critical normal organs in pelvic area.

***Conclusion:*** We found that sparing the obturator nerve technique is feasible for patients with cervical cancer and treated with IMRT. The reduction of doses to OBN did not compromise target coverage of tumor and DVHs of other normal organs.

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