

## JUNCTION TECHNIQUES FOR PHARYNX AND NECK TREATMENT

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***Purpose*** : To probe into junction fields techniques of radiotherapy in head and neck cancer patients who need radical radiotherapy to whole pharyngeal wall and whole neck lymphatics.

***Material and Methods*** : We get a simulation film and CT scan image of an Alderson Rando phantom for defining field size and isocenter, and for computer planning system. In this study, we showed dose distribution data of monoisocentric technique and moving junction technique with or without bolus. Two different bolus were used: bolus 1 emphasized only AP depth, bolus 2 emphasized both AP and bilateral depth. So there were six various combinations by either monoisocentric or moving junction with or without bolus. First, isodose distribution by computer planning system was generated to decide where to place TLDs. The average radiation dose in different techniques were obtained by irradiating the phantom packed with TLDs.

***Results*** : Both monoisocentric techniques and moving junction techniques with adequate bolus could generate homogenous dose distributions. But if there were no bolus, there was hot area over neck. However there were still uneven dose distribution areas, such as hot areas in anterior superficial neck and lateral neck; cold areas in posterior lower neck. In comparison, monoisocentric technique with bolus 2 tended to create better dose distribution. After comparing data from TLDs and computer planning system, we found most differences were within 4%. However, inconsistency still existed in some locations such as field margins (underestimate 19~22%); junction areas (over/underestimate 9%); superficial areas (underestimate 5~7%).

***Conclusion*** : Both monoisocentric techniques and moving junction techniques combined with well-designed bolus can be satisfactorily applied in treating head and neck cancer patients with huge neck lymphadenopathy. There are not only good reproducibility but also good homogeneity. How to choose the optimal technique depends on patients' clinical status and individual hospital equipments. We suggest that the monoisocentric technique is a more convenient technique in junction fields. However, an well designed bolus is also very important to get a good dose distribution.

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Key words: Monoisocentric technique, Moving junction technique, Bolus