

AbstractID: 13362 Title: Comparison of target coverage and organs at risk dose between simultaneous integrated boost whole field IMRT and a junctioned IMRT with conventional radiotherapy field in treatment of nasopharyngeal carcinoma

We have retrospectively investigated 20 nasopharyngeal carcinoma patients treated in our institution between March 2007 and August 2009 was reviewed. We used simultaneous integrated boost whole field intensity modulated radiotherapy to treat the entire planning target volume in the head and neck cancer. For comparison with the junctioned intensity modulated radiotherapy technique, treatment plans were each replanned using junctioned intensity modulated radiotherapy technique at 6 MV. The effect on target coverage and sparing of organs at risk, including laryngeal sparing in the optimal whole field intensity modulated radiotherapy plan was compared with that achieved using a junctioned intensity modulated radiotherapy technique. The mean larynx dose was 25.2 Gy in the whole field intensity modulated radiotherapy and 19.8 Gy in the junctioned intensity modulated radiotherapy. With comparison between whole field intensity modulated radiotherapy and junctioned intensity modulated radiotherapy technique, it demonstrated that larynx dose in the whole field intensity modulated radiotherapy technique was increased to that achieved with junctioned intensity modulated radiotherapy and conventional anterior neck field. However, if applying strong dose constraint on larynx and using the pseudo volume to enforce a steep dose fall-off immediately outside the target, the simultaneous integrated boost whole field intensity modulated radiotherapy technique led to larynx dose comparable to that achieved with junctioned intensity modulated radiotherapy. Therefore, in our current practice we use the simultaneous integrated boost whole field intensity modulated radiotherapy technique which does not have the problem of setup error at match line for treatment of nasopharyngeal carcinoma.