

AbstractID: 6712 Title: Gafchromic film in vivo dosimetry for oral radiotherapy

Purpose:

To verify the radiation dose delivered in intensity modulated radiotherapy by Gafchromic film

Method and Materials:

Three buccal cancer patients selected to evaluate the delivered tumor dose by EBT Gafchromic film in vivo dosimetry. Patients coached to put the film in the same position and five measurements performed for each patient during routine treatment. Films cut into 1.5 cm by 1cm size wrapped by thin plastic wrap for film protecting and cotton thread stuck. A measured dose point locating film stuck a tiny lead mark and a cotton thread inserted into the patient's month and closed to tumor during CT images acquired meanwhile pen mark labeled on the cotton thread to point the depth of film. Another five films stuck the same cotton thread inserted into the position the same as CT acquired to measure the treatment dose in following five treatment days. Epson 1680 flat-bed scanner, MATLAB software used to scan the film and calculate the dose. Intensity modulated treatment plan dose performed on treatment planning system and compared to the measured dose. 6 MV photon beam used to treat patient, fraction dose are 200 cGy .

Results:

The deviation between planed dose and measured dose are 4.83%, 2.62%, 0.05% and the standard deviation of five measurements are 4.02cGy, 4.64cGy, 3.5cGy in three patients. In prospective work tongue cancer patients would be involved to measure the treatment dose in vivo.

Conclusion:

The EBT Gafchromic films cut to small size can be put into the position of radiation delivered. By appropriate locating procedure and patient selected Gafchromic film in-vivo measurement verify the treatment dose in oral cavity radiotherapy.

Conflict of Interest (only if applicable):