

A Conformal Dynamic Arc Technique for the Treatment of Pleural Mesothelioma with On-Line Epid Verification.

A conformal external beam technique for the treatment of pleural mesothelioma is presented. Oblique opposed 23 MV beams are used to treat the mediastinal and diaphragmatic pleura; while an arcing 6 MV beam with conformal shielding is used to irradiate the parietal pleura. During a preliminary treatment simulation, the patient is positioned on a tilted board in order to align the thoracic wall with the linac rotation axis. A CT-scan covering the entire thorax and abdominal extension of the disease is obtained. All beams are treated with the same isocentre that is placed using the treatment planning system at the centre of the arc segment defined by the parietal pleura. The rotating BEV of the photon arc is used to optimise the shape of the treatment field in order to obtain good target coverage while minimising the volume of lung irradiated.

EPID is used to assess the positioning reproducibility of the conformal arcing and static fields. The treatment involves a 160° to 180° arc and the VEPID detector allows for the clearance needed for the gantry rotation. All fields can be verified on-line by observation of the movie portal images. This ensures that the alignment of the thoracic wall within the arc is in accordance with the calculated plan. This technique allows the delivery of a high dose to the tumour while sparing a substantial portion of the lung and with a good confidence level.