

## **Seven-Field Breast Irradiation Using Mixed Electron-Photon Beams to Treat the Internal Mammary Chain.**

Recently published trials report a beneficial effect of treatment of the internal mammary chain (IMC). The suggested benefits may have been previously overshadowed by the added cardiovascular morbidity resulting from inadequate irradiation techniques. We present the modifications made to our breast technique to include the IMC while minimising myocardial and lung irradiation.

Our standard technique uses half-beam tangential fields with couch angle, rotated collimator and a corner block to define the match-plane with the AP-PA-axillary and supraclavicular fields. The external collimator angle is adjusted to make the tangential beams coplanar.

The IMC is irradiated by mixed photon and oblique electron beams. The photon component reduces surface dose and prevents acute skin reactions. The photon field uses the same set-up as the internal tangent. The ipsilateral jaw is closed creating a perfect match with the tangential fields while the contralateral jaw is opened 1.5 cm past midline. To have a sufficiently wide electron field and allow good IMC coverage, the entry point of the internal tangential field is displaced from midline (non-IMC technique) to 2.5 cm ipsilateral. The electron field is 4 cm wide (in the central plane) with a gantry angle optimised to obtain a homogeneous dose across the electron-photon joint. A 9°-hinge angle between the 12 or 15 MeV electron beam and the tangential plane was found to be adequate. Clinical integration was easy and the technique involves simple modifications relative to our non-IMC breast technique.