

The Akazawa (U.C. San Francisco) method was modified by Tung, et. al., (M.D. Anderson), in order to reduce the dose extremes that are inherent in matching photon and electron fields together. The M.D. Anderson group used a bolus wax "helmet" of a uniform 6 mm thickness. In the case study presented here, a large variation in the scalp thickness demanded the use of non-uniform thickness bolus. A custom bolus specifically of non-uniform thickness compensated for the variable scalp thickness. Treatment planning in 3-D was used to customize the bolus. Larger electron fields with larger angles of incidence became acceptable by tapering the thickness of the bolus near the field edges. Also, the custom bolus allowed simultaneous sparing of the brain which is at varying depths. The threshold for complications due to radiation induced necrosis in the brain will be reviewed. In order to provide added sparing of the superior portion of the brain, the lateral electron-photon fields were only used for about the first half of the treatment, whereas the remainder of the treatment utilized electron fields only.