

A Method of Verification for Craniospinal Irradiation

Treatments with craniospinal fields require accurate patient setup and effective verification methods. We have developed a system to verify the setup, for both simulation and treatment, of a standard technique: rotation of the collimator for the cranial fields to match the the spinal field, and rotation of the couch to eliminate the divergence from the cranial fields.

To increase the visibility of the field junction between cranial and spinal fields on the films, we mark, on the skin, around the neck, the superior border of the spinal field as indicated by the light field. Then we place BB's along the curve drawn. If the fields are junctioned properly, the BB's projection should appear as a straight line located in the middle of penumbra of all three relevant field edges: the superior border of the spinal field and the inferior border of lateral cranial fields. When a gap between the cranial and spinal fields is needed as a safety margin, the BB's are placed at the middle of the gap. This BB's system is particular useful for verification of treatment fields when it is nearly impossible to confirm a proper junction anatomically from the port films.

For treatments when port films are not taken, an alternative setup verification is suggested. Since there is a constant relationship between the couch positions and collimator settings (CS), we can verify the patient's setup by checking a patient-specific constant value routinely.

Patient-Specific Constant = [(Spinal couch Reading)- (Cranial couch Reading)] - 0.5 x [(Spinal CS) - (Cranial CS)]