

Purpose: To present a clinical example of finding field matching errors in a supine three-field cranial-spinal irradiation technique utilizing mini-verification films.

Method and Materials: A three-field Cranial-Spinal Irradiation technique uses right and left lateral head fields and one or more PA spinal fields. The table and collimator are rotated in order to match the three fields at the three-field junction. Verification simulation films are taken to verify adequate block design and field localization. Lead markers are placed on the patient's immobilization mask at the field junction. Portal images are taken and reviewed. In a darkroom, EDR2 (Kodak) film is cut into a 10cm x 20 cm rectangle, placed in an opaque paper jacket and sealed with black tape. This "mini-verification film" is taped onto the patient's headrest and the patient is placed supine with the C₂₋₅ vertebral-body level over the film. An immobilization mask is then placed over the patient's head. The mini-film is exposed by all three fields during dose delivery. The film is developed and reviewed immediately.

Results: Using mini-verification film, a field overlap was immediately detected on a patient. Under closer review of the port film, the spinal field was superior to the lead markers at the junction. This mismatch was subtle and not immediately obvious. However, the overlap was striking on the mini-verification film.

Conclusion: Field matching in three-field Cranial-Spinal irradiation is critical to avoid underdosing or overdosing the spinal cord. Numerous checks and balance systems should be in place to avoid such field mismatching. The example presented illustrates the effectiveness of the mini-verification film to discover the overlap. The use of the mini-film provided immediate and conclusive evidence of patient mistreatment.