

Thesis Title Dose Distribution in Chest Wall Irradiation
by Cobalt-60 Teletherapy Machine: Comparison
between Traditional and Couch Rotation
Techniques

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ABSTRACT

The incidence of carcinoma of breast is very high frequent in Thai women. It ranks the second after carcinoma of uterine cervix. The treatment of carcinoma of breast may be the combination of surgery, radiation therapy, and chemotherapy. For radiation therapy, chest wall is often irradiated by two tangential cobalt-60 fields and two anterior fields covering the internal mammary chain and the supraclavicular and the apex of the axilla regions. The major problem with the standard technique for irradiation of the breast or chest wall and peripheral lymphatics is field matching at the junction between the anterior supraclavicular-axillary field and tangential fields. Overdosing or underdosing across the junction is unavoidable because of beam divergence. For improvement of this problem, couch rotation method was employed by rotating the treatment couch a few degrees until the borders of tangential fields matched to the lower border of anterior supraclavicular-axillary field. In this study, the LiF (TLD-700, TLD-100) were used to measure the dose in a Rando phantom. The results show that the dose

distribution in chest wall treatment volume of these two techniques are not different significantly but the doses at the junction between tangential fields and anterior supraclavicular-axillary field increased in the couch rotation technique because of more beam overlapping. Only the couch rotation method cannot improve the high dose region at the field junction of tangential fields and anterior supraclavicular-axillary fields. It should be combined with appropriate beam blockings for caudad part of anterior supraclavicular-axillary field and cephalad part of tangential fields.