Purpose: We propose very simple and easy semi-independent verification method in HDR intracavitary brachytherapy.

Methods: We conducted benchmark plans of various sizes of tandem-ovoid and tandem-cylinder applications that were constructed with ‘ideal’ form at outside the body by one radiation oncologist. Treatment plans were conducted based on Manchester system with PLATO using semi orthogonal films of these applicator settings. We predicted the dwell time of every treatment from the air kerma strength and total dwell time of the benchmark plans. In addition, we compared the height (dh), width (dw), and thickness (dt) of 100% isodose line of clinical cases with those of benchmark plans. In this study, 49 and 29 datasets were analyzed for tandem-ovoid and tandem-cylinder cases, respectively.

Results: With regard to tandem-ovoid cases, differences of total dwell time, dh, dt and dw between benchmark plans and clinical cases were on average 0.3%±3.2%, -0.5mm±2.4 mm, 0.7mm±2.4mm, and -0.3mm±1.0mm, ranging from -8.3% to 7.5%, -6.2 mm to 5.3mm, -1.0mm to 2.7mm, and -1.7mm to 2.4mm, respectively. With regard to tandem-cylinder cases, differences of total dwell time, dhfront which is the distance from tandem tip to tandem ring, dt, and dw between benchmark plans and clinical cases tandem-cylinder settings were on average -1.5%±3.1%, -1.5mm±4.9mm, 0.1mm±1.0mm, and 0.2mm±0.8mm, ranging from -13.0% to 0.4%, -19.0mm to 4.0mm, -1.3mm to 4.3mm, and -0.4mm to 3.9mm, respectively. Two cases were founded to be planning mistakes in which more than 10% differences of total dwell time and 15mm differences of dhfront were observed between benchmark plans and the clinical cases.

Conclusions: This method is very simple and easy but can be used for quick check of treatment planning and can find the planning mistakes.