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POSTOPERATIVE RADIOTHERAPY FOR SYNOVIAL SARCOMA OF THE HEAD AND NECK DURING PREGNANCY: CLINICAL AND TECHNICAL MANAGEMENT AND FETAL DOSE ESTIMATES

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Aims and background: ***In vivo*** **and phantom dosimetry is reported to estimate the fetal dose and evaluate the effectiveness of a special shielding device to reduce fetal exposure in a woman undergoing postoperative radiation therapy for synovial oral cavity sarcoma at the 30th week of pregnancy.**
Methods: ***In vivo*** **measurements were performed by placing thermoluminescent dosimeters on 3 points for fetal dose estimation: uterine fundus, umbilicus and pubis. A Rando anthropomorphic phantom was used to simulate radiotherapy. We also performed off-axis dose measurements for wedged beams to estimate the dose contribution of this accessory used in the treatment.**
Results: **The special shielding device reduced the fetal dose by 70% on average, despite the presence of wedges, which increased the dose by a factor of about 2.5. Before delivery the patient received 48 Gy, and from the *in vivo* measurements a fetal dose of 8.5, 1.7 and 0.7 cGy was estimated to the uterine fundus, umbilicus and pubis, respectively.**
Conclusions: **Pre-treatment simulation in the same irradiation conditions is the only reliable approach to predict the fetal dose. By using a special shielding device, radiotherapy can be optimized while keeping the fetal exposure below the risk of deterministic damage.**

Key words: fetal dose, oral cavity, pregnancy, radiation therapy, synovial sarcoma.

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