A patient at her 25th week of pregnancy received gamma knife radiosurgery (GKRS) with a model C for a solitary melanoma metastasis to the brain. Fetal radiation dose was assessed with phantom measurements prior to GKRS and was then measured during GKRS. In addition, doses to the lateral canthi, thyroid, sternum and pelvis were also monitored by using thermoluminescent dosimeters (TLDs) in 20 unselected patients. Furthermore, phantom measurements were also conducted to identify the components of extracranial radiation doses. Fetal radiation doses were 0.31, 0.20, and 0.15 cGy for the top, middle and bottom of the uterus, respectively, corresponding to approximately 0.01% of the maximum tumor dose of 25 Gy. The mean extracranial doses in 20 patients were 36.9, 5.8, 3.3, and 0.6 cGy for the lateral canthi, thyroid, sternum, and pelvis, respectively. The results were compared to those of the previous reported study with the model U. Radiation doses to the fetus were very low for this particular treatment. In regard to treatment of a pregnant patient, each case should be evaluated on individual bases. In general, extracranial doses at the thyroid, sternum, and pelvis were significantly lower for the model C than those for the model U. In addition, when the automatic position system (APS), as opposed to the trunnions, was used, extracranial doses at these sites were also decreased by approximately 20% to 36%. Radiation doses during patient couch transit and/or APS transit contributed little to the doses at the measured extracranial sites.