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## Radiation exposure in endovascular surgery of the head and neck

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**PURPOSE:** To evaluate the radiation risk to the operator and the patient during endovascular surgery of the head and neck. **METHODS:** The dose was measured using thermoluminescence dosimeters attached at the body surface of the operator and the patient during 15 endovascular surgeries (3 for arteriovenous malformation, 8 for dural arteriovenous fistulas, and 4 for other disorders of the head and neck). The dose was measured at seven sites on the operator and at five sites on the patient.

**RESULTS:** The mean number of digital subtraction angiography studies and fluoroscopy time were 21 +/- 10 and 73 +/- 24 minutes, respectively. The equivalent dose range at each site in the operator was 0.12 to 0.88 mSv (glabella), 0.06 to 1.1 and 0 to 0.09 mSv (neck, outside and inside the protector, respectively), 0 to 0.20 mSv (left should, inside the protector), 0.09 to 1.99 mSv (left arm), 0.05 to 3.55 mSv (left hand), and 0 to 0.49 mSv (pubis, inside the protector). Those in the patients were 3.1 to 136 mSv (glabella), 13 to 5441 mSv (right temporal area), 4 to 186 mSv (left temporal area), 0.1 to 51 mSv (neck), and 0 to 0.62 mSv (pubis). **CONCLUSIONS:** The total doses at the operator's eyes and left hand during the course of a year may exceed the dose limits recommended by the International Commission on Radiological Protection. Operators should wear not only body protectors, but also thyroid protectors and lead glass spectacles. The equivalent dose at the right temporal area of the patient may exceed the deterministic dose for transient erythema or alopecia of the skin even in one endovascular procedure.

### This article has been cited by other articles:

- Ilgit, E. T., Meric, N., Bor, D., Öznur, I., Konus, O., Isik, S. (2000). Lens of the Eye: Radiation Dose in Balloon Dacryocystoplasty. *Radiology* 217: 54-57 [[Abstract](#)] [[Full Text](#)]