

## PP-038

### Reducing radiation exposure during PCNL

B. Walmsley, R. Cetti, A. Rogers, S. Keoghane

*Queen Alexandra Hospital, Portsmouth, United Kingdom*

The importance of radiation exposure to patients and staff during stone surgery cannot be over emphasised.<sup>1</sup> Since this publication, which coincided with our ability to monitor screening times, we have been anxious to reduce radiation exposure during PCNL. Our data demonstrates that careful attention to detail during fluoroscopy can reduce this hazard.

All procedures were performed by two experienced endourologists. The majority were in the prone flexed position with percutaneous access obtained by the urologist utilising a Siemens Arcadis Varic image intensifier which recorded dose area product (DAP) and screening times (ST).

Between August 2005 and December 2011, 376 PCNLs were performed. Results were available for 348 procedures. The number of cases, and the mean DAP and ST for each year was:

- 2005-17 cases, 917cGy/cm<sup>2</sup>, 180secs
- 2006-58 cases, 595cGy/cm<sup>2</sup>, 135secs
- 2007-72 cases, 548cGy/cm<sup>2</sup>, 115secs
- 2008-53 cases, 430cGy/cm<sup>2</sup>, 95secs
- 2009-41 cases, 254cGy/cm<sup>2</sup>, 49secs
- 2010-50 cases, 267cGy/cm<sup>2</sup>, 69secs
- 2011-57cases, 375cGy/cm<sup>2</sup>, 65secs

These results demonstrate an improvement in exposure times over the initial two years before reaching a plateau, perhaps due to subtle changes in technique. This substantial reduction in screening times compared with other published data<sup>2</sup> cannot be explained by expertise alone. We believe that manipulating the guidewire into the ureter may be unnecessary, continuous screening should be avoided and the C-arm fixed in one position, all combine to reduce exposure. Perhaps the most important factor is the surgeon's recognition of the potential dangers of radiation and constant vigilance during the procedure.

#### References:

1. Hellowell GO, Mutch SJ, Thevandran G, et al. Radiation exposure and the urologist: What are the risks? *J Urol* 2005; 174: 948-952
2. Ritter M, Krombach P, Martinscheck A, et al. Radiation exposure during endourologic procedures using over-the-table fluoroscopy sources. *J Endourol.* 2012; 26(1): 47-51.

*As published in the Supplement of AFJU, Volume 18 (2012), 1<sup>st</sup> ESD "Experts in Stone Disease" Conference (page 38)*