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PRESENTATION TITLE **MOVING FROM FOUR HANDS TO TWO DURING FLEXIBLE
URETEROSCOPY WITH STONE MANIPULATION****AUTHORS** Brian Matlaga, MD; Kelly Healy, MD; Adam Kaplan, MD; David Leavitt, MD**INTRODUCTION**

Ureteroscopy typically requires two individuals: a surgeon who manipulates the endoscope and an assistant who operates the basket or grasper. The skill level of the assistant can vary from inexperienced to experienced. A novel device designed for the LithoVue™ Ureteroscope (Boston Scientific, Marlborough, MA) enables a single-surgeon approach to ureteroscopy (URS), as the surgeon simultaneously manipulates the ureteroscope and operates a stone retrieval device. We sought to assess the workloads of these ureteroscopy paradigms.

METHODS

We performed an in vitro evaluation of ureteroscopic stone manipulation with an experienced assistant (EA), an inexperienced assistant (IA) and a device designed for single-surgeon ureteroscopic stone manipulation (LithoVue Empower™, Boston Scientific). Four fellowship-trained endourologists were the primary surgeons and also served as the EA for one another. The IA was a nurse naïve to URS. Stone manipulation was performed with Dakota™, Zero Tip™ and Escape™ (Boston Scientific, Marlborough, MA). Time to stone capture and communication between surgeon and assistant were recorded. Workload was characterized by the NASA Task Load Index (TLX) instrument, which quantifies mental, physical and temporal demand as well as performance, effort and frustration of a task. Statistical analysis was performed for each item on the TLX, time to stone retrieval and number of communications during stone capture, using Kruskal-Wallis or Tukey-Kramer tests as appropriate.

RESULTS

Four surgeons performed nine trials, each of which removed 10 stones (360 total stone retrievals). There were 3 arms of the trial: (1) EA, (2) IA and (3) LithoVue Empower. Time to basket was similar among the three arms (median: 12, 16 and 15 seconds, respectively). LithoVue Empower required no communications during stone capture; the IA required significantly more communications than did the EA ($p < 0.05$) (Figure 1). Compared to the IA, LithoVue Empower demonstrated significantly lower temporal demands and frustration scores on the TLX ($p < 0.05$). No differences were found between LithoVue Empower and EA (Figures 2 and 3).

RESULTS CONTINUED

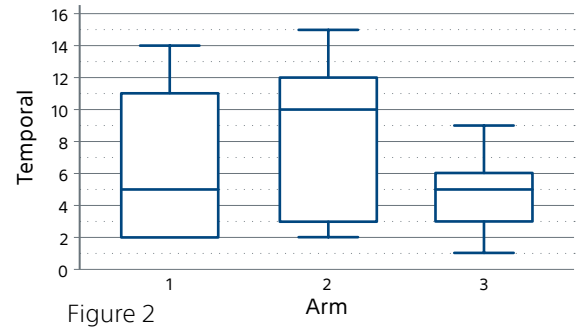
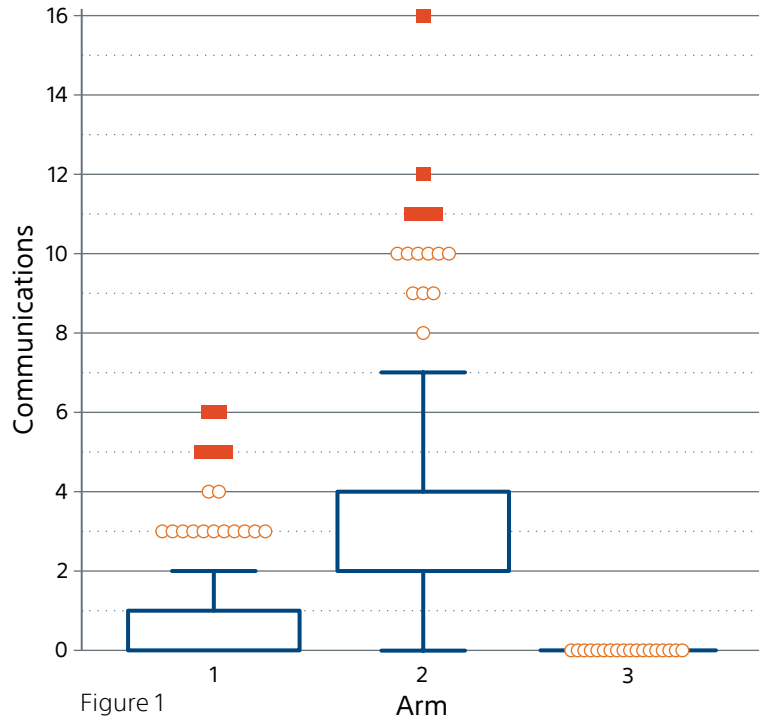


Figure 2

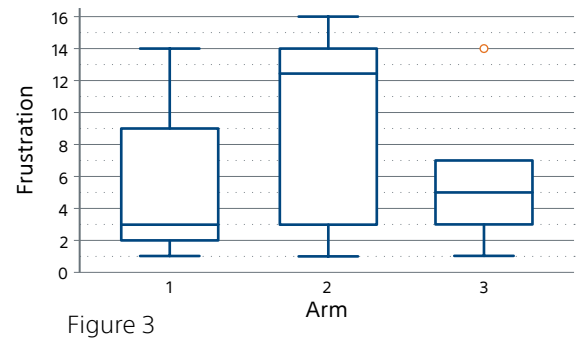


Figure 3

CONCLUSIONS

Clearance Testing

The novel device permitted single-surgeon URS and stone capture without sacrificing efficiency. The device eliminated the need for surgeon-assistant communication during stone capture and improved certain TLX metrics. The findings of this pilot study are encouraging and further evaluation with the LithoVue Empower Retrieval Deployment Device is warranted.

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CE 0344 LithoVue Empower™
Retrieval Deployment Device

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