

# Correspondence



## *Complication of a non-invasive blood pressure cuff during prone positioning*

To the Editor:

Textbooks ascribe negligible risk to standard non-invasive blood pressure (NIBP) devices.<sup>1,2</sup> We report a complication from an appropriately placed cuff. Consent for publication was obtained in conformance with institutional publication consent guidelines.

The cuff was placed on an athletic male and used during supine induction, then immediately inactivated after radial arterial catheter insertion and prone-positioning for a six-hour procedure. Postoperatively, marked erythema of the NIBP site and pronounced swelling of the proximal upper arm was observed. Painful, stocking-glove numbness in the dorsum of the hand and fingers presented. Orthopedic consultation confirmed significant edema of the upper extremity and compressive neurapraxia, which resolved spontaneously by the next day.

Standard NIBP placement occurred with the arm in full extension. After assuming the prone position, the arm was flexed at the elbow, increasing biceps muscle diameter. This is typically tolerated on a daily basis without adverse effects. With this athletic patient, however, critical constriction occurred beneath the non-cycled cuff with flexion, leading to the signs and symptoms described. While a rare complication, cuff placement cannot be assumed to be innocuous, particularly in limbs subsequently flexed, even with inactivated cuffs. Forearm cuff placement may be preferred in such instances, as diameter is not subjected to such significant changes with positioning. Occlusometric measurements do not require placement on the upper arm, and smaller cuffs can be used with smaller diameter locations. We report for the first time a significant tourniquet effect from an appropriately applied NIBP cuff, occurring intraoperatively during prolonged non-utilization, and while in the prone position.

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## References

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- 2 Good ML, Gravenstien N. Anesthesia equipment. *In:* Gravenstein N, Kirby RR (Eds). *Complications in Anesthesiology*, 2<sup>nd</sup> ed. Philadelphia, PA: Lippincott-Raven; 1996: 55–73.

## *Cuffed versus uncuffed pediatric endotracheal tubes*

To the Editor:

We read with interest the editorial by Dr. Cox on cuffed *vs* uncuffed endotracheal tubes in children,<sup>1</sup> and offer the following comments.

While there are advantages to using cuffed tubes for laparoscopic surgery, the small margin of safety associated with cuffed pediatric tube placement<sup>2</sup> (a problem partially solved by the Microcuff® Pediatric Tube)<sup>3</sup> is further reduced during laparoscopy, especially with the child in Trendelenberg position. The cephalad movement of the carina relative to the tube in those situations has led to endobronchial intubation in adults<sup>4</sup> and children. For this reason, if a cuffed tube is used during laparoscopy, we believe that the “ideal” position of the cuff being distal to the cricoid cartilage<sup>5</sup> is unrealistic; instead, it should be passed just distal to the vocal cords. Conversely, when a child needs to be positioned prone, provision should be made for the tendency of the tube to move cephalad relative to the trachea.<sup>6</sup>

We agree with Dr. Cox that pulmonary compliance is an important consideration in the choice of tubes. Indeed, pediatric burn victims intubated with uncuffed tubes not uncommonly require tube change because of gas leak.<sup>7</sup>

For the many cases in which the choice of cuffed or uncuffed endotracheal tube makes little difference, and there is not a recent intubation record to act as a reference, it is more cost-effective to use a cuffed tube. The reason is that even though uncuffed tubes typically cost 10% less than cuffed tubes, 23%<sup>8</sup> of uncuffed tubes need to be changed because of poor fit (1% for cuffed tubes<sup>8</sup>). The difference is small, but the extra