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For Unstable Fractures, Lightwand Produces Least Cervical Movement

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In a cadaver model of unstable odontoid fracture, the Lightwand produced less angular movement than three other devices during intubation.

Researchers compared cervical spine movement during intubation of cadavers with the Lightwand, Macintosh laryngoscope, Airtraq laryngoscope, and Fastrach LMA (an intubating laryngeal mask airway) to determine which device produces the least movement. Two attending anesthesiologists and three paramedics, who received training and had practiced with the devices, used each device three times on two or three cadavers with surgically created type II odontoid fracture. Intubations were performed with manual inline immobilization without cricoid or thyroid manipulation. An electromagnetic motion device placed at C1 and C2 measured changes in 3-dimensional position during intubation.

There were 153 successful intubations and 3 Fastrach failures (>3 attempts). The Lightwand produced significantly less flexion-extension movement (4.2°) than the Macintosh or Fastrach (about 7.4°). Axial rotation and lateral bending were clinically insignificant with each of the devices.

Comment: Probably the best method for patients with unstable cervical spine fractures is awake fiberoptic intubation. When this is not available — for example, in the prehospital setting — the Airtraq or Lightwand are probably safer to use than the Macintosh laryngoscope or Fastrach LMA.

Citation(s): Wendling AL et al. A comparison of 4 airway devices on cervical spine alignment in cadaver models of global ligamentous instability at C1-2. Anesth Analg 2013 Jan 25; [e-pub ahead of print]. (http://dx.doi.org/10.1213/ANE.0b013e318279b37a)