

FEEDBACK TO THE FIELD (FT2F) #10: *Observations of Supraglottic Tube Placement **

AFMES: COL (Ret) H.T. Harcke, MC, USA**

Lt Col E. L. Mazuchowski, USAF, MC

DHA MED LOG: CDR T. Brunstetter, MSC, USN

* RE-ISSUE: Original Released AFMES/OAFME Dec 2011

** American Registry of Pathology in support of AFMES

DISCLAIMER

The opinions or assertions presented hereafter are the private views of the authors and should not be construed as official or as reflecting the views of the Department of Defense, its branches, the Armed Forces Medical Examiner System or the DHA Medical Logistics Division.

**FEEDBACK TO THE FIELD (FT2F) #10:
OBSERVATIONS of
SUPRAGLOTTIC TUBE PLACEMENT**

**AFMES: COL HT Harcke, MC, USA
Lt Col E L Mazuchowski, MC, USAF**

**DMMPO: Maj B Ritter, BSC, USAF
CDR T Brunstetter, MSC, USN
COL CC Shull, DC, USA**

MEDCOM: LTC RL Mabry, MC, USA

DISCLAIMER

The opinions or assertions presented hereafter are the private views of the authors and should not be construed as official or as reflecting the views of the Department of Defense, its branches, or the Armed Forces Medical Examiner System.

BACKGROUND:

- The King LT-D Disposable Supraglottic Airway (King Systems Corp, Noblesville, IN) is one of the supraglottic tubes used in field resuscitation
- In a review of 7 cases which used the King LT-D, we observed two patterns of tube positioning
- The clinical circumstances and details surrounding tube placements in these cases are unknown
- Case findings are based on autopsies performed at the Port Mortuary, Dover Air Force Base, DE. Lethal injury was present in all cases

BACKGROUND:

- All 7 supraglottic tubes observed in this review were King LT-D, size #4
- Sizing of tubes is based on patient's height:

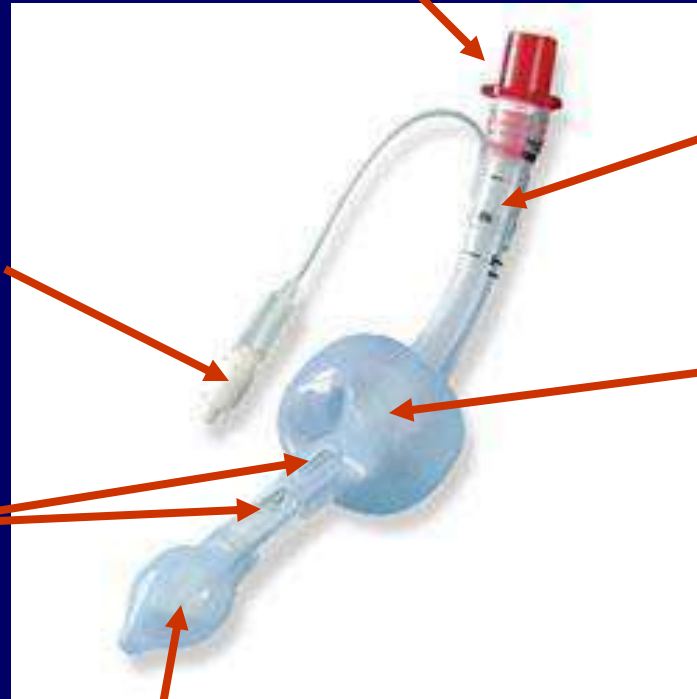
★ 4 to 5 ft (122-155 cm)	Size 3
★ 5 to 6 ft (155-180 cm)	Size 4
★ > than 6 ft (180 cm)	Size 5

- Tube position was determined by postmortem CT
- Tube cuffs were inflated in 6 of 7 cases

OVERVIEW: KING LT-D

Connector Color

Size 3 (Yellow) – Size 4 (Red) – Size 5 (Purple)



Single **Inflation Valve**

Two primary
Ventilatory Outlets

Depth Markings

(Distance in centimeters
from Distal Opening)

Proximal Cuff

Inflates at the base of the
tongue. Isolates the
laryngopharynx from the
oropharynx and
nasopharynx

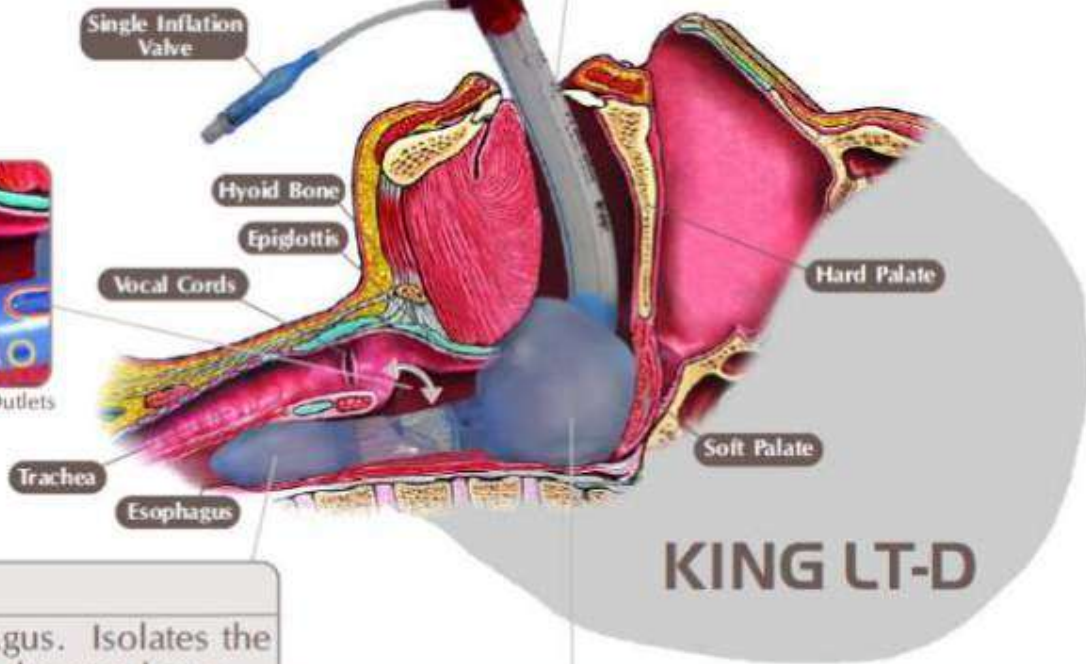
Distal Cuff

Inflates in the esophagus. Isolates the
laryngopharynx from the esophagus.

OVERVIEW: KING LT-D Placement*



Gas Flow



Distal Cuff

Inflates in the esophagus. Isolates the laryngopharynx from the esophagus.

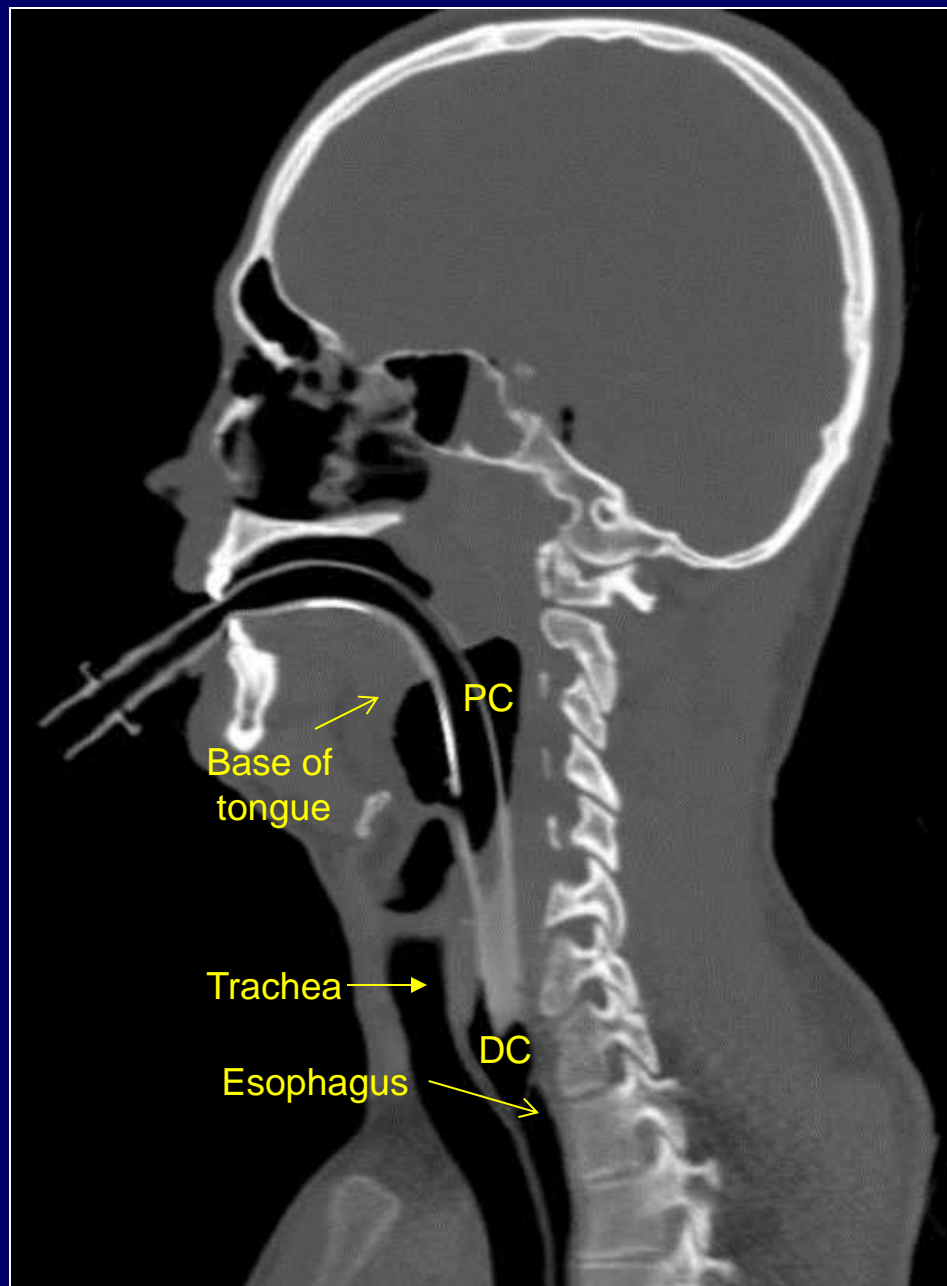
Proximal Cuff

Inflates at the base of the tongue. Isolates the laryngopharynx from the oropharynx and nasopharynx.

Position 1:

Recommended by
manufacturer

- Proximal cuff (PC) at base of tongue
- Distal cuff (DC) in the esophagus
- Our observation: 3 of 7 King LT-Ds were in Position 1



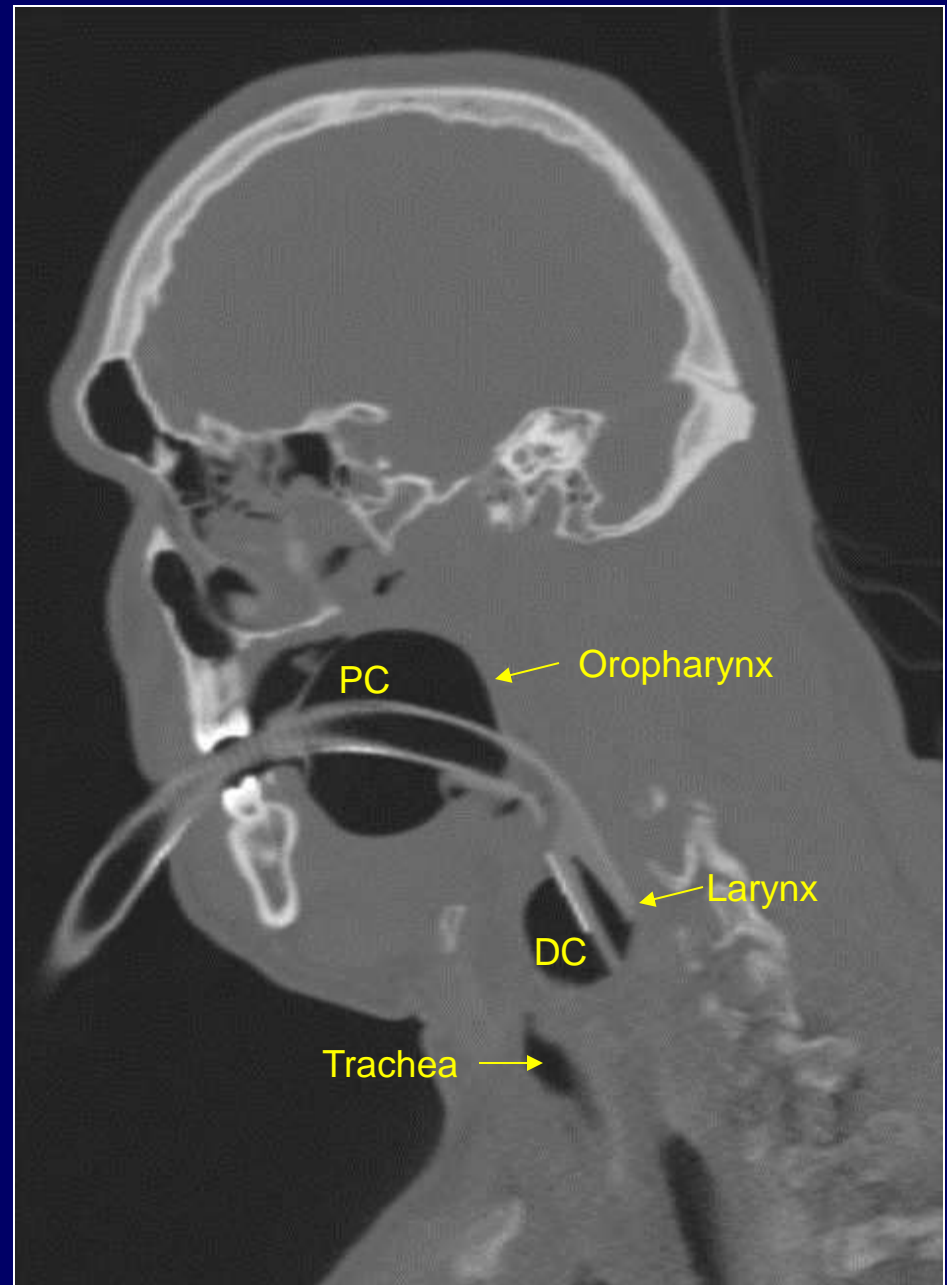


Case with tube in Position 1

Position 2:

Not recommended due to inadequate ventilation

- Proximal cuff (PC) in oropharynx
- Distal cuff (DC) in larynx above tracheal inlet
- Our observation: 4 of 7 King LT-Ds were in Position 2





Case with tube in Position 2

USER TIPS ON INSERTION*

4. Depth of insertion is key to providing a patent airway. Ventilatory openings of the KLTD/KLTSD must align with the laryngeal inlet for adequate oxygenation/ventilation. Experience has indicated that initially placing the KLTD/KLTSD deeper (base of connector is aligned with teeth or gums), inflating the cuffs, and retracting until ventilation becomes easy and free flowing is preferred because:

- It ensures that the distal tip has not been placed laterally in the piriform fossa (see item #3).
- With a deeper initial insertion, only withdrawal is required to realize a patent airway. A shallow insertion will require deflation of cuffs to advance the tube deeper.
- As the KLTD/KLTSD is withdrawn, the initial ventilation opening exposed to/aligned with the laryngeal inlet is the proximal opening. Since the proximal opening is closest to and is partially surrounded by the proximal cuff, airway obstruction is less likely.
- Withdrawal of the KLTD/KLTSD with the cuffs inflated results in a retraction of tissue away from the laryngeal inlet, thereby encouraging a patent airway.

* Source: King Systems Corp, EMS In-service Program

SUMMARY:

- In over half of the cases reviewed (4 of 7), King LT-D #4 tubes were not positioned as manufacturer instructions specify
 - Proximal cuff was located in the oral cavity and distal cuff in the larynx

NOTE of CAUTION:

- The clinical circumstances and details surrounding emergency treatment in these cases is unknown
- This presentation makes no association between supraglottic tube position and patient outcome, lethal injury was present in all cases

DMMPO RECOMMENDATIONS / ACTIONS:

- Services should perform utilization review of supraglottic tubes to determine:
 - Which devices are being trained
 - Which devices are in assemblages
 - Training requirements & Tactics, Techniques and Procedure (TTPs) updates
- Consider standardization of the following:
 - Airway equipment and devices
 - Training procedures

This material is intended for educational and training purposes. If portions are extracted, the following statement must be included:

“Source: Armed Forces Medical Examiner System and DHA Medical Logistics Division”

NOTES of CAUTION:

- The clinical circumstances and details surrounding emergency treatment in these cases is unknown
- This presentation makes no association between device placement and outcome of treatment
- This case series is drawn from cases with fatal injuries, which may skew data

For FT2F Comments / Questions / Requests:
Contact the Armed Forces Medical
Examiner System (AFMES)

Contact Information:

Lt Col Edward L Mazuchowski, USAF, MC
Office of the Armed Forces Medical Examiner

edward.l.mazuchowski.mil@mail.mil
(302) 346-8648