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ONE LUNG VENTILATION FOR RIGHT SLEEVE PNEUMONECTOMY, USING MODIFIED NASAL RAE ENDOTrACHEAL TUBE.
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We present a new technique to provide one-lung ventilation (OLV) for right side sleeve pneumonectomy (RSSP) using a modified nasal RAE endotracheal tube (ETT).

A 57-year-old male (6'1", 216 lb) presented with a 0.5 cm right main stem mass at the carina on CT scan. We chose a 6.0 nasal RAE ETT (Mallinckrodt Inc, Hazelwood, MO) because it would allow us to: (1) perform left main stem intubation with enough length (34 cm) if used orally (2) be least obstructive tube at the carina during the procedure. Using the unmodified ETT for left OLV would have resulted in: (1) obstruction of the left upper lobe bronchus (LULB) because the ETT has a cuff to tip (C-to-T) distance of 5 cm, or (2) encroachment on the surgical field if the cuff were allowed to herniate above the carina. Cutting the tip of the ETT distal to the cuff would create sharp edges and render the cuff unusable due to a leak through the inflation channel, which runs to the end of the ETT. By reducing the cuff size, using adhesive silk tape (Figure), we were able to decrease the C-to-T distance to 3.5 cm, which allowed LMSB intubation without obstructing the LULB. Silk ligature was used to enforce the distal end of the adhesive tape. The ETT cuff was tested and appeared to work properly.

General anesthesia was induced and the trachea was intubated with the modified ETT. Bronchoscopy (4.0 mm) was then performed to guide the ETT to the LMSB and confirm that the ETT tip was at least 0.5 cm above the LULB. OLV was achieved successfully. The stapler was placed across the right main bronchus at the carina. After withdrawing the modified ETT to the trachea, bronchoscopy confirmed that there was no significant narrowing of the distal trachea or LMSB. The stapler was then deployed and RSSP was performed. The patient was extubated and transferred to post anesthesia care unit in stable condition.

Generally, double-lumen endobronchial tubes are not useful for surgery involving the distal part of the trachea. Techniques used for surgery at carina include (1) intubation of the LMSB across the operative field, (2) Venturi or high-frequency jet ventilation (HFJV) and (3) Wilson tube, which is constructed by joining 2 different tubes. The advantage of our technique is to provide uninterrupted ventilation and avoid complication from HFJV. It also provides better surgical exposure, enable the surgeon to use bronchial stapler without interrupting the airway which decreased the surgical time; by saving the time needed for intra-operative tube exchange and time needed for reanastmosis of the trachea. In conclusion, the modified ETT provides safe and effective OLV during RSSP. The procedure utilizes equipment available in the operating room with the advantage mentioned above.

References:
2. EL-Baz J: one-lung high-frequency ventilation of tracheoplasty and bronchoplasty. 1982