Excerpts from comparative clinical studies and reports regarding Flex-Tip endotracheal tubes

The “Main clinical findings” and “Nature of the study” that precede some of the excerpts below are brief explanatory notes written by Dr. Parker to introduce each of these excerpts. All bolding of the text below was done by Dr. Parker to highlight important findings made by the authors of these studies.

1. Nature of the study: This study compared Parker tubes to standard tubes for intubations performed with a Pentax Airway Scope (AWS).

*Quote from the study:* “The use of the PT [Parker tube] significantly reduced the TTI [time to intubation] from 41.0 sec to 25.0 sec. . . . With the Parker tube, a 100% success rate of intubation on the first attempt was obtained and no tube impingement on the surrounding tissues was observed. With the standard tube, the success rate of intubation on the first attempt was 90% and the incidence of tube impingement was 25%. Conclusion: Our data showed the superiority of the Parker tube for AWS-assisted intubation with faster and easier intubation.”


2. Nature of the study: This was a randomized, double-blind study comparing the Parker tubes to standard tubes for oral intubations performed with a flexible, fiberoptic scope.

*Quote from the study:* “The use of the Parker Flex-Tip tube reduced the incidence of need for repositioning of the tube during insertion into the trachea from 89% to 29% (P<0.0001) when compared to the standard tube. The median time for passage of the tube into the trachea was reduced from 20 sec to 7.5 sec (P<0.0001). Conclusion: During oral fiberoptic intubation, the use of the Parker Flex-Tip tube is associated with greater incidence of initial success of passage of the tube into the trachea when compared to a standard endotracheal tube.”


3. Nature of the study: This study compared Parker tubes to standard tubes in intubations performed with a Bullard Laryngoscope.

*Quote from the study:* “Results: Use of the Parker Flex-Tip tube reduced the time required for successful endotracheal tube placement after the best laryngeal view was obtained from 14±6 sec to 6±2 sec (P<0.01). It also reduced the incidence of requirement for re-direction of the Bullard laryngoscope during intubation from 10/19 to 1/19 (<0.01). . . . The incidence of success at first intubation attempt was significantly higher, with less impingement of the tip around the vocal cord. . . . Multiple intubation attempts in the difficult airway can cause bleeding or oedema and may further compromise the airway. Thus, use of the PT [Parker Tube] with the BL

4. Nature of the study: This study compared Parker tubes to Mallinckrodt tubes for intubation success when the tube is railoaded down a bougie.

Quote from the study: “We compared the ease of intubation over an Eschmann stylette between the Parker Flex-Tip tube and a Murphy Tip tube (Mallinckrodt). . . . We recorded if the ETT [Endotracheal Tube] went in on the “First Pass” or not and what adjustments had to be made. . . . All of the 7 tubes reported as “Not first pass” were Mallinckrodt (For a “Hang up” incidence of 58.3%). All of the Parker tubes went in as a “First Pass.”

“Discussion: When attempting to advance a Mallinckrodt ET over an Eschmann stilette, there is a high probability of the tube getting caught, requiring adjusting maneuvers to reach the trachea. This probability is significantly reduced with the use of the Parker tube (Fisher’s Exact Test, p=0.0046), making it easier to intubate the trachea. . . . Based on this study we recommend the use of Parker Flex-Tip ETT when performing a tracheal intubation with the aid of an intubating stilette (i.e., Eschmann, Bronchoscope, etc.)”


5. Quote from this study: “We tested our hypothesis that a Parker-tipped tracheal tube could improve the reliability of tracheal tube passage as compared to a Murphy-tipped tracheal tube during AWS (Airway Scope)-assisted intubation in a manikin. . . . The conventional TT [Tracheal Tube] tip often impinges on the glottis or other laryngeal structures when the TT is advanced from the AWS into the trachea. . . . In tracheal intubation with fibrescopes or Bullard laryngoscopes the Parker-tipped TT has been shown to have easier passage, without colliding with the glottis or other laryngeal structures, when compared to a conventional TT in patients with difficult airway. . . . Results: The incidence of TT tip touching during AWS-assisted intubation using the Parker-tipped TT (7.4%; 2 of 27 attempts) was significantly lower than that observed using the Murphy-tipped TT (33%; 9 of 27 attempts; p=0.039).

“Although the Murphy-tipped TT was shown to be acceptable for AWS-assisted intubation in the present study, it was associated with a higher risk of impingement of the tip around the vocal cords. Repeated touching of the glottis or other laryngeal structures, especially in a difficult airway, can cause bleeding or edema and may, in the worst possible case, become a “cannot intubate-cannot ventilate” situation. This would have significant adverse clinical implications in both normal and difficult airways. . . . In summary, the Parker-tipped TT improved the reliability of TT passage when compared to a conventional TT during AWS-assisted intubation in a
manikin. Therefore, when collision with the glottis or other laryngeal structures is of particular concern during the advancement of a conventional TT during AWS-assisted intubation, the selection of the Parker-tipped TT is probably an easy solution to this TT advancement problem.”


6. This study compared the ease of intubation with Parker Flex-Tip tubes to ease of intubation with standard tubes in intubations performed with a GlideScope.

Quote from the study: “The PFT (Parker Flex-Tip) tube in suboptimal conditions demonstrated a significantly greater ease of intubation, as measured by decreased time for ETT (endotracheal tube) insertion, and greater ease of ETT insertion score. . . . Two of 3 outcome variables, time in seconds for ETT insertion, and ease of ETT insertion score, were significantly improved for the PFT tube compared with a standard tube. The use of the PFT tube while using the GlideScope reduced the time for ETT insertion by 6 seconds. . . . Only 28% (8 of 29) of the intubations made with the PFT tube required any redirections, compared with 59% (17 of 29) of the intubations performed with the standard tube requiring redirections. These observations indicate a reduced potential for glottis injury due to fewer ETT redirections at the glottis with the PFT tube.”

Radesic B, Winkelman C, Einsporn R, Kless J. Ease of Intubation With the Parker Flex-Tip or a Standard Mallinckrodt Endotracheal Tube Using a Video Laryngoscope (GlideScope). AANA Journal; Oct 2012; Vol 80; No 5.

7. Nature of the study: This study compared subglottic impingement by a Parker tube vs. a standard tube during nasotracheal intubation, and found that the impingement rate was 50% in the Portex group and 14% in the Parker group.

Quote from the study: “The incidence of tube impingement was significantly less in the Parker group than in the Portex group (P<0.001). . . . In this study, the Parker tube was much more likely to pass through the subglottic area unhindered than was the Portex tube, regardless of tube size. . . . Our results suggest that the Parker tube allows smooth advancement below the glottis as compared with a standard tube.”


8. Nature of the study: This study compared Parker tubes to standard tubes for nasotracheal intubation.

Quote from the study: “The incidence of epistaxis using the Flex-Tip tracheal tube (6 (11.8%)) was significantly lower than that with the conventional tip tracheal tube (18 (35.3%); p=0.009). Nasal pain due to intubation was less intense with the Flex-Tip tracheal tube compared with the conventional tip tracheal tube.”

9. Nature of the study: This study compared Parker tubes to standard tubes for nasotracheal intubation.

Quote from the study: “It was found that there were significantly more patients who had bleeding after intubation with the standard tube than with a Parker tube (P<.0001). . . . There was a significantly greater probability of a patient’s having visible trauma when using the standard tube (P=.007) Discussion: In this study, the PFT [Parker Flex-Tip Tube] caused significantly less trauma and bleeding compared with a standard-tip tube during nasal intubation. . . . When the tube encountered resistance, the PFT tube tip would bend and redirect the tube, while the standard tube seemed to wedge against and bruise the involved mucosa. Sometimes the standard tube would tear the mucosa covering harder structures protruding into its path.”


10. Main clinical findings: The Parker Flex-Tip (FT) tubes encountered significantly less resistance to insertion into the airway and caused significantly less post-operative hoarseness than standard Portex tubes (PT) in intubations performed with a lightwand.

Quote from the study: “The FT group had a lower incidence of resistance to endotracheal tube insertion (20% vs. 50%) and post-operative hoarseness (5% vs. 30%). Conclusion: The hemispherical bevel and midline position of the leading edge of the FT allows gentle skimming of the tube along the tissue of the throat, enabling smooth glottic passage.”


11. Main clinical findings: The Parker Flex-Tip tube was significantly easier than a Mallinckrodt tube to advance over a fiberoptic bronchoscope.

Quote from the study: “We compared ease of advance over the FOB of the standard left-beveled Mallinckrodt tube with the Parker Flex-Tip tipped tube. The success rate of advancing the tube on the first attempt was significantly higher with the Parker tube (13/17), than with the Mallinckrodt tube (7/17: P<0.05). . . . The Parker Flex-Tip tube with its posterior-bevel and flexed tip is conceived to pass easily through the glottis. Our findings show that this is the case.”


12. Case report: It was “impossible” to intubate a patient having lingual tonsil hypertrophy with a 6.5 mm Mallinckrodt tube, inserted over a fibroscope. Subsequently,
a Parker tube of the same size was “easily displaced over the fiberscope into the trachea.”