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LETTERS TO THE EDITOR

Endotracheal intubation using the Airtraq optical laryngoscope when the glottis is off-center of the viewfinder: are the options of optimization exhausted?



Intubação endotraqueal usando o laringoscópio óptico Airtraq quando a glote está fora do centro do visor: as opções de otimização estão esgotadas?

Dear Editor,

The leading cause of anesthesia-related injury is the inability to intubate the trachea and secure the airway.¹ Improvements in video and optical laryngoscopy have allowed to obtain an indirect view of the glottis in a more simple way but sometimes this advantage occurs together with a difficult or impossible endotracheal tube (ETT) insertion.² This is because indirect techniques do not require the alignment of the oral, pharyngeal, and tracheal axes. In this sense the optical laryngoscope Airtraq® (Prodol Meditec S.A., Vizcaya, Spain) provides an improved indirect view of the upper airway. However, successful intubation requires optimal positioning of the glottis in the middle of the viewfinder. There are maneuvers of optimization when the glottis is off-center. They can be classified into two groups.^{3–5} (1) Adjustment of the distal position of device involving external laryngeal manipulation or withdrawal the Airtraq laryngoscope, and (2) adjustment of the distal position or the output of the ETT respect the Airtraq using a intubating stylet, the Endoflex ETT (Merlyn Associates, Tustin, CA, USA) or a flexible fiberoptic bronchoscope. However, occasionally, these maneuvers are not sufficient.

We report the successful tracheal intubation with the Airtraq laryngoscope in six adult patients whose glottis was off-center of the viewfinder after initial failure in spite of using the described optimization maneuvers. All of them gave written informed consent for the publication of this article. Tracheal intubation with a styletted standard polyvinyl chloride or standard wire-reinforced ETT was attempted using the regular Airtraq as the first line approach. The vocal cords were visualized off-center

of the viewfinder. Attempts to raise the tip of the ETT aligning the center of the visual field by twisting clockwise or anticlockwise and external laryngeal manipulation were unsuccessful, as was tracheal intubation. We then used a preconfigured IS (Rüsch, Intubation Stylet, Rüsch, Vienna, Austria), a Frova intubating introducer (Cook® Medical, Bloomington, USA) or FOB adjusting the output of the ETT through the guiding channel of the Airtraq. However the arytenoids or subglottic structures inhibited advancement of the ETT into the trachea being impossible tracheal intubation. We then used a LMA™ ETT (LMA North America, San Diego, CA, USA) with previous maneuvers. When the ETT tip went toward the vocal cords the ETT was then advanced into the trachea on the first attempt without difficulty. There were no oxygen desaturations, airway trauma, hemodynamic instability or other complications.

The location of the glottis off-center of the Airtraq viewfinder is predictive of obstruction during advancement of the ETT. Thus, the tip of the standard ETT is often impinged at the level of the epiglottis, arytenoid cartilages or subglottic structures inhibiting its advancement. Different maneuvers can approximate the glottis in the center but the ETT may still encountered resistance. Repeated attempts at passage of the tube through the glottis may lead to laryngeal trauma or bleeding and airway control may be difficult. Our experience suggests that this problem is common in patients with narrow upper airway, large epiglottis or subglottic tumors.

The use of the LMA™ ETT with the Airtraq as a method of rescue when this problem arises has several advantages. Its hemispherical bevel with the leading edge in the midline helps to reduce the incidence of failure of advancement. Likewise, the bevel of this tube is made from silicone rubber and is softer than the standard polyvinyl chloride design with the leading edge in the midline. It prevents laryngeal injury. Likewise this ETT is less stiff. This improved flexibility allows changing direction more easily and thereby leading to easier intubation.

This case series illustrates that LMA™ ETT is a useful adjunct to Airtraq optical laryngoscope intubation when a standard polyvinyl chloride or wire-reinforced ETT proves to be difficult to pass on the first attempt. It even could be considered as a first choice for difficult tracheal intubation with this device but this requires formal evaluation.

Conflicts of interest

The authors declare no conflicts of interest.

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Comparison of effects and complications of unilateral versus standard spinal anesthesia in orthopedic surgery of lower limbs



Comparaç o dos efeitos e das complicaç es de raqui anestesia unilateral versus raqui anestesia padr o em cirurgia ortop dica de membros inferiores

Dear Editor:

It is always a great satisfaction to see articles published in our Brazilian Journal of Anesthesiology investigators from outside Brazil.¹ The theme proposed although simple is very interesting and has practical utility.

I congratulate the investigators for the study. The distinct dosages (12.5 mg and 7.5 mg) used between groups justifies some differences we already know, such as latency, but also interferes with the hemodynamic stability. It would also be interesting to compare equal doses to infer the fact that the unilateral blockade and not the lower dose is the cause of increased stability.

I also have a few suggestions: one must be careful about how to describe the statistical analysis methodology, so that it does not lack credibility. In Method, it is described that "If blood pressure decreased by more than 25% of the baseline value and heart rate fell below 50 bpm, the patient was considered as hypotensive or bradycardic, respectively", and later that "For the statistical analysis of hemodynamic changes, the paired Student's *t*-test was used". It was reported that a test was applied to compare numeric variables in dichotomous variables. The Student's *t*-test calls attention because it does not make sense in this situation. Fisher's exact test is a simple and suitable option.² Fortunately, the value of $p=0.02$ (precisely 0.02493) is compatible with the proper test, Fisher's exact test.

For other tests like headache, I cannot say the same. It is easy to replicate the analysis of dichotomous variables, and the correct p -value is 0.0847, according to Fisher's exact test. The same occurs with bradycardia, whose correct p -value is 0.05389; while in the article it is written 0.02. In other situations, the test was more conservative, the correct p for nausea is 0.005056, while the article claims to be 0.02.

Although not interesting to the authors, the differences between groups in Table 2 should be described in a full manner, as explicit in Consort, with exact p -values and not simply $p>0.05$.³ It draws much attention the mean age of 26 years in the unilateral group versus 31 years in the bilateral group, with " $p>0.05$ ", and it is possible to replicate the analysis whose p -value for the *t*-test is 0.0028 (two-tailed). This sort of information is relevant because young patients are hemodynamically more stable, although we may consider both groups as young adults and give little importance to this data in the study. The real problem is that, assuming an unintentional mistake, it seems that there was an insufficient review of the statistical analysis. This type of error can compromise the credibility.

As a suggestion for improvement, I leave the online address for a document detailing the analysis of the dichotomous variables of the study <http://rpubs.com/gabrielmng/revbrasanest2014643>.

Conflicts of interest

The author declares no conflicts of interest.

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