

Letters to the editor

Pentax-AWS (Airway Scope) and Airtraq: big difference between two similar devices

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To the editor: Both the Airway Scope (Pentax-AWS system; AWS; Pentax, Tokyo, Japan) and the Airtraq (ATQ; Prodol Meditec, Vizcaya, Spain) are anatomically shaped new intubation devices which provide an indirect view of the glottis without requiring the laryngoscopist's line of sight [1–3]. They both have a tube channel in the right side of the blade which holds the endotracheal tube (ETT) and directs it towards the vocal cords. Japan is the first country to have obtained approval for the clinical use of both these devices, and we have noticed that many anesthesiologists confuse the AWS with ATQ.

Although the two devices have very similar blade configurations, the tip positions for elevating the epiglottis are different. According to the manufacturer's manual, the AWS tip position should be inserted posterior to the epiglottis, directly elevating it out of the way (Miller-type approach), whereas it is recommended that the ATQ tip be placed in the vallecula for indirect lifting of the epiglottis (Macintosh-type approach). For the ATQ, the Miller-type approach is also possible as an alternative. But for the AWS, there is no description of an alternative (Macintosh-type) approach.

These different approaches indicate that the routes that the blade passes through are different for each device. The AWS tip should be pass through a posterior route, in that the blade is inserted along the palate and posterior pharyngeal wall to facilitate passage behind the epiglottis, with the insertion being similar to that of a laryngeal mask airway. On the other hand, the recommended ATQ approach uses an anterior route, in that the blade tip glides on the tongue surface to the base of the tongue and is to be inserted into the vallecula.

We performed intubation with both devices, using two different approaches with each device. After the obtaining of institutional ethical committee approval, 15 anesthesiologists performed intubation on a manikin intubation trainer (Airsim Multi; TruCorp, Belfast, UK). Intubation with the recommended technique for each device was successful in all attempts. However, AWS intubation using a Macintosh-type approach failed in 12 of 15 attempts due to ETT impingement onto the epiglottis, whereas ATQ intubation using the Miller-type approach was successful in 15 of 15 attempts including 3 in which ETT impingement onto the arytenoid occurred, and

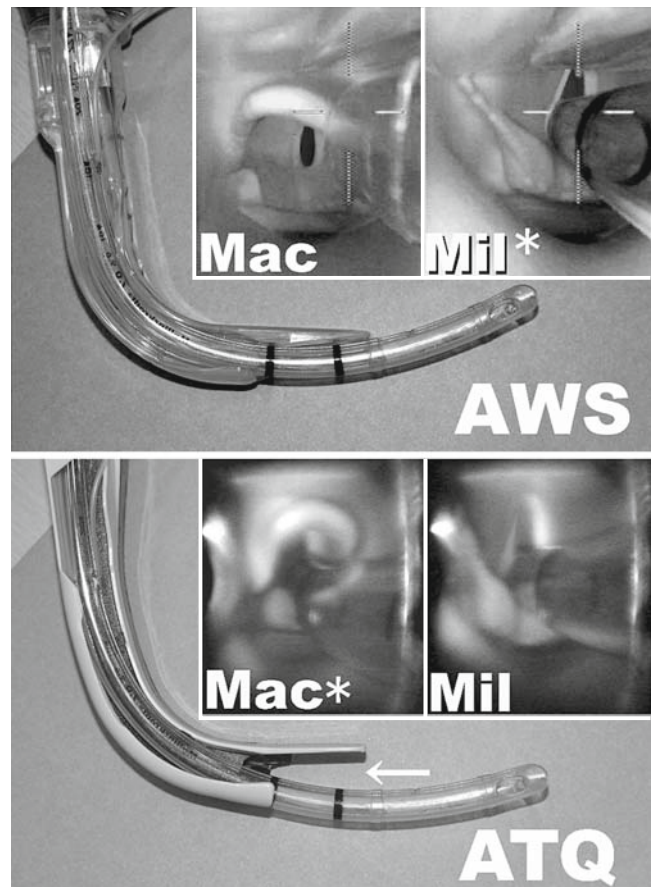


Fig. 1. Difference between the Pentax Airway Scope (AWS) and the Airtraq (Prodol Meditec) (ATQ). Two blades holding the endotracheal tube (ETT) in the channel are shown. The TT advanced from the AWS blade (*upper panel*) seems to go upward, so there is no space between the ETT and the blade tip, resulting in frequent impingement onto the epiglottis when using the Macintosh-type (*Mac*) approach for intubation. Therefore, only the Miller-type (*Mil*) approach should be used for ATQ intubation. The ETT advanced from the ATQ blade (*lower panel*) seems to go downward, so there is a space between the ETT and the tip (*white arrow*), which contributes to successful ETT placement during the Macintosh-type approach recommended with the ATQ. The Miller-type approach can be an alternative; however, it sometimes results in tube impingement onto the arytenoid, because the tube is directed downward. *Asterisks* indicate technique recommended by the manufacturer

this was easily solved by blade adjustment. This difference in number of attempts was statistically significant when the data were analyzed with Fisher's exact test ($P < 0.001$). Similar results are also seen in the clinical situation. It is very interesting that the similar blade configurations required different approaches for intubation and caused this result.

Next, we compared the two devices with the tube protruding from the channel and realized that, although the blade configuration looked similar, the routes where the tubes passed were different (Fig. 1). The AWS did not seem to have enough space between the ETT and the blade tip, because the tube was advanced upward, pressed against the blade tip. Therefore the Macintosh-type approach frequently resulted in tube impingement onto the epiglottis. With the ATQ, on the other hand, there is a space between the ETT and the tip where the epiglottis can enter during intubation using the Macintosh-type approach. The ATQ tube is rather downwardly directed, and this may cause tube impingement onto the arytenoid during intubation when using the Miller-type approach and may require blade adjustment for tube placement. The different channel designs, including the different tip lengths from the channel to the blade tip (3.5 cm for the AWS vs 4 cm for the ATQ), and the notch created at the end of the channel, may be responsible for the tube impingement

noted above. It seems the ATQ may have an advantage over the AWS because it provides versatility during intubation; with the ATQ, one can use both anterior and posterior routes. Users should understand the differences between these two similar devices for to enable their appropriate use.

References

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