

To sniff or not to sniff: The eternal debate

Correct positioning before any intervention in anesthesia is a prerequisite for a successful procedure. The sniffing position (SP) is traditionally recommended as the optimal head position for direct laryngoscopy with the Macintosh laryngoscope.^[1] This position was first described by Magill in 1936 as “sniffing the morning air,” to obtain the best view for glottis visualization.^[2] In this position, the neck must be flexed on the chest, typically by elevating the head with a cushion under the occiput and extending the head on the atlanto-occipital joint.^[3,4] In 1944, Bannister and Macbeth introduced the 3 (oral, pharyngeal, and laryngeal) Axes Alignment Theory (TAAT) and provided the theoretical rationale for the SP.^[5] Through a series of diagrams and radiographs, they displayed that neck flexion aligns the pharyngeal and laryngeal axes and extension of the head at the atlantooccipital joint aligns the oral axis with these 2 axes and thus allowing the line of vision to fall on the glottis. But neither the height to which the head should be elevated nor the degree of neck flexion was specified in this theory. Adnet *et al.* questioned the anatomic soundness of TAAT when they could not find radiographic evidence of axes alignment during intubation in SP.^[6] And thus this started a debate on what is the best head and neck position for glottis visualization and intubation.

Although several studies have found SP to be superior over simple head extension without any elevation, the amount of head elevation required to provide the best glottis view is still arguable.^[7,8] Horton *et al.*^[9] measured the angle of neck flexion and head extension that resulted in best laryngeal exposure. The mode value of neck flexion angle was 35° and that of plane of the face extension was -15° to the horizontal. They also measured head elevation when the desired position was achieved. The head had to be raised between 31 and 71 mm (with a mean value of 55 mm) for optimal exposure. This was measured, however, in subjects with normal airway difficulty and did not answer the question if the same values could be used in obese patients as well. This classic SP is adequate for intubation in most patients, but further elevation may also improve glottic exposure.

A lot of studies have explored the role of further head elevation, beyond that required for SP, in improving the laryngoscopic view.^[10,11] Orbany *et al.*^[11] examined the laryngeal view in 3 different positions using inflatable pillows. The positions

studied were head extension with no head elevation, 6 cm occiput elevation (SP), and 10 cm occiput elevation (elevated SP). They found that there was a decrease in the incidence of difficult laryngoscopy from 8.38% in patients without head elevation to 1.19% in elevated SP. Park *et al.* also found that use of a 9-cm pillow in the SP provides a better laryngeal view as compared with that with other pillows (3 and 6 cm) and without a pillow.^[12]

However, there is still no consensus on the optimal height of the pillow needed for endotracheal intubation. The different demographic characteristics of patients in different studies may partly explain the differences in the pillow height required to obtain the optimal position for intubation. The horizontal alignment of the external auditory meatus with the sternal notch could be used as an endpoint for correct positioning in a specific subset of population who have a poor view in SP.^[13]

In this issue of JOACP, Pachisia AV, *et al.*^[14] compared the laryngoscopy positions achieved by using a 7cm pillow with that attained by horizontal alignment of external auditory meatus and sternal notch line (AM-S) with head extension in adults using a variable height inflatable pillow. Their results are encouraging as they have demonstrated that AM-S alignment provides better laryngeal view, better intubating conditions, and requires lesser time to intubate as compared with a conventional 7-cm head raise. The mean head rise required to achieve AM-S line alignment was found to be 4.920 ± 1.460 cm.

The strengths of this study are assessment of laryngoscopic view, assessment of intubating difficulty scale, and the measurement of head raise required for best laryngeal view. The application of inflatable pillow using 2 pressure infusion bags placed between 2 firm surfaces (wooden base and stiff plastic sheet on top) prevented the indentation of the pillow by the patient’s head that could change the height of head raise. This assembly allowed the head raise to be adjusted between 3 and 10 cm by progressive inflation. The degree of head raise was recorded by a vertical scale fixed to the base of this pillow and the height could be recorded in centimeter with a least count of 1 mm.

Optimal positioning of the head and neck is pivotal during airway management. Further studies are needed to ascertain the optimal height of pillow needed for best positioning before intubation. The art of laryngoscopy continues to evolve and AM-S alignment can be a good method to ensure optimal positioning for intubation.

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