Airway Evaluation And Assessment For Anesthesia And Resuscitation

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Citation

Abstract

This is a simple visual way to remember what to look for when evaluating and assessing the airway for ventilation and intubation, suitable for nurses, respiratory therapist, paramedics and physicians:

A. Difficult Ventilation assessment:
For ventilation remember a snoring (OBESE) Santa

Overweight
Beard
Elderly
Snoring
Edentulous

B. Difficult Intubation Assessment:
For Intubation remember the 4(M & Ms) with (STOP) sign

Mallampati
Measurement
Movement
Malformation and STOP

HOW DO WE PREDICT DIFFICULT MASK VENTILATION (DMV)?

In a general adult population, DMV was reported in 5% of the patients.

Maintenance of airway patency and oxygenation are the main objectives of face-mask ventilation. Difficult mask ventilation was defined as the inability of an unassisted anesthesiologist to maintain the measured oxygen saturation as measured by pulse oximetry > 92% or to prevent or reverse signs of inadequate ventilation during positive-pressure mask ventilation under general anesthesia.

Yildiz et al concluded it that Mallampati class 4, male patients, history of snoring, increasing age, and increasing weight were found to be risk factors for DMV in his study.

Langeron et al suggested five recognized criteria as independent factors for a DMV. The Five Predictors of difficult bag and mask ventilation and Oxygenation, can be summarized in the word ($_{1,2,3,4,5}$)

"OBESE".

The Five Predictors of difficult bag and mask ventilation and Oxygenation, can be summarized in the word "OBESE"

1. The Obese (body mass index > 26 kg/m2)

2. The Bearded

3. The Elderly (older than 55 y)

4. The Snorers

5. The Edentulous

(Age older than 55 yr, body mass index > 26 kg/m2, beard, lack of teeth, and history of snoring), the presence of two indicating high likelihood of DMV (sensitivity, 0.72; specificity, 0.73)... A simple DMV risk score was established. Being able to more accurately predict DMV may improve the safety of airway management ([6],[7]).

Magboul Difficult Mask Ventilation (DMV) Prediction Score:

Figure 1

High Scores approaching 5 are associated with Difficult Mask Ventilation

HOW DO WE PREDICT DIFFICULT INTUBATION (DI)?

Magboul 4 M & Ms

What are the Magboul 4 M & Ms?

Again it is another easy way to memorize predictors of difficult intubation.

M = Mallampati M = Measurements 3-3-2-1 or1-2-3-3 Fingers, M = Movement of the Neck, M = Malformations of the skull, teeth, obstruction, and Pathology (the Macros and Micros) Which are also summarized in the word (STOP) S = Skull, T = Teeth, O = Obstruction, P = Pathology.

MAGBOUL 4 M & MS SCORE

M = Mallampati

Class I = visualization of the soft palate, fauces, uvula, anterior and posterior pillars.
Class II = visualization of the soft palate, fauces and uvula.Class III = visualization of the soft palate and the base of the uvula.Class IV = soft palate is not visible at all.M = Measurements 3-3-2-1 OR 1-2-3-3 Fingers.

(Remember to use the patient's finger size and not your fingers size, otherwise measure in centimeters)

3- Fingers Mouth Opening3- Fingers Hypomental Distance. 3Fingers between the tip of the jaw and the beginning of the neck (under the chin) 2- Fingers between the thyroid notch and the floor of the mandible (top of the neck)1- 1- Finger Lower Jaw Anterior sublaxation M = Movement of the Neck

The angle between the erect and extended the "normal" amount of extension equals 35 degrees. The Atlanto-occipital joint. Additionally, limited A-O joint extension is present in certain pathological states such as spondylosis, rheumatoid arthritis, halo-jacket fixation, and in patients with symptoms indicating nerve compression with cervical extension.

Right Left Flexion Extension

M =Malformation of the skull, teeth, obstruction, & Pathology (the Macros and Micros)

We can memorize them with the word (STOP)

S = Skull (Hydro and Microcephalus) T = Teeth (Buck, protruded, & loose teeth. Macro and Micro mandibles) O = Obstruction (due to obesity, short Bull Neck and swellings around the head and neck) P = Pathology (Craniofacial abnormalities & Syndromes: Treacher Collins, Goldenhar's, Pierre Robin, Waardenburg syndromes)

Various craniofacial abnormalities arise from maldevelopment of the 1st and 2nd visceral arches, which form the facial bones and ears during the 2nd mo of gestation. These malformations include cleft lip and cleft palate; Treacher Collins' (mandibulofacial dysostosis), Goldenhar's (oculoauriculovertebral dysplasia), Pierre Robin, and Waardenburg syndromes; hypertelorism; and external and middle ear deformities.

Skull Teeth Obstruction Pathology

Magboul 4M & Ms Score

Figure 2

Score	1	2	3	4
Mallampati	Grade 1	Grade 2	Grade 3	Grade 4
Measurement	3 mouth open	3 thyro Mental	2 Hypo mental	1 sublaxation
Movement	Left	Right	Flexion	Extension
Malformation	Skull hydrocephalus & Micro	Teeth buck teeth & Micro / Macro Jaw	Obstruction Obesity Short, bull neck, and swellings	Pathology & Syndromes Treacher Collins, Goldenhar's, Pierre Robin, stridor Waardenburg syndromes) Quinsy, Down's & Law set ears
TOTAL	4	4	4	4

If the patient Score 8 or higher, he is likely to be a difficult intubation.

CONCLUSION

The American Society of Anesthesiology definitions:

Difficult airway: is the existence of clinical factors that complicate either ventilation administered by face mask or intubation performed by experienced and skilled clinicians.

Difficult ventilation has been defined as the inability of a trained anesthetist to maintain the oxygen saturation > 90% using a face mask for ventilation and 100% inspired oxygen, provided that the preventilation oxygen saturation level was within the normal range.

Difficult intubation has been defined by the need for more than three intubation attempts or attempts at intubation that last > 10 min. This latter definition provides a margin of safety for preoxygenated patients who are undergoing elective intubation in the operating room. Such patients in stable circumstances can usually tolerate 10 min of attempted intubation without adverse sequelae.

Airway evaluation is a vital part in our anesthesia practice and resuscitation. We should spend all the necessary time to correctly evaluate patient Airway.

Mistakes have happened in the past due to ill judgment and insufficient evaluation.

The Moral of the story is to stick to one of these so many methods, what ever is easier for you to memorize and follow. Stick to it at all the times, and implement it strictly in all your patients prior to induction of anesthesia ([8], [9]) or intubation in resucitation

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