AWAKE NASAL INTUBATION : FIBEROPTIC VERSUS BLIND NASAL IN DIFFICULT AIRWAY CANCER PATIENTS

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List of Abbreviations

ASA	American Society of Anaesthesiologist.
BNI	Blind Nasal Intubation
ETO	Ethylene Oxide.
ETT	Endotracheal tube.
FOB	Fiberoptic.
LMA	Laryngeal Mask Airway
PaO_2	Arterial oxygen tension.
TTJV	Trans Tracheal Jet Ventilation.

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AWAKE NASAL INTUBATION : FIBEROPTIC VERSUS BLIND NASAL IN DIFFICULT AIRWAY CANCER PATIENT

Introduction

The maintenance of a patent airway is one of the fundamental responsibilities of every anesthesiologist. Difficult intubation associated with difficult mask ventilation is responsible for a large proportion of anesthesia-related complications that may result in permanent disability or even death. When an airway problem is encountered, anesthesiologist should use the technique that he is most familiar or experienced with to gain control of the situation **(*Benumof JL, 1991*).**

Preservation of patient's spontaneous respiration and consciousness are of at most importance in management of difficult airway. They enable the patients to maintain the tonicity of airway muscles thus providing a degree of safety which may be lost in any anaesthetized patient **(*Ovassapian A, 2001*)**. Awake endotracheal intubation followed by brief neurological examination before the induction of general anesthesia is an accepted practice for patients with cervical spine disease with symptoms of mylopathy and for patients at risk of spinal cord compression during standard endotracheal intubation **(*Hastings et al, 1991*)**. Under adequate upper airway nerve block, awake intubation may be performed through oral or nasal route, using direct rigid laryngoscopy, fiberoptic bronchoscopy or blind technique. Each technique requires additional training and has its own set of advantages and disadvantages**.** Fiberoptic and blind nasotracheal intubation are strongly recommended to manage predicted difficult airway. Adequate upper airway nerve block has been proposed to allow optimal patient analgesia, to facilitate the procedure

and to attenuate the physiological response (haemodynamic or respiratory) to the tracheal tube insertion ***(Marsland et al, 2002)***.

Nasal intubation is often requested by dental and maxillo-facial surgeons as it improves surgical exposure and increases tube stability during oral cancer surgeries **(*Stone and Gal, 1990*)**.

The use of fibro-optic tracheal intubation is well established and has been extensively supported in literature of managing the difficult airway. In addition to difficult endotracheal intubation, there are other situations in which fiber-optic bronchoscopy may be superior to conventional techniques in securing the airway. These include, but are not limited to the following: compromised airway, restricted or limited neck movements, anatomic deformities and those patients at risk for pulmonary aspiration. Fiberoptic intubation has proved itself to be the technique of choice for the management of difficult airway. The appropriate selection and use of the FOB minimize disastrous outcomes and increase the safety of airway management. Fiberoptic endotracheal intubation is gold standard for difficult airway management and should be mastered by all physicians involved in airway management **(*Ghassem LE et al, 2000*)**.

Aim of the work

This study aimed to compare in a prospective randomized manner, the efficacy (number of attempts and mean intubation time taken) and safety (associated complications) of awake endotracheal intubation in cancer patients having an anticipated difficult airway using either blind or fiberoptic bronchoscopy nasal technique. The efficacy will be assessed clinically by influences of nasotracheal intubation on cardiovascular system (heart rate and arterial blood pressure measurements), respiratory system (arterial oxygen saturation measurements) and clinically by measurements of stress hormones levels (glucose and cortisol levels).

Anatomy of the upper airway

The mouth

The mouth is made up of the vestibule and the mouth cavity, the former communicating with the latter through the aperture of the mouth. The vestibule is formed by the lips, cheeks, gums and teeth ***(figure 1) (Harold and Stanley, 1993).***

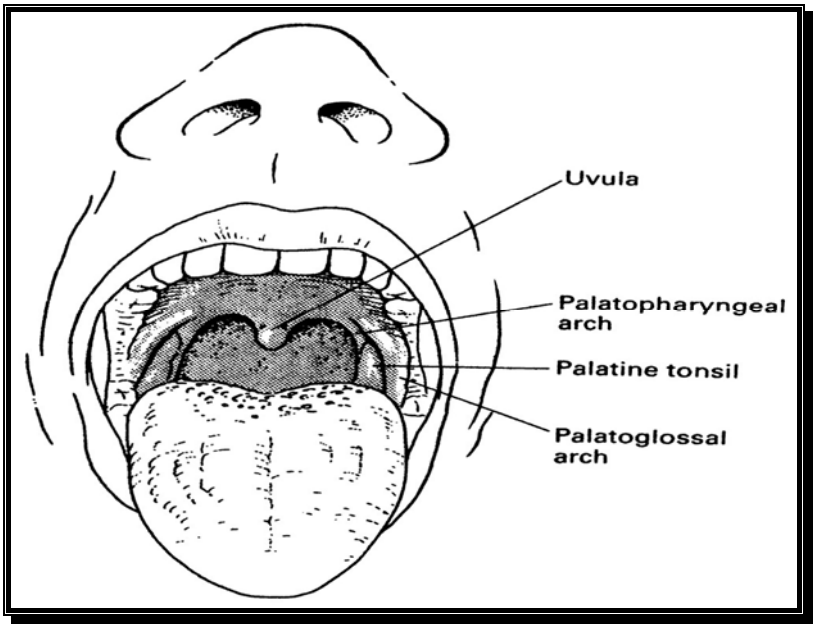

Fig.(1) View of the open mouth with the tongue depressed ***(Harold and Stanley, 1993).***

The Palate

The **hard palate** is made up of the palatine processes of the maxillae and the horizontal plates of the palatine bone. The **soft palate** hangs like a curtain suspended from the posterior edge of the hard palate. Its free border bears the uvula centrally and blends on either side with the pharyngeal wall. The anterior aspect of this curtain faces the mouth cavity. The posterior aspect is a part of the nasopharynx ***(Atikenhead et al, 2001)***

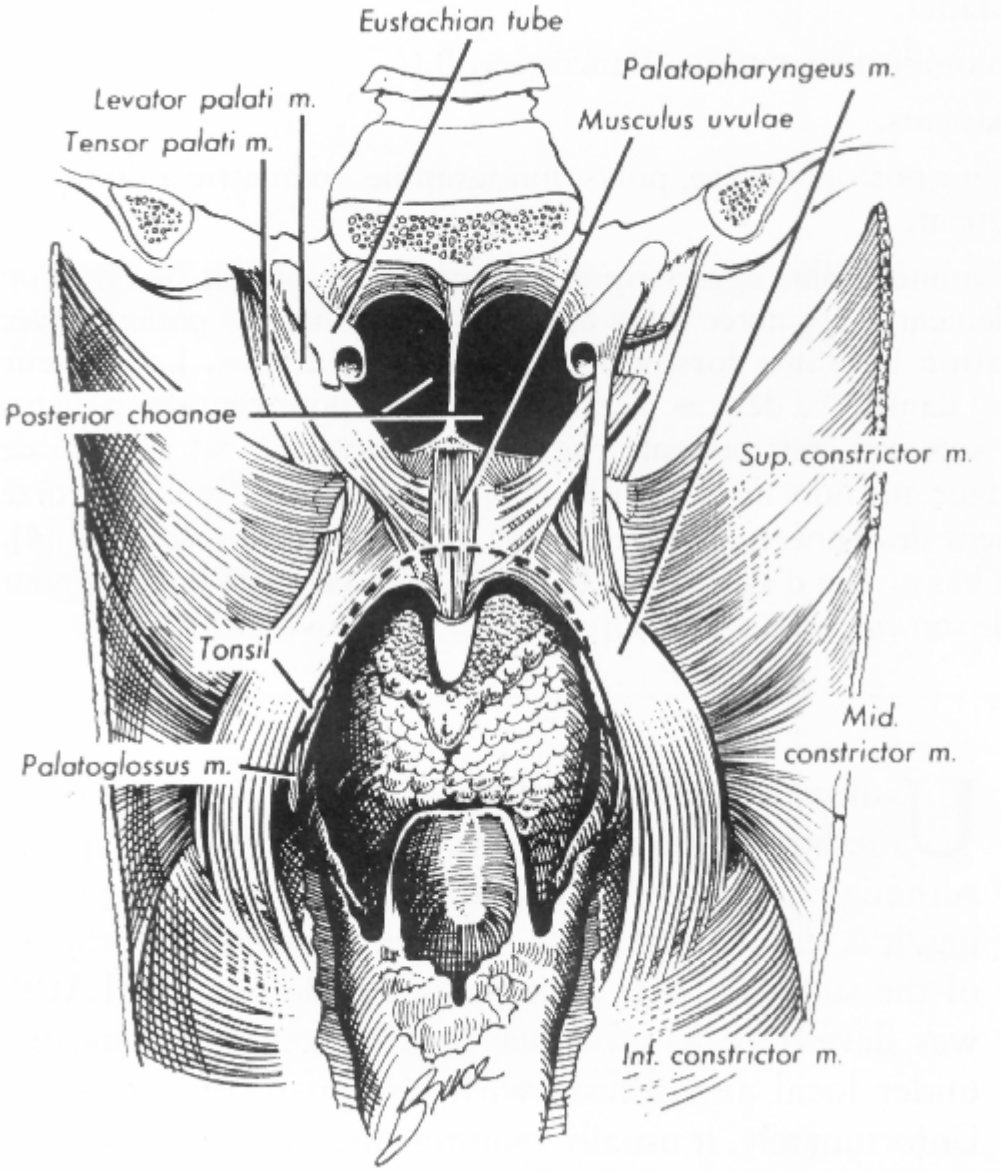

Fig .(2) Muscles of the soft palate and the pharynx

Muscles of the Soft Palate

They are five in number the tensor palati, the levator palati, the palatoglossus, the palatopharyngeus and the musculus uvulae ***(figure 2) (Harold and Stanley, 1993):***

(1)The tensor palati Its action is to tighten and flatten the soft palate.

(2)The levator palati It elevates the soft palate.

(3)The palatoglossus It approximates the palatoglossal folds.

(4)The palatopharyngeus It approximates the palatopharyngeal folds.

(5)The musculus uvulae Injury to the cranial root of the accessory nerve, which supplies this muscle via the vagus nerve, results in the uvula becoming drawn across and upwards towards the opposite side.

Nerve Supply and Action of Soft Palate Muscles:

The tensor palati is innervated by the mandibular branch of the trigeminal nerve via the otic ganglion. The other palatine muscles are supplied by the pharyngeal plexus, which transmits cranial fibers of the accessory nerve via the vagus. The palatine muscles help to close off the nasopharynx from the mouth in deglutition and phonation ***(Harold and Stanley, 1993).***

The Nose

The nose is divided anatomically into the external nose and the nasal cavity.The cavity of the nose is subdivided by the nasal septum into two separate compartments which open to the exterior by the nares and

into the nasopharynx by the posterior nasal apertures or choanae ***(Atikenhead et al., 2001).***