Management of the Difficult Adult Airway

Essay Submitted for the Partial Fulfillment of the Master Degree in Anaesthesia

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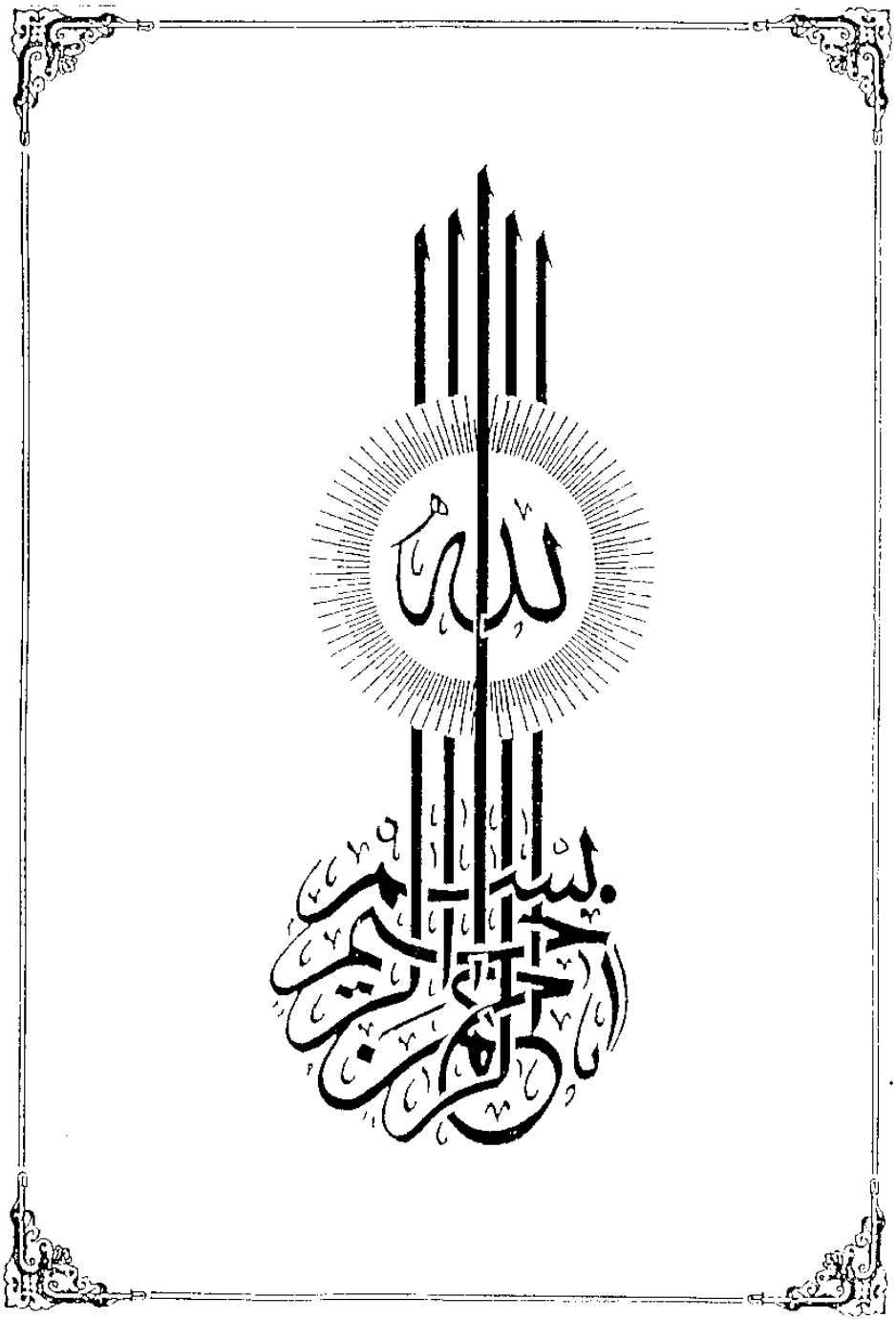
بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا

إنك أنت العليم الحكيم

صدق الله العظيم

سورة البقرة الآية ٣٢



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Hossam Raafat

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Introduction

Introduction

Maintenance of a patent airway and intubation of the trachea (translaryngeal intubation) depends on a knowledge of the anatomy of the upper airway and appropriate use of equipment and drugs *(Barash et al., 1990).*

Relative ease of tracheal intubation reflects the experience and skill of the individual anaesthetist. However, from time to time every anaesthetist encounters a patient in whom tracheal intubation is either extremely difficult or impossible.

In difficult intubation there are two problems; recognizing the potentially difficult intubation and planning how to overcome the problem.

Ensuring the safety of the patient when planned intubation has failed.

Approximately (1) in (65) patients is likely to present difficulties in tracheal intubation *(Aitkenhead and Smith, 1990).*

So, difficult intubation may be expected (recognized) or unexpected (unrecognized) *(Benumof, 1992),* the unexpected difficult

intubation is a major concern for the anaesthetist *(Oates et al., 1991),* who must appreciate that the first priority is to ensure that the patient is well ventilated. Intubation itself must take second place to this *(Feldman et al., 1989).*

In this essay, we will discuss the "difficult airway" problem from many points of view including:

* Definition of difficult airway and how to predict it.
* Classification and incidence of each degree of difficult airway.
* Incidence of major and minor complications associating the difficult airway.
* Plan for management of difficult airway.

Anatomy of the Upper Respiratory Airway

ANATOMY OF THE UPPER RESPIRATORY AIRWAY

The upper airway consists of passages extending from the anterior narus down to and including the larynx *(Aitkenhead and Smith, 1990a).*

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 and cheeks without and by the gums and teeth within. Normally the walls of the vestibule are kept together by the tone of the facial muscles; a characteristic feature of facial nerve paralysis is that the cheeks fall away from the teeth and gums, enabling food and drinks to collect in, and dribble out of *(Ellis and Feldman, 1993).*

The mouth cavity is bounded by the alveolar arch and teeth in front, the hard and soft palate above, the anterior two thirds of the tongue and the reflection of its mucosa onto mandible below, and the oropharyngeal isthmus behind *(Ellis and Feldman, 1993).*

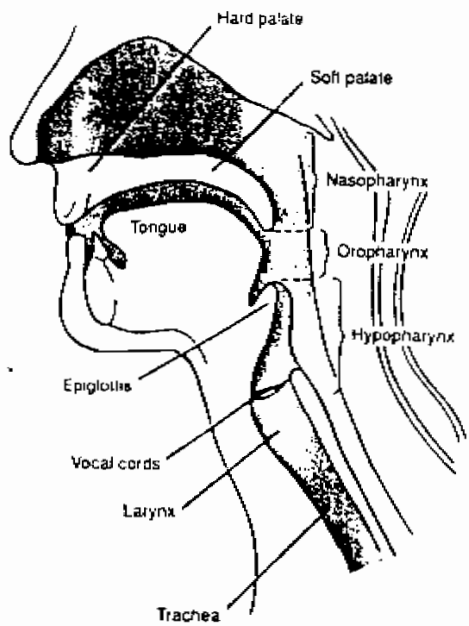


Fig. 1 Anatomy of the airway.

(Morgan, G.E. and Mikhail, M.S. 1996)

The mouth serves as an emergency airway in dyspnea, but its structure has nothing to do with this function, it merely provides a bigger air hole on the narrow nostrils (*Last, 1992*).

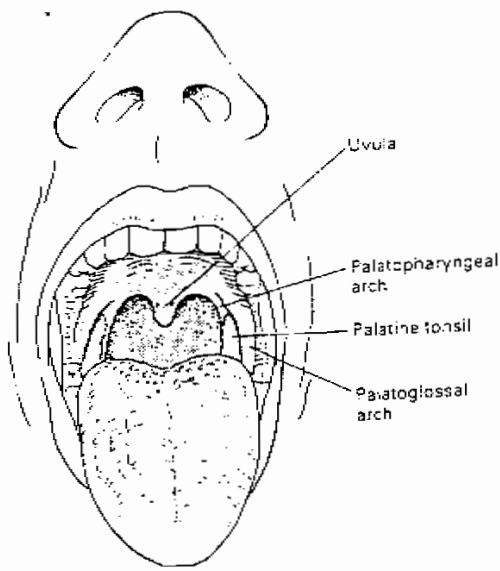
Teeth:

The bulk of a tooth consists of dentine, a hard avascular calcified tissue penetrated by minute canals, the dentinal tubules (*Last, 1992*).

Tooth position:

The teeth of the upper jaw lie in a continuous curve like a horseshoe. In the alveolar bone the outer (buccal) plate is thinner than the inner (palatal) plate. In the lower jaw, the curve of the anterior teeth straightens out in the molar region. In the alveolar bone of the mandible the labial (outer) plate is thinner than the lingual (inner) plate over incisors, canines and premolars, but in the posterior molar region, the lingual plate is thinner than buccal.

The upper teeth make a large curve than the lower. The upper incisors lie in front of the lower in the closed position. The upper canines lie just behind the lower, in front of the first premolar, to their outer (buccal side) (*Last, 1992*).



View of the open mouth with the tongue depressed.

Fig. 2

(Ellis, H. and Feldman, S. 1993)