

# Nasotracheal Intubation Guided by Ultrasound and Capnography in the Intensive Care Anesthesia Department: Experience of the Ibn Tofail CHU Hospital in Marrakech

Dr. Antolivio Monteiro<sup>1\*</sup>, Dr. Ikram Berramou<sup>1</sup>, Dr. Sarah Maaroufi<sup>1</sup>, Prince B Mavoungou<sup>1</sup>, Marina Nde-Ngala<sup>1</sup>, Pr. Youssef. El Ouardi<sup>1</sup>, Prof. Mohammed Khallouki<sup>1</sup>

<sup>1</sup>Faculty of Medicine and Pharmacy, Cadi Ayyad University Marrakech

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\*Corresponding author: Dr. Antolivio Monteiro

Faculty of Medicine and Pharmacy, Cadi Ayyad University Marrakech

## Abstract

## Case Report

Limited availability airway management equipment such as a nasofibroscopy presents a challenge, and requires the use of other techniques. The interest of our study: Show the importance of capnography and ultrasound during Difficult blind nasotracheal intubation. Patient aged 19, with no particular pathological history, with ankylosis of the temporomandibular joint following trauma to the temporomandibular joint neglected mandible at the age of 6 years. The use of ultrasound plays an important role in its applications in radiology diagnostic and interventional, ultrasound has been used successfully in several applications related to the respiratory tract. It was used to confirm endotracheal intubation, position the endotracheal tube after intubation, assess vocal cord movement and diagnose endotracheal intubation and pneumothorax.

**Keywords:** Nasofibroscopy, Nasotracheal Intubation, Anesthesia, Marrakech, radiology diagnostic.

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## INTRODUCTION

Difficult intubation (DI) remains one of the major intraoperative concerns of anesthetists. Its incidence varies from 2.5 to 15.7% for all types of interventions combined [1]. This incidence is overestimated in maxillofacial surgery due to the contiguity between the airways and the anatomical location of the lesion [2], particularly in patients presenting ankylosis of the temporomandibular joint [3,4]. Limited availability airway management equipment such as a nasofibroscopy presents a challenge, and requires the use of other techniques [5]. The interest of our study is to show the importance of capnography and ultrasound during difficult blind nasotracheal intubation.

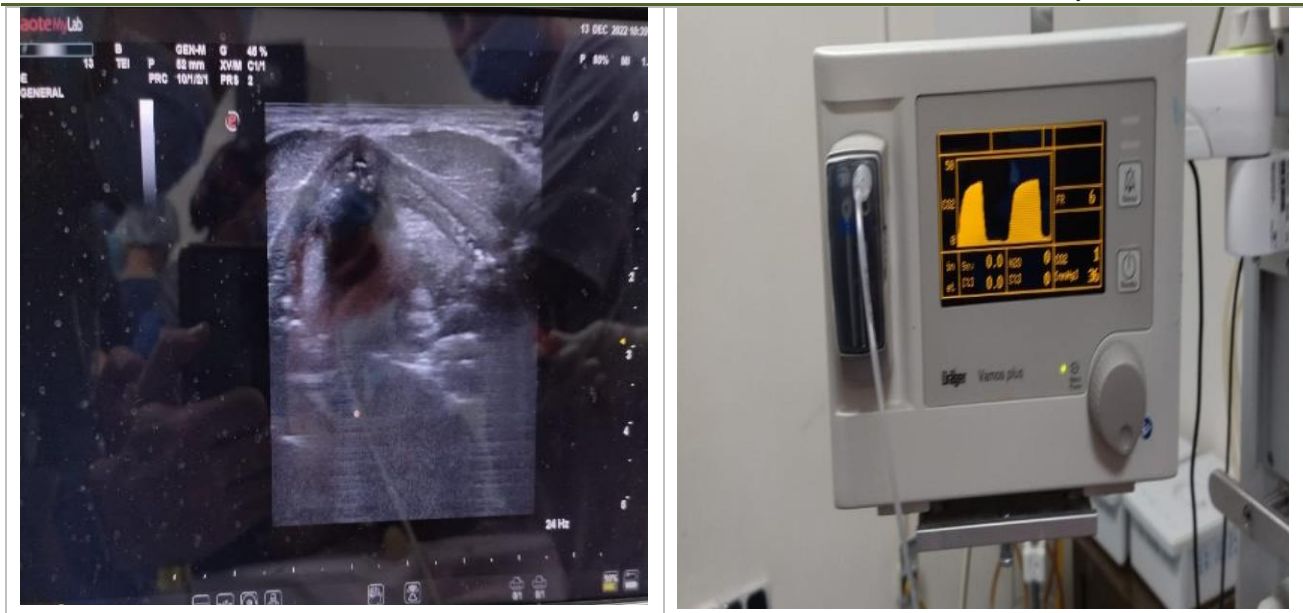
## OBSERVATION

Patient aged 19, with no particular pathological history, with ankylosis of the temporomandibular joint following trauma to the temporomandibular joint neglected mandible at the age of 6 years. Based on the

preoperative clinico-radiological results and the available resources, a Blind nasal intubation under general anesthesia with spontaneous breathing was considered. The procedure consisted successively of pre-oxygenation, xylocaine 0.05% was sprayed in the right nostril, gargle 2ml of xylocaine 0.05%, block the laryngeal nerves upper parts guided by ultrasound, by transcutaneous injection of lidocaine 1%, and intratracheally, Anesthesia was induced with fentanyl 50ug and propofol 50mg. Spontaneous ventilation was maintained.

Blind nasotracheal intubation was performed with a 6.5 cuffed tracheal tube. mm using capnography and real-time ultrasound guidance (Figure 1, 2). Anesthesia was supplemented by the administration of fentanyl 250ug, Propofol 150mg and rocuronium 40 mg, maintenance is done with a mixture of isoflurane (1.5%) and oxygen and air (50%:50%). The planned surgery was uneventful and the patient was extubated without incident.

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**Figure 1: visualization of the intratracheal probe, confirmation by capnography**



**Figure 2: Blind nasotracheal intubation was successful**

## DISCUSSION

The use of ultrasound plays an important role in its applications in radiology diagnostic and interventional, ultrasound has been used successfully in several applications related to the respiratory tract. It was used to confirm endotracheal intubation, position the endotracheal tube after intubation, assess vocal cord movement and diagnose endotracheal intubation and pneumothorax [6,7].

This study shows the benefit of ultrasound to direct the insertion of the intubation tube nasotracheal in case of difficult intubation. Several studies have shown the benefit of ultrasound to direct probe placement tracheal in case of difficult intubation. Fiadjoe's study in 2012 showed that ultrasound plays a vital role in guiding tracheal intubation in patients where direct or video laryngoscopy is difficult [8].

Study by Moustafa Abdelaziz in 2017 compared the use of ultrasound and fibroscopy for patients who have cervical spine rigidity, has shown that ultrasound can be a alternative technique for guiding the intubation tube [9].

We suggest considering this technique in the face of TMJ ankylosis, however blind nasal intubation takes longer to perform than conventional intubation and it should be undertaken by clinicians familiar with this technique.

## CONCLUSION

Anesthesia of patients with TMJ ankylosis represents a situation where Tracheal intubation difficulties should be considered in principle, and where an anticipatory strategy will need to be developed. Due to the absence of nasofibroscopy, anesthetic management must be carried out by an experienced team trained in difficult blind intubation.

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