

Challenges of Airway Management in a Patient with Temporomandibular Joint Ankylosis Complicating Forceps Delivery

A Case Report

SO Ajike¹, OO Omisakin², RI Mohammed², ET Adebayo³

ABSTRACT

Ankylosis of the temporomandibular joint following forceps delivery is a rare anomaly. The aetio-pathogenesis involves wrongful application of the forceps or forceful closure of the forceps handle against the condyle with haemarthrosis, organisation and subsequent ankylosis. Because of the lack of epidemiological data, there is little information about the true incidence and the management of this rare anomaly. The purpose of this presentation is to report the challenges encountered in the airway management of a six-year old female with right temporomandibular joint ankylosis following forceps delivery in a private hospital setting.

Keywords: Airway management, ankylosis, forceps delivery

Retos en el Tratamiento de las Vías Respiratorias en una Paciente con Anquilosis de la Articulación Temporomandibular Complicando el Parto con Fórceps

Reporte de un Caso

SO Ajike¹, OO Omisakin², RI Mohammed², ET Adebayo³

RESUMEN

La anquilosis de la articulación temporomandibular tras el uso de fórceps siguientes es una rara anomalía. La etiopatogénesis implica la aplicación indebida de los fórceps o el cierre forzoso del mango de los fórceps contra el cóndilo con hemartrosis, organización y subsiguiente anquilosis. Debido a la falta de datos epidemiológicos, hay poca información acerca de la verdadera incidencia y el tratamiento de esta rara anomalía. El objetivo de esta presentación es informar los problemas encontrados en el tratamiento de las vías respiratorias de una niña de seis años con anquilosis de la articulación temporomandibular derecha tras de un parto con fórceps en el contexto de un hospital privado.

Palabras claves: Tratamiento de las vías respiratorias, anquilosis, parto con fórceps

West Indian Med J 2011; 60 (2): 220

INTRODUCTION

Forceps delivery has been documented as a rare cause of temporomandibular joint ankylosis (1, 2). The mechanism of trauma during the forceps delivery is usually as a result of wrongful application of the forceps or forceful closure of the

forceps handles (3) causing bleeding into the joint with organisation and subsequent ankylosis. Post forceps delivery ankylosis usually cause gradual reduction in mouth opening, mal-occlusion, severe malnutrition, difficulty in speech, severe facial disfigurement (Fig. 1), obstructive sleep apnoea and psychological trauma to both the patients and the parents. The true incidence is difficult to determine as the aetiology is most often missed and erroneously termed as congenital ankylosis (4).

Temporomandibular joint ankylosis usually presents with serious airway management problem becoming more manifested and grievous in growing children because of the

From: ¹Oral and Maxillofacial Unit, Ahmadu Bello University Teaching Hospital, Zaria, Kaduna State, Nigeria, ²Department of Anaesthesia, Ahmadu Bello University Teaching Hospital, Zaria, Kaduna State, Nigeria, and ³Dental Surgery Department, Nigerian Armed Forces Reference Hospital, Kaduna State, Nigeria

Correspondence: Dr SO Ajike, PO Box 168, Kaduna, Kaduna State, Nigeria, Fax: +2348034518917. E-mail: mfujiks@yahoo.com

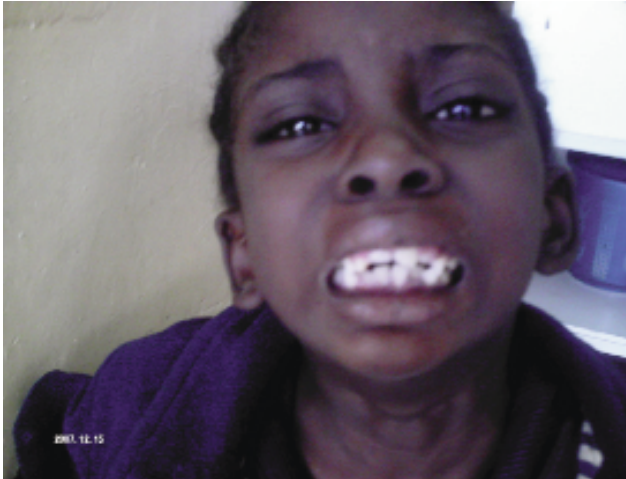


Fig. 1: Facial profile of patient with a shift of midline to the right.

total reduction in mouth opening and hypoplastic jaws. Here we describe a six-year-old female patient who presented to hospital with right temporomandibular joint ankylosis following a history of forceps delivery while highlighting the anaesthetic challenges encountered in this poor-resource environment.

Case Report

A six-year old female presented to hospital with a history of gradual reduction in mouth opening since birth and a history of snoring during sleep. Antenatal care was uneventful except that the patient's delivery was *via* obstetrics forceps.

Examination revealed a six-year old female with inability to open the mouth, retruded and deficient mandible with bird face appearance (Fig. 1). Prominent antegonial notch bilaterally and slightly flat or full right ascending ramus. There was slight translatory movement at the left temporomandibular joint. The weight and height were 16 kg and 1.3 m respectively. Severe snoring was observed during the patient's sleep. Biochemical and haematological investigations were within normal limits.

Based on the history of forceps delivery, gradual reduction of mouth opening and clinical findings a diagnosis of right temporomandibular joint ankylosis complicating forceps delivery was made.

Operative procedure

After the usual routine cleaning and draping, the patient was anaesthetized *via* a tracheostomy using a tracheostomy tube fashioned from a normal 5 mm ID endotracheal tube (Fig. 2). A right angle osteotomy with pterygomasseteric interposition was carried out via a right submandibular incision and about 3.8 cm of mouth opening was achieved (Fig. 3).

The incision line was sutured in layers. The patient was extubated when fully awake and while breathing spontaneously, the tracheostomy site closed. She was managed postoperatively on oral lincomycin 500 mg 8 hourly for five



Fig. 2: Fashioned tracheostomy tube A.



Fig. 3: Mouth opening intra-operatively.

days and oral paracetamol 100 mg 8 hourly for three days. She was commenced on mouth exercise 24 hours post operatively. One and six-month postoperative review recorded a mouth opening of 3.5 cm, 3.9 cm and weight of 17 kg and 20 kg respectively before being lost to follow-up.

DISCUSSION

Ankylosis following forceps delivery should be distinguished from congenital ankylosis (4). In ankylosis following forceps delivery, there is gradual reduction of mouth opening as against reduction in mouth opening which is usually noticeable at delivery in congenital ankylosis. An Indian study (5) puts ankylosis following forceps delivery at 17.8% of all temporomandibular joint ankylosis. Most studies have probably recorded it under the aetiology of trauma.

Temporomandibular joint ankylosis in children usually poses a lot of airway management challenges because of mandibular retrusion, hypoplastic jaws and limited mouth opening (Fig. 1). According to Nader (6) children are prone

to the following anaesthetic risks, sensitivity to all central depressants and dysarrhythmias, difficulty in securing the airway, post extubation desaturation and hypoventilation, associated cardiovascular and respiratory complications of obstructive sleep apnoea such as cor pulmonale and right ventricular failure. In poor resource environments, early death (4) usually occurs. The increase in weight post-operatively demonstrates the crippling effect of the ankylosis on feeding.

Various ways of securing the airway include blind nasal intubation, retrograde intubation, fiberoptic laryngoscopy, tracheostomy, transtracheal ventilation and percutaneous cricothyroidectomy (6, 7, 8, 9). Each of these however has their merits and demerits. In this case, we opted for tracheostomy because the hospital lacked the kit for retrograde intubation and transtracheal ventilation, and paediatric fiberoptic laryngoscope, despite the obvious morbidity, and mortality associated with the procedure. The fashioned tracheostomy tube used in this case was from a new 5 mm nasoendotracheal tube which was reduced in length without tampering with the cuff (Fig. 3) because of the non-availability of paediatric tracheostomy tubes. A paediatric fiberoptic laryngoscope was not available. Extubation and closure of the tracheostomy site was done because of the attendant management complications of tracheostomized patients.

In conclusion, the anaesthetic challenges encountered and the use of a fashioned tracheostomy tube in a six-year-old female patient with right temporomandibular joint ankylosis in a resource challenged environment was presented.

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