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Case report

Airway management in patients with cervical spine trauma and neurological symptoms. Case reports[☆]



Alejandro Bilbao Ares^{a,*}, Miguel Castañeda Pascual^a, Beatriz Merino Sierra^b,
Juan Pablo Jimeno García^a, Marta Patricia Martín Vizcaíno^a, Miguel Salvador Bravo^a

^a Anesthesiology and Resuscitation Division, Complejo Hospitalario de Navarra, Pamplona, Spain

^b Cardiology Division, Hospital Reina Sofía, Tudela, Spain

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ABSTRACT

Patients with traumatic injuries of the cervical spine who undergo a surgical intervention are a great challenge to the anesthesiologist. The airway management inherently involves movements of the cervical spine that may aggravate pre-existing injury. Currently there is not a consensus for the technique of intubation of these patients.

We present three patients with traumatic injuries associated neurological symptoms and cervical spine. All intubations were assisted with fiber bronchoscope, without removing the cervical collar and patients remained awake. All patients were examined again after intubation with no evidence of worsening of their neurological symptoms. We can conclude that the fiberoptic assisted intubation has several advantages in the care of these patients.

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Control de la vía aérea en pacientes con traumatismo sobre columna cervical y clínica neurológica. Informe de casos

RESUMEN

Los pacientes con lesiones traumáticas de la columna cervical que se someten a un control quirúrgico de las mismas suponen un gran reto para el anestesiólogo. El manejo de la vía aérea conlleva de forma inherente movimientos de la columna cervical que podrían agravar la lesión preexistente. Actualmente no existe un claro consenso en la técnica de intubación de estos pacientes.

Palabras clave:

Manejo de la vía aérea

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* Corresponding author at: Servicio de Anestesiología y Reanimación, Complejo Hospitalario de Navarra, Irunlarrea 3, 31008 Pamplona (Navarra), Spain.

E-mail address: abilbaoa@navarra.es (A. Bilbao Ares).

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Presentamos tres pacientes con lesiones traumáticas de columna cervical y clínica neurológica asociada en los que se indicó cirugía. En todos ellos se realizó una intubación asistida con fibrobroncoscopio con el paciente despierto y sin retirar el collarín cervical. Todos los pacientes fueron nuevamente explorados tras la intubación sin evidenciarse en ninguno de ellos agravamiento de sus síntomas neurológicos. Podemos concluir que la intubación asistida con fibrobroncoscopio presenta varias ventajas en el cuidado de estos pacientes.

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Introduction

Traumatic injuries of the cervical spine constitute an important health problem due to their potential consequences for patients and society. Some 5–10% of emergency room patients, unconscious after their traumas, exhibit a complex cervical spine injury.¹

Patients with traumatic injuries to the cervical spine who undergo a surgical intervention are a great challenge to an anesthesiologist. The use of the airway inherently involves movements of the cervical spine that could aggravate the pre-existing injury.

We present three patients with traumatic injuries to the cervical spine and the associated neurological symptoms. We describe the management of their anesthesia, focusing on the use of the airway, and then we provide a discussion, citing the recent scholarship.

Case 1

A 44-year-old Caucasian woman, with no previous history of injuries, suffered a fall and was immobilized with a semirigid neck brace. Upon further exploration it proved to be a tetraparesis without other apparent injuries. The computerized tomography (CT) of the cervical spine showed a dislocation of C5 over C6 (Fig. 1). A surgical fix was chosen, so we explained it to the patient and obtained her consent for the anesthetic technique. Three hours after her admittance, in the operating room, after basic monitoring, we initiated a perfusion of remifentanyl at $0.05 \mu\text{g kg}^{-1} \text{min}^{-1}$. We kept the neck brace on and initiated oxygen therapy through nasal prongs with capnography. We administered topical anesthesia to the patient with lidocaine aerosol at 10% into the oral cavity and the pharynx, encouraging the patient to gargle with the solution, ventilating her intermittently with a flexible tube. After 15 min we confirmed the anesthesia of the area, progressively introducing an oral catheter specifically for intubation with fiberoptic bronchoscopy. Through the catheter, we introduced a flexible fiberoptic bronchoscope, with a cuffed orotracheal tube (OTT) with an internal diameter of 7.5 mm, previously inserted. Once we could see the glottis we administered 3 mL of lidocaine at 2% through a flexible, single-tubed catheter introduced into the working channel of the fiberoptic bronchoscope. Next we advanced the catheter to the trachea and administered another 3 mL of lidocaine. The patient responded with a small, involuntary self-limited cough and we



Fig. 1 – Sagittal reconstruction of the TC of the cervical spine of Case 1. Dislocation C5–6 (arrow). Source: Authors.

introduced the fibrescope until we reached the carina. Afterwards we advanced the OTT, rotating it 90°, which coincided with a deep spontaneous inhalation from the patient. The maneuver was performed without difficulty. After confirming the positioning of the OTT with capnography, we performed a new neurological examination that ruled out an aggravation of the patient's symptoms and we administered anesthesia with propofol and rocuronium. We carried out an anterior arthrodesis without incident and the patient recovered without further injury.

Case 2

73-year-old Caucasian male with a history of hypertension treated with enalapril and multiple falls due to repeated

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