Post-intubation quadriplegia in a child: A dreadful presentation

Sir,

We report a case of a 2-year-old female child who presented to the emergency with a history of high-grade fever for 25 days, progressive neck extension for 15 days and poor oral intake since 5 days. All developmental milestones were achieved as per her peers, and there was no history of seizures, weakness of limbs or difficulty in swallowing or breathing. On admission, the child was afebrile, weighed 8 kg, head circumference 46 cm, pulse rate 140/min, respiratory rate 30/min, Glasgow Coma Scale (GCS) 15/15, normal reactive pupils and moving all four limbs spontaneously. The overall physical examination was unremarkable except for the presence of ophisthotonic posture [Figure 1]. Non-contrast computed tomography head revealed temporo-parietal mass with effacement of the ipsilateral temporal horn of lateral ventricle suggestive of hydrocephalus. External ventricular drainage (EVD) was planned in the Neurointensive Care Unit and for which child was intubated. Difficult intubation cart was prepared, and the child was properly positioned using sheets and pillow to support her back and head to avoid position related neurological injuries and facilitate tracheal intubation. She was given intravenous propofol 20 mg with fentanyl 20 mcg. Under sedation, child was intubated with 3.5 mm microcuffed endotracheal tube using McIntosh blade (Cormack-Lehane Grade I). After confirmation of bilateral equal air entry, she was put on pressure control ventilation. Later 1 mg vecuronium to facilitate the procedure that lasted for 20 min and was uneventful.

Figure 1: Posture of child on admission

Five hours post-procedure child developed flaccid quadriplegia with fall in GCS ($E_3V_TM_1$). Thirty ml of cerebrospinal fluid was drained by EVD during this time. For sudden inexplicable drop in GCS and motor power in an ophisthotonic child, magnetic resonance imaging (MRI) of the brain and spinal cord was obtained. MRI revealed an interventricular tumour with extensive leptomeningeal spread and compression at the foramen magnum. There was oedema at the level of upper cord along with ascending tentorial herniation [Figure 2].

The risk of neurological injury during airway manoeuvring, especially endotracheal intubation is defined but rarely encountered. The literature has few case reports regarding occurrence of cervical spine fractures during intubation in elderly patients with ankylosing spondylitis or severe osteoporosis.[1] However, the condition is rarely described in children.[2] We found child moving limbs following intubation but became quadriplegic after administration of muscle relaxant. We presume that quadriplegia was due to leptomeningeal spread along with compression at the level of the foramen magnum. Catastrophic ascending tentorial herniation due to cerebrospinal fluid drainage via EVD is another possibility. We recommend that such patients should be dealt with utmost care not only during airway manoeuvring but also subsequent positioning. Post-intubation quadriplegia is a rare entity especially

Figure 2: Magnetic resonance imaging of head and spinal cord showing extensive leptomeningeal spread, compression at foramen magnum, oedema at the level of upper cord along with transtentorial herniation

in undiseased spine and cord in paediatric population so structural neurological disease should always be considered in the differential diagnosis for so-called post-intubation neurological deficits. We suggest screening for subtle neurological deficits, adequate precautions during airway manipulations and pre- and post-procedure documentation of muscle power in patients with least suspicion of neurological deficit or abnormal posture like ophisthotonus.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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