Introduction: Macroglossia is a known but uncommon complication associated with neurosurgical procedures involving the posterior fossa. There have been 3 case reports in children describing macroglossia after posterior fossa surgery in the sitting position.(1,2,3) The etiology of macroglossia is unclear, but it has been attributed to arterial compression, venous compression, mechanical compression, lymphatic obstruction, ischemia-reperfusion injury or to neurogenic origin.(5) The positioning of a patient has been described in the sitting, supine, park bench and prone position in adults but only in the sitting position in children. We describe four cases of macroglossia in children with no craniofacial abnormalities after posterior fossa surgery in the prone position.

Case Reports: Our four children were aged 15 months, 18 months, 25 months, and 28 months. Two of the four patients were orally intubated and the other two were nasally intubated. Of the intubations, one had an oral reinforced tube, one had a nasal RAE tube, and the other two had regular endotracheal tubes. Three of the four patients required postoperative ventilation and developed ventilator-associated pneumonia. Two patients required tracheostomies and both were eventually decannulated prior to discharge from the hospital. One patient had 27 gauge tongue electrodes to aid in neuromonitoring. The duration of the procedures ranged from 6½ to 9 hours. All four children survived to discharge.

Discussion: Macroglossia is associated with significant postoperative morbidity. Our four children had extreme flexion of the neck where the chin is touching the chest which is necessary for surgeons to gain access and have adequate exposure of the posterior fossa. In infants and young children, this position may have more serious consequences due to their airway anatomy (anterior larynx, small tracheal diameter, and relatively large tongue size in relation to their oral pharynx). Due to significant macroglossia and upper airway obstruction, three of our patients required prolonged ventilation and developed ventilator-associated pneumonia. Two patients required tracheostomies. One case had 27 gauge tongue electrodes which may have been a significant contributing factor in the tongue swelling, but no hemorrhage of the tongue was noted. We therefore recommend using nasal intubation to prevent tongue compression between the tube and the base of the mouth and not using a reinforced tube since the stiffness of the tube can cause mechanical obstruction. Due to its preformed curve, a RAE tube is also not recommended since it may be displaced more easily when the patient's neck is flexed and suctioning may be more difficult when the patient is in the prone position. To decrease trauma to the tongue, we no longer use stiff tongue electrodes for neuromonitoring and use a soft gauze bite block to help prevent tongue compression by the teeth.(4)

References: