

Catastrophies in Airway Management in Blunt Neck Trauma

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INTRODUCTION

Anterior neck trauma is a rare injury¹ and it may result from motor vehicle accidents, personal assaults or sports injuries.² Mild to moderate trauma can cause tissue oedema, haematoma and mucosal tears. More severe trauma can disrupt the airways, its cartilaginous framework and can cause neurovascular injuries.³ The resultant swelling may progress rapidly or insidiously and cause upper airway obstruction a few hours after injury.² Establishment of an airway is the most basic tenet in the support of life in these cases. It is recommended that all patients with anterior neck trauma should be admitted to the hospital for airway monitoring for at least 24 hours.² We here report airway management of a case who presented with respiratory difficulty due to massive haematoma of neck which appeared after blunt neck trauma.

CASE REPORT

A 45 years old, ASA grade-I, male patient, weighing about 60 kg presented to emergency department with a swelling on right side of his neck. He gave history of blunt trauma to neck inflicted with a stick 8 hours ago, resulting in neck swelling which had increased gradually in size. Patient developed a sensation of neck tightness, hoarseness and had dysphagia. Patient was visibly dyspnoeic with a respiratory rate of 36/minutes, however there was no stridor. His vital signs showed pulse rate of 94/minute and blood pressure 120/80 mmHg. His biochemical investigations were within normal limits. Arterial blood gas analysis (BGA) showed pH 7.23,

pO₂ of 64 mmHg and pCO₂ of 54mmHg, HCO₃ 20 mmol/l at FiO₂ of 0.4. Contrast enhanced CT neck showed a large mass on right side of neck lateral to the right carotid artery encasing the vessels at places. The mass caused compression on the lateral wall of the trachea pushing it to the left side. A diagnosis of rupture of internal jugular vein with massive neck haematoma was made. Immediate exploration was planned. In view of anticipated difficult airway, ENT surgeons were consulted for elective tracheostomy but a joint decision was taken to defer it due to disturbed neck anatomy and due to risk of bleeding on opening up the superficial tissues of neck. After careful consideration of all the relevant factors, a plan was made for awake intubation. In the operation theatre, after establishing the intravenous access with 16G cannula, monitoring for heart rate, ECG, NIBP and SpO₂ was instituted. Injection glycopyrrolate 0.2 mg was given. Awake fiberoptic intubation was achieved after topical anaesthesia of oral cavity and nose with 4% viscous lignocaine. Superior laryngeal nerve block and transtracheal anaesthesia were not considered feasible due to altered landmarks. Anaesthesia was induced using thiopentone and maintained with 0.8-1% isoflurane in oxygen and nitrous oxide. Surgical dissection revealed a large tear in the right internal jugular vein which was repaired. Subsequently, the patient behaved very well, was extubated and recovered uneventfully.

DISCUSSION

The possible factors for haematoma due to neck trauma are injury to a major vessel (an internal jugular vein, carotid artery) and altered coagulation

profile.³ Increased coagulation time leading to the development of haematoma in any patient usually takes a period of 6-8 hours after blunt injury. A critical point can reach when the soft tissue swelling causes complete airway obstruction and rapid deterioration.³ Early airway management is advocated for patients who have any signs of airway compromise.⁴ The injury can result in development of hematoma, tissue swelling or primary laryngeal damage, causing disruption of the airway making intubation more difficult. Schaefer, in his 27 years review of external laryngeal injuries, advises that any patient with a history of anterior neck trauma should be considered to have an upper airway injury.² The internal laryngotracheal anatomy may be distorted and even unrecognizable due to swelling, compression and shift as occurred in our case.

The European Resuscitation Council stresses the importance of immediate action when airway is at risk. When a definitive airway is indicated, orotracheal intubation is the procedure of choice.^{5,6} A rapid sequence induction is usually performed and intubation should usually be carried out under direct vision, using a small diameter endotracheal tube with cricoid pressure and manual in-line stabilisation.⁷ Keogh reported two cases who were on oral anticoagulant therapy and developed haematoma following minor trauma to neck in whom sudden airway obstruction occurred 6-8 hours after injury, necessitating urgent orotracheal intubation.³

The swelling of soft tissues neck accounted for presenting symptoms of neck tightness and dyspnoea. Intubating the patient with neck trauma may incite gagging or coughing, dislodge a clot and set off massive bleeding from previously injured blood vessel. Repeated attempts at intubation should not be made in such cases as it can lead to glottic oedema and trauma causing enhanced difficulty in intubation.

The alternatives to secure airway in this patient were intubating LMA, blind nasotracheal intubation, tracheostomy and retrograde intubation. Blind intubation is contraindicated in neck trauma because airway may have distorted anatomy and there is potential for causing expansion of existing neck haematoma.⁴ In our patient, tracheostomy was ruled out due to haematoma extending to anterior part of neck causing distorted anatomy. Awake fiberoptic intubation with topical anaesthesia remains a logical, safe alternative in such patients.

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