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Translaryngeal guided intubation in a patient with raised intracranial pressure

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Summary

A 60-year old man with intracranial space occupying lesion, presented with difficulty in intubation at induction of anaesthesia. Several attempts at direct tracheal intubation were made until the airway was finally secured. Though the brain was slack, the tumour could not be located at this operation. He presented for re-operation with worse signs of raised intracranial pressure which may accompany repeated attempts at intubation, a planned translaryngeal guided intubation was employed to secure the airway. Where fibreoptic laryngoscope is unavailable and difficult tracheal intubation is envisaged, translaryngeal guided intubation may save time and reduce morbidity of prolonged and repeated attempts at tracheal intubation.

Résumé

Un nonme agé de 60 ans se présentant d'une espace intracranienne couverte de lésion a eu des difficultés d'intubation à l'induction d'anésthésie. Plusieurs efforts d'intubation directe par le biais de la trachée out été faits jusqu'à ce que le passage de 'lair a été atteint. En dépit de l'absence d'une pression quelcorque, e n' a pas été possible de localiser la tumorr pendant cette intervention chirurugicale.

Pour empecher une hausse de pression intracranienne qui pourrait accompagner une intubation répétée et difficule, nous avons essayé une intubation translaryngite guidée et plannifiée afin d'atteindre le passage de l'air. Dans le cas du il est impossible de procurer du laryngoscope fibreoptique et ou on prévoit une intubation trachéenne difficile, l'intubation translaryngite guidée ferait gagner du temps et réduirait la morbidité due à l'intubation trachéene prolongée et répétée.

Introduction

Difficulty in tracheal intubation, to which several anaesthetic mishaps have been attributed, can be very dangerous to the patient and challenging to

Correspondence: Dr. (Mrs.) S.D. Amanor-Boadu, Department of Anaesthesia, University College Hospital, Ibadan, Nigeria. the anaesthetist. Various methods of intubating the trachea have been described. In a patient with raised intracranial pressure, repeated attempts at tracheal intubation will further increase the intracranial pressure and may cause brain stem herniation.

We describe the translaryngeal guided intubation which offered a good alternative to the fibreoptic laryngoscope which is not available in this hospital.

Case report

The sixty-year old man presented with a 2-month history of headaches, personality change and vomiting. Investigations based on skull x-rays, carotid angiograms and metrizamide ventriculograms suggested an intracerebral space occupying lesion. He was therefore scheduled for excision of the tumour.

At the pre-operative visit, he was found to be in excellent health. He was no longer vomiting and he was on dexamethasone 4mg twice daily. He was however noticed to have a receding lower jaw and short neck indicating possible difficulty in tracheal intubation. Premedication was with diazepam 10mg orally.

Anaesthesia was induced with 300mg of thiopentone, $100\mu g$ of fentanyl. The patient was pretreated with 1.5mg of pancuronium before 80mg of suxamethonium bromide was administered. At laryngoscopy a (grade 3 - 4) difficulty was encountered. Intubation was attempted several times using incremental doses of this pentone and suxamethonium. Volatile agents were avoided. Intubation was eventually achieved after about 65 minutes of induction. To reduce the subsequent, inevitable rise in intracranial pressure, the patient was hyperventilated and intravenous mannitol was started.

At surgery the brain was slack and the tumour was sought. The tumour however could not be located and the brain was therefore closed up. The residual effect of pancuronium was reversed at the conclusion of the closure, adequate return of reflexes was ensured and the patient was extubated. There were no post-operative complications apart from sore throat and hoarseness.

The patient presented again three months later with gross and worsening signs of a raised intracranial pressure. A repeat of carotid angiograms and ventriculograms indicated a pituitary tumour. Active brain decompression with steroids and mannitol was started but the patient remained drowsy but rousable. He was scheduled again for a repeat craniotomy. Bearing in mind the difficulty in tracheal intubation experienced at previous surgery transtracheal guided intubation was planned.

After placement of monitors at induction, the trachea was anaesthetised with 2% lignocaine through a cricothyrotomy injection. The skin of the area was also infiltrated. A small nick was made in the skin and 16G Touhy needle was passed into the trachea with the bevel facing cephalad. An epidural catheter passed through was spat out when the patient felt it in his pharynx. This end was brought out of the mouth and the Touhy needle was removed. Anaesthesia was then induced with thiopentone 300mg, pretreatment was with 1.5mg of pancuronium followed 3 minutes later with 80mg of suxamethonium bromide.

Intubation was achieved easily by directing the tube through the area of emergence of the catheter. Correct placement was ensured and the catheter was withdrawn. Anaesthesia was continued along the principles of neuroanaesthesia. A large craniopharyngioma was excised from the pituitary fossa. The patient was extubated after return of reflexes.

Discussion

Part of the preoccupation of the anaesthetist during neuroanaesthesia is to prevent rises in intracranial pressure. Some anaesthetic drugs, tracheal intubation, poor anaesthetic management are situations which can cause rises in intracranial pressure. During difficult tracheal intubation, the patient gets lighter, strains, coughs, retains carbon dioxide and suffers hypoxia — all these situations further increase an already raised intracranial pressure. When the trachea is difficult to intubate there are clearly laid down steps to follow[1]. Regional anaesthesia may be a wise choice in some cases but for most intracranial procedures the trachea must be intubated.

Attempts at direct crico-tracheal or blind nasotracheal intubation may be continued as during the first craniotomy. This can however precipitate dangerous rises in intracranial pressure, moreso in a patient who already showed signs of raised intracranial pressure.

Fibreoptic laryngoscopy could have helped in rapidly intubating the larynx but this was not available hence the recourse to this modification of Water's[2] technique. The technique was relatively stress-free, easy and rapid to perform. The technique has been described by King[3] in which he recommended the use of Angiocath Stilleth and sheath because the epidural catheter was thought to be too soft.

In the developing countries, the Angiocath device is not readily available. The few epidural catheters available are sterilised and reused and this tends to make them soft. Refrigeration of the catheters however makes them stiff.

Difficulty in tracheal intubation can be very dangerous to the patient and challenging to the anaesthetist. Most difficulties are predictable but some are unexpected. The unexpected difficulty must be prepared for at any induction of anaesthesia. The translaryngeal guided intubation presents another alternative.

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