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Case report

Awake intubation – A viable approach for preventing aspiration in patients undergoing emergency surgery after administration of oral contrast material

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Abstract Pulmonary aspiration of gastric contents during the perioperative period has significant morbidity and mortality. The aspiration may occur immediately before, during or after the actual act of endotracheal intubation. Fasting before elective surgery (nil per os [NPO] after midnight) is based on the historical presumption that the absence of intake of solids and fluids will minimize the gastric fluid volume at the time of induction of anaesthesia, thus decreasing the risk of pulmonary aspiration of the gastric contents. But this fasting is not possible in emergency surgery. The practice of routine administration of OCM for abdominal computed tomography (CT) for abdominal surgeries requiring general anaesthesia or in obtunded patients violates the nothing per os role that is crucial part of anaesthesia and can lead to aspiration causing morbidity and even mortality. Awake intubation may be a suitable alternative in such high risk cases for aspiration.

We encountered a 55 year old male, weighing 60 kg without any previous history of chronic medical or surgical ailment. He was posted for emergency laparotomy because of haemoperitoneum and had been administered oral contrast material (OCM) just half an hour earlier. The contrast used was oral sodium diatrizoate in a concentration of 41.7% available in 30 ml amber coloured bottle after diluting it in 1 l of water.

We were in a fix as there were chances of aspiration of oral contrast, if he was to be intubated under general anaesthesia. Awake nasal fibroptic intubation with local anaesthesia of the airway was planned. Airway assessment revealed Mallampati score III and normal movements of neck & temporomandibular joint. Both the nostrils were patent. Patient was psychologically prepared for awake intubation emphasizing the need for awake intubation. He was premedicated with ranitidine 50 mg, metoclopramide 10 mg, glycopyrrolate 0.2 mg &

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midazolam 1 mg intravenously. Topical nasal vasoconstriction was achieved with 0.1% xylometazoline nasal drops to reduce bleeding. Topical airway anaesthesia was initiated with 4% xylocaine solution in the volume of 4 ml administered through the face mask nebulizer. Both the nostrils were gently lubricated with 2% xylocaine jelly. Tongue & throat were topically anaesthetized with 2 puffs of 10% xylocaine spray. The tip of the fiberoptic bronchoscope with a diameter of 5.2 mm was inserted through the patent nares by the senior anaesthesiologist. After visualization of glottis, 2 ml of 2% xylocaine was sprayed over the vocal cords via the working channel of the fiberscope. Once the fiberscope entered the trachea, the endotracheal tube was advanced over it and after securing the endotracheal tube, general anaesthesia was administered. This prompted us to review the literature in such a situation and to share our experience with others.

Pulmonary aspiration of gastric contents during the perioperative period has significant morbidity and mortality. The aspiration may occur immediately before, during or after the actual act of endotracheal intubation. Fasting before elective surgery (nil per os [NPO] after midnight) is based on the historical presumption that the absence of intake of solids and fluids will minimize the gastric fluid volume at the time of induction of anaesthesia, thus decreasing the risk of pulmonary aspiration of the gastric contents [1]. But this fasting is not possible in emergency surgery. The practice of routine administration of OCM for abdominal computed tomography (CT) for abdominal surgeries requiring general anaesthesia or in obtunded patients violates the nothing per os role that is crucial part of anaesthesia and can lead to aspiration causing morbidity and even mortality [2,3]. Awake intubation may be a suitable alternative in such high risk cases for aspiration [4].

Gastric emptying time is subject to alteration by physiological, pharmacological and pathological conditions and is strongly influenced by both volume and composition of the content of the stomach. The determination of the gastric emptying time is important in many pathological conditions, especially during the preoperative state because of potential pulmonary aspiration of gastric contents [2,3]. In many instances (e.g. acute appendicitis or abdominal trauma requiring surgery), CT with OCM administration precedes general anaesthesia. Pulmonary aspiration of OCM may lead to severe respiratory sequlae and death [5].

Berger-Achituv et al. emphasize and advocate to wait if clinically possible, at least 3 h between completion of OCM ingestion and induction of general anaesthesia. In emergency cases, when general anaesthesia cannot be deferred, particular importance should be given to airway protection [5]. The single most important means of treating aspiration of gastric contents is in its prevention. Preoperative assessment and identification of patients at risk for aspiration allows the anaesthetist to institute preoperative fasting, medication administration and appropriate anaesthetic techniques to minimize the risk of pulmonary aspiration. Pulmonary aspiration is much more in patients under general anaesthesia as compared to neuraxial or regional anaesthesia [4].

In order to avoid aspiration events during induction of anaesthesia and laryngoscopy, placement of a cuffed endotracheal tube is currently the best method for isolating the airway from gastrointestinal tract. In patients at risk for pulmonary aspiration the endotracheal tube may be placed awake or after rapid sequence induction of anaesthesia and application of cricoid pressure. Hazards of a rapid sequence induction include inadequate depth of anaesthesia and inadequate muscle relaxation during laryngoscopy resulting in coughing, regurgitation and vomiting. There are no well controlled clinical trials comparing a rapid sequence induction with an awake intubation of the trachea for their ability to prevent tracheal aspiration. However, Ovassapian et al. in a review of 129 awake oral and 123 nasal fibreoptic intubations in patients considered to be at high risk of aspiration of gastric contents found no evidence of aspiration in any of these patients. Awake intubation may be a better suitable alternative in high risk cases for aspiration [4,6].

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