

Letter to the Editor

To the Editor: Tsujimoto et al.¹ describe a case of pharyngeal perforation following endotracheal intubation at anaesthesia for total knee replacement in a 63 year old with rheumatoid arthritis, who complained incidentally of swallowing disturbance. The hospital record of an anaesthesia 13 years previously for this patient had disclosed that endotracheal intubation had been difficult, and successful only after several attempts. On the subsequent occasion, physical examination included estimation of cervical spine mobility and mouth opening, both of which appeared normal. Direct laryngoscopy was performed pre-operatively under sedation, and suggested that endotracheal intubation seemed feasible.

At elective surgery for total knee replacement (TKR), part of the laryngeal aperture was visualised, but oral intubation of the trachea was unsuccessful despite several attempts with the aid of a stylet, external laryngeal pressure and position change of the head and neck. A nasotracheal approach to intubation was attempted, and eventually a 7 mm cuffed endotracheal tube was inserted.

However, soon after institution of intermittent positive pressure respiration, cyanosis and cervical subcutaneous emphysema developed. Finally ventilation became impossible, requiring removal of the endotracheal tube and an emergency tracheostomy done under mask ventilation, permitting alleviation of the cyanosis. Subsequent examination disclosed laryngeal oedema, but could not corroborate the pharynx as the possible site of tear. In their patient, the authors felt that advance of the tube with force after meeting resistance of the hypo-pharyngeal wall may possibly have contributed to pharyngeal perforation.

In the absence of auscultatory and capnographic evidence that the tube was placed in the trachea, one must consider the possibility that the tip of the tube could have been lying under the pharyngeal mucosa, with the anaesthetic gases delivered submucosally. Early recognition that gas exchange was unsatisfactory, and restitution of a patent airway to permit satisfactory gaseous exchange, ensured the patient survived for transfer to the Intensive Care Unit and further medical treatment.

Although they say that a fibreoptic examination of the larynx and pharynx should have been done in the pre-anaesthetic evaluation of the patient, they give no evidence for this assertion.

Preoperative fibreoptic pharyngo-laryngoscopy is expensive, time consuming, and may require arrangements for the patient to attend on a separate additional occasion. It would add nothing material to pre-operative suspicion of crico-arytenoid arthritis suggested by dysphagia in a patient with rheumatoid arthritis.

An angulated laryngoscope has been described for use in routine and difficult intubation². It reduces the need for, and inconvenience of, many flexible fibreoptic laryngoscopies, and has been life saving in circumstances where the flexible fibrescope would have taken too long. I recently presented a poster³ at the Japan Society of Anesthesiologists Congress in Morioka, evaluating this laryngoscope. In the 27 month evaluation period, this angulated laryngoscope was successful for all of the difficult laryngoscopies which could not be predicted, the majority (6/10) of those which could be predicted, and all of the remaining 33, for each of which the record of examination was insufficient to state whether or not dif-

faculty with the Macintosh could be predicted. It failed in one case because it would not fit, and in 3 cases for logistic reasons (correct size not available or incomplete preparation). Difficult laryngoscopy is suggested by a combination of restricted mouth opening and enlarged tongue as assessed by the Mallampati⁴ method.

Once laryngoscopy is successfully performed, endotracheal intubation may require shaping of the endotracheal tube with a rigid stylet, care that the stylet does not protrude beyond the tip of the tube, experience in intubation, care to avoid the use of force when the tube meets resistance, withdrawal of stylet as soon as the endotracheal tube has entered the larynx, so that the tip of the tube can change direction from pointing anteriorly, to begin pointing down the trachea, and finally use of a sufficiently small tube to enter the larynx of the patient who may be suffering from crico-arytenoid arthritis.

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In Reply: Although our patient had typical signs of pharyngeal perforation following endotracheal intubation, a definitive diagnosis was not made¹. If a radiographic study using water soluble contrast media had been done immediately after the injury, a leakage of dye from the site of tear into the superior mediastinum would have become evident.

Laryngeal and pharyngeal involvements have been recognized in 26% of patients with rheumatoid arthritis². Cricothyroid arthritis is usually suspected from symptoms including

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Footnote

The angulated laryngoscope is supplied in Japan by ITC Ltd., Kinyo kanda Building, 1 Kanda-Tomiyamacho, Chiyoda-Ku, Tokyo 101 Japan, Telephone 03 254-7061.

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hoarseness, stridor, dysphagia, pain on swallowing, dyspnea, and pain radiating to the ears. Clinically it is diagnosed by direct or indirect laryngoscopy, whereupon the arytenoid mucosa may appear red and edematous or thick, rough, and irregular³. As our patient had complained of dysphagia in recent years, cricoarytenoid involvement due to RA cannot be excluded. If so, her cricoarytenoid tissue may have weakened and contributed to pharyngeal perforation. Therefore we should have done more precise examination of the pharynx and the larynx of the pa-

tient by using indirect laryngoscope or fiberoptic laryngoscope preoperatively.

Bellhouse recommends to use an angulated straight-blade laryngoscope for routine and difficult tracheal intubation in stead of a flexible fiberoptic laryngoscope⁴. We have no experience of using an angulated laryngoscope, so we have no comment about it. We appreciate Bellhouse's useful comment.

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