An Unusual Complication of Esophageal Obturator Airway (EOA)

PAUL E. BERKEBILE, M.D.,* AND RAJNI NARLA, M.D.†

The esophageal obturator airway (EOA) is recognized as part of emergency airway treatment, especially by paramedical personnel outside the hospital. Improved utilization of the EOA may result in trauma to the soft tissues of the airway or esophagus. Improper oxygenation has occurred secondary to the airway being located in the trachea instead of the esophagus. Decreased ventilation has been reported with the EOA and its mask as compared with using an anesthesia mask and oropharyngeal airway.

We describe an unusual airway complication during the use of an EOA resulting in gastric placement of the device and difficulty with ventilation secondary to soft tissue obstruction.

REPORT OF A CASE

A 75-year-old man was admitted to the emergency department of the hospital with the diagnosis of cardiac arrest at home approximately 40 min prior to admission. Cardiopulmonary resuscitation (CPR) was started at home prior to the arrival of the paramedics. The diagnosis of ventricular fibrillation was followed by ventilation and insertion of an EOA with CPR being continued. Drugs and defibrillation were administered via radio command.

The ventilation was reported difficult due to poor face seals with the standard EOA mask. Therefore, a bag/mask unit of conventional type was applied over the EOA providing a better seal with the patient's face. Upon arrival at the emergency department, the paramedic reported increased difficulty in ventilating the patient. An endotracheal tube was inserted without difficulty. The EOA was not observed except for the pilot tube, which protruded from the hypopharynx. Ventilation of the lungs was accomplished successfully, as evidenced by bilateral breath sounds by auscultation.

A roentgenogram was obtained, and the tip of the endotracheal tube was in an appropriate position above the carina and within the trachea. The EOA was noticed with the tip located in the stomach below the diaphragm (fig. 1). The upper limit of the EOA was noted to be somewhere in the area immediately behind the larynx with the proximal end curving into the soft tissues on the left side of the esophagus and pharynx. The pilot tube was visible at the corner of the mouth, although the main body of the EOA was not visualized with the aid of a laryngoscope.

DISCUSSION

The esophageal obturator airway has become an accepted part of airway management for paramedics throughout the United States. When used properly, it provides occlusion of the esophagus as well as access to the pharynx for ventilation. The esophageal occlusion is accomplished by a blind-ended tube with inflatable cuff which is inserted into the esophagus and the cuff inflated. A specially designed face mask is attached to the upper portion of the tube and latches into position over the esophageal obturator, preventing descent of the tube during ventilation.

Since the mask has a rigid plastic form with an inflatable plastic rim, effective seals with the face as nec-
 necessary for adequate positive pressure ventilation frequently are difficult. In order to bypass this problem, some field personnel tend to place conventional malleable masks over the obturator airway to accomplish adequate ventilation. The reasoning has been that the EOA will remain in the esophagus and continue to provide protection against gastric aspiration, while the portion of the obturator in the pharynx will act as a conventional oropharyngeal airway, providing access of oxygen and ventilation to the trachea and lungs.

In our case, the EOA slipped further into the stomach during cardiac massage, making ventilation difficult secondary to the proximal end of the tube slipping below the tongue into the area of the larynx and upper esophagus. This resulted in upper airway obstruction secondary to tongue and soft tissue occlusion.

An additional complication of distal displacement of the EOA is regurgitation of gastric contents. This potential develops when the cuff leaves the esophagus and slips into the stomach. This negates one of the two functions of the EOA, namely, prevention of regurgitation of gastric contents by balloon obstruction of the esophagus.

The EOA is intended as a temporary airway adjunct until endotracheal intubation can be accomplished. Inappropriate use or injudicious removal of the EOA may result in airway obstruction, gastric aspiration, and the attendant hypoxia and hypoventilation. The complication reported here resulted from an attempt to modify the EOA/mask unit. This complication previously has been reported in a case report of another patient following a gunshot wound to the head. All hospital personnel should be aware of the possibility of this complication and all users of EOAs of the hazard of modifications of the obturator airway from the manufacturer's intended use.

REFERENCES

1. McIntyre, KM: Standards and guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiac care (ECC). JAMA 244:480–481, 1980