DIAGNOSTIC AND THERAPEUTIC TECHNIQUES IN THORACIC MEDICINE

Oral Introduction of the Flexible Bronchoscope

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The versatility of the flexible bronchoscope (FB) has resulted in the use of several methods for its introduction. A method is described for the oral introduction of the FB after oral intubation using the FB as a guide for insertion of a flexible oral endotracheal tube, a procedure that has been performed in more than 2,500 patients without known complications.

The flexible bronchoscope (FB) has achieved wide acceptance as a diagnostic and therapeutic tool in various pulmonary disorders.1-8 Both the transnasal and oral approaches have been advocated, and the techniques for introducing the FB have varied widely.

The FB can be passed through an oral endotracheal tube inserted with a laryngoscope.4 In the seated patient, the endotracheal tube also can be inserted with the aid of a laryngeal mirror for indirect visualization of the larynx.5,6 Obviously, the FB can be passed under direct vision through the mouth without use of an endotracheal tube. The transnasal passage seems to be the most frequently used method of introducing the FB directly through the nasal passage7 or through a previously placed nasopharyngeal airway.2,8,9 Some endoscopists have found that passing the FB through a rigid bronchoscope is a useful procedure when conventional open bronchoscopy gives a negative result and a more detailed inspection of the peripheral airways is desirable. The FB can be passed through oral or nasal endotracheal tubes or through tracheostomy tubes in patients who require assisted ventilation.10,11 We have used all these methods for introducing the FB. However, for routine examinations, we prefer to introduce the FB orally after oral intubation, using the FB as a guide for the insertion of a flexible endotracheal tube.

METHOD

Premedication with meperidine and atropine is given within one hour before the start of the examination.

Local anesthesia of the oropharynx and supraglottic area is achieved by the use of a topical anesthesia (Cetacaine) spray. Under observation via laryngeal mirror, approximately 5 ml of 4 percent lidocaine are instilled in 1-ml increments through the vocal cords into the trachea.

The tip of the FB is lubricated with lidocaine jelly. A Rusch or Foregger flexible wire-spiral oral endotracheal tube is prepositioned over the FB (Fig 1). (The key to the ease of introducing the FB by this method will be the use of an extremely flexible wire-spiral endotracheal tube.) An endotracheal tube with an internal diameter of 7 to 9 mm can be used. The FB is then passed by direct vision through the mouth and vocal cords into the trachea (Fig 2). Gentle traction on the tongue by the patient or an assistant and slight extension of the head often will be helpful during this part of the procedure. With the tip of the FB in the midtrachea, the endotracheal tube is passed, by using a gentle twisting motion, over the FB, through the vocal cords (Fig 3). Lubrication of the FB with lidocaine jelly permits the endotracheal tube to pass easily over the FB into the trachea. Gentle rotation of the endotracheal tube facilitates its passage past the epiglottis and through the vocal cords. After intubation is completed, a bite block can be inserted to prevent

FIGURE 1. Wire-spiral endotracheal tube demonstrating its flexibility. Tube is placed over flexible bronchoscope before it is inserted through mouth and larynx into the trachea.
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Figure 2. Flexible oral endotracheal tube is prepositioned over flexible bronchoscope and tip of bronchoscope is passed into trachea.

Damage of the FB, and the endotracheal tube can be secured in place with tape. The FB can then be inserted and removed as often as required during the bronchoscopy without additional discomfort for the patient (Fig 4).

DISCUSSION

In routine bronchoscopic examinations, the oral introduction of the FB in the manner that we have described offers several advantages over other approaches. The technique of intubation using the FB as a guide can be learned easily and may require less time than intubation by indirect vision with the laryngeal mirror. This technique of intubation can be used in patients who require oral intubation for general anesthesia or who have facial or cervical spine abnormalities that make oral intubation in the customary manner hazardous, extremely difficult, or impossible. It is also better accepted by awake patients than is conventional oral intubation using the laryngoscope. Local anesthetics can be applied if necessary through the lumen of the FB.

Once the endotracheal tube is secured in place, anesthetic gases, supplemental oxygen, or assisted ventilation may be given. The FB can be introduced and withdrawn repeatedly with little risk of producing more irritation or trauma of the upper airway. This capability is especially helpful in the presence of frank bleeding or thick secretions that necessitate cleansing of the lens of the FB or removal of an inspissated mucous plug. When repeated brushings or biopsy specimens are required, the FB can be removed readily and the brushes or tissue specimens can be taken from the distal end of the FB. The risk of dislodging material, as occurs when the brush is withdrawn through the lumen of the FB, is reduced.

Oral intubation spares the patient the discomfort of the transnasal approach, which is an important consideration if repeated passage of the FB is necessary. Some patients express discomfort when the FB is passed through the nose, whether it is introduced...
the tip of the flexible bronchoscope and obscure the physician’s vision. Local anesthetics, when applied orally, are better accepted by patients than when applied transnasally. A method for applying local anesthesia to the mouth, throat, and upper airway that is well accepted by patients has been designed. This method employs an intermittent positive-pressure respirator with an ultrasonic nebulizer in-line to generate an aerosol of lidocaine.

Patient acceptance of the orally inserted flexible endotracheal tube has been excellent. We are unaware of any complications resulting from this method of intubation for flexible bronchoscopy in more than 2,500 examinations.

REFERENCES
8 Sackner MA, Landa JF: Bronchofiberscopy: to intubate or not to intubate (editorial) Chest 63:302, 1973
11 Shinnick JP, Johnston RF, Oslick T: Bronchoscopy during mechanical ventilation using the fiberscope. Chest 65:613-615, 1974
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FIGURE 4. Endotracheal tube is secured in place by use of tape. This permits easy removal and reintroduction of bronchoscope. Physician may work from either side of the patient as shown in Figure 2, or above the patient’s head, as shown in Figure 4.

directly or through a previously positioned nasopharyngeal airway, because of the small size of the nasal passage, deviation of the nasal septum, or the presence of nasal disease. When the FB is passed directly through the nose, thick secretions may cover