Health problem addressed

Devices that are introduced at the nose or mouth to observe distal branches of the bronchi. Through working channels in the bronchoscope, the physician can sample lung tissue (e.g., when pulmonary malignancies are suspected), instill radiographic media for bronchographic studies, perform laser therapy, remove foreign objects, suction sputum for microbiological culturing, insert catheters, and perform difficult intubations.

Product description

These devices consist of a proximal housing, a flexible insertion tube ranging from 0.5 to 7.0 mm in diameter, and an “umbilical cord” connecting the light source and the proximal housing. The proximal housing, which is designed to be held in one hand, typically includes the eyepiece (fiberoptic models only), controls for distal tip (bending section) angulation and suction, and the working channel port.

Principles of operation

The bronchoscope (either flexible or rigid) is inserted into the airways, usually through the mouth or nose. Sometimes the bronchoscope is inserted via a tracheostomy. Rigid bronchoscopes are used for the removal of foreign bodies while flexible video bronchoscopes are intended to provide images of a patient’s airways and lungs. Images provided by the bronchoscope can be focused by adjusting the ocular on the scope’s proximal housing. A video bronchoscope uses a charge-coupled device (CCD) located at the distal tip of the scope to sense and transmit images, replacing the image guide and eyepiece. These images can then be recorded, printed, stored on digital media, or transmitted to another location for simultaneous viewing.

Operating steps

If a rigid bronchoscope is used, the patient will require anesthesia before insertion into the airway via either the mouth or nose. For procedures using flexible bronchoscopes, the patient’s throat will be numbed and the tube is then inserted into the airway via either the mouth or nose. Video bronchoscopes are also inserted via the mouth or nose, but have the benefit of permitting the physician to see the patient’s airways on an external monitor, rather than through an eyepiece.

Reported problems

Despite the remote location of the light source, some of the heat produced by the lamp is transmitted to the tip of the bronchoscope. Bronchospasms and abnormal heartbeats may occur in patients with respiratory or cardiac disorders. Bronchial perforations can occur if biopsy brushes or other instruments are forced out of the bronchoscope’s distal end and meet resistance. Other complications may include loss of biopsy brushes, or breakage of biopsy forceps.