Fiberoptic Bronchoscopy

Fiberoptic bronchoscopy is done when it is important to see the airways or to get samples of mucus or tissue from the lungs. Bronchoscopy involves placing a thin tube-like instrument through the nose or mouth and down into the lungs. The tube is able to carry pictures back to a video screen or camera.

Common reasons for its use and benefits:

- **Recurrent or persistent lung collapse (called atelectasis)** - The collapse of a lung or part of a lung over and over again is usually caused by something blocking the airway. This blockage could be caused by a foreign body, such as a peanut, tumor, or thick mucus. These types of blockages can sometimes be seen with the bronchoscope. The bronchoscope can be used to remove some foreign bodies (like a peanut for example) and mucus, and in this way help to open up the lung.

- **Bleeding** - When a patient has coughed up blood, the bronchoscope can be used to find out the cause of the bleeding in the lung. For example, if a tumor is causing the bleeding, the bronchoscope can identify the tumor as the cause, and biopsies (pieces to be analyzed in the laboratory) can be taken through the bronchoscope.

- **Lung spot** - A new spot showing up on a lung x-ray may be caused by a cancer and the bronchoscope can be used to identify a tumor and take biopsies (biopsies are small pieces of tissue that are analyzed in the laboratory).

- **Infections** - The cause of certain infections (like tuberculosis, AIDS-related pneumonias, pneumonia following organ transplantation) is best figured out by getting mucus directly from the airways. When a serious infection is suspected, bronchoscopy is performed to obtain mucus from a particular area of the lung. These samples can be examined in a laboratory and cultures done to try to find out the exact cause of the infection. Bronchoscopy can be used to find the bacteria causing pneumonias in patients who are on mechanical ventilators.

Risks:

Some of the risks of bronchoscopy include:

- **Discomfort and Coughing** - While the bronchoscope is passed through the nose, throat and breathing tubes, it may cause some discomfort. It may also tickle the airways leading to cough. Doctors try to reduce this discomfort and coughing with local anesthetics. To decrease these discomforts, medications are sometimes given to relax patients or make them sleepy.

- **Lung Leak or Collapse** - The airway may be damaged by the bronchoscope, particularly if the lung is already very inflamed or diseased. If the lung is punctured, it may cause an air leak (called a pneumothorax). The air leaks around the lungs and can cause the lung to collapse. This complication is not common, but it is more likely if a biopsy is taken during bronchoscopy. An air leak (pneumothorax) usually requires timely diagnosis and treatment with placement of a needle or tube through the chest wall between the ribs to drain air from around the punctured lung (see Information Sheets on Thoracentesis and Chest Tube Thoracostomy).

- **Reduced oxygen** - The level of oxygen in the blood may fall for several reasons during bronchoscopy. The bronchoscope may block the flow of air into the airway. Often during

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bronchoscopy, small amounts of liquid are injected into the lung to "wash" out the lung and/or to make it easier to see through the bronchoscope. Fluid that is left behind after bronchoscopy can cause the level of oxygen in the blood to fall. This usually goes away fairly quickly on its own. The ICU staff check continuously the level of oxygen during bronchoscopy. If the oxygen level is dropping, the doctor gives extra oxygen to the patient or stops the bronchoscopy to allow for recovery.

• Bleeding - Bleeding can occur after a biopsy is obtained or if the bronchoscope injures a tumor in the airways. Bleeding is more likely if the airway is already inflammed or damaged by disease. Usually bleeding is minor and stops on its own. Sometimes a medication can be given through the bronchoscope to stop bleeding. Rarely, bleeding can lead to severe breathing problems or death.