

Bronchoscopy

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Bronchoscopy

IS the edoscopic examination and treatment of the tracheobronchial tree from the larynx to the orifice of the segmental bronchi by means of the bronchoscope used as a speculum.

The risk of bronchoscopic examination is essentially the risk of anaesthesia. Since many believe that topical anaesthesia with cocaine, pontocaine or anathene are less hazardous than general anaesthesia, most bronchoscopies are performed under topical anaesthesia. When general anaesthesia is used, it is desirable to employ topical anaesthesia to diminish the cough reflexes, hence, the risk of anaesthesia is increased. Reactions to topical anaesthetics are almost invariably of the allergic type, occurring but once in many hundreds of cases, but when they occur they are disastrous and often fatal.

The discomfort of bronchoscopy is not great when skilfully performed upon a patient, who has received proper preoperative sedation. It is never necessary to restrain the subject and frequently it is possible to complete the examination with scarcely a cough.

Indications for Bronchoscopy

1. Direct inspection of pathologic changes in the living bronchi.
2. To identify and localize accurately if there is a lesion of the tracheobronchial passages.
3. Tuberculosis ulceration of the tracheobronchial tree and strictures of tuberculosis origin.
4. Bronchial cancers can be seen and biopsied through the bronchoscope.
5. The aspiration of secretion and lavage of bronchi for the purpose of obtaining material for

microscopic and cultural studies.

6. It may be extremely important to know the precise origin of sputum productive or of pulmonary haemorrhage.

7. Removal of specific types of foreign bodies from the tracheobronchial tree.

8. Treatment by direct application of chemotherapeutic agents to accurately localized foci of disease.

9. Aid given to the Thoracic Surgeon.

10. Reduction of incidence of post-operative pulmonary complication by pre-operative and post-operative laryngoscopic aspiration in cases of prolonged operations.

11. Accurate determination of the residual functional capacity of extensively diseased lung.

12. Improvement of drainage by (a) dilation of structure or (b) removal of obstructive tissues such as granulomas or Benign tumors.

Contraindication to Bronchoscopy

Persons with disease of the cervical vertebrae which restricts hyper-extension of the neck.

Persons with prominent upper teeth, receding lower jaw or anomolus of the oropharynx.

Patients with short neck.

Aortic aneurysm which may be injured seriously.

Active and severe pulmonary haemorrhage.

Organisation of Bronchoscopic room

Bronchoscopic operation room is a matter of vital importance. It should be immediately available at any hour of the day or night, and

proper organisation may make all the difference between life and death, for instant action as a fire-engine house. Moreover apart from emergencies, in the daily work unnecessary prolongation of endoscopy, generally means lack of organisation and is inexcusable. Every member of the personnel must know his station and everything the bronchoscopist needs must be same. There are two fundamental rules, (1) All equipment must be in duplicate (2) Every piece of equipment should be closely inspected and tested before and after use. The personnel should be trained to work in silence. If anything need be said to the patient, it should be spoken in a low calm tone by the bronchoscopist. The operating room should be somewhat darkened, any lighting should not be at the operator's back.

Operating Room Equipment

1. Endoscopic Table.
2. Oxygen Tank.
3. Spectacles.
4. Triple circuit battery.
5. Electric cable.
6. Syringe Tray.
7. Stimulant drugs such as Coramine, Caffeine Sod Benzoate.
8. Sod-pentothol amples (This is an antidote for anaesthetic drug reactions).
9. Bite blocks.
10. Tongue holding forceps.

Technique of Bronchoscopy

The bronchoscopist is exposed to definite risk of contagion when dealing with communicable diseases, such as tuberculosis.

This can be reduced by the wearing of an adequate face mask and eye glasses and by the use of rubber gloves.

Strictly aseptic technique is not practised by most bronchoscopists, although great care is used to prevent any possibility of contagion from one patient to another. The bronchoscopes, although originally sterile becomes contaminated when passed through the oral cavity of the patient.

Thoughtful consideration for the patients' comfort materially adds to the thoroughness of the procedure. Pre-operative sedation designed to yield maximum relaxation and minimum production of saliva and mucus is important.

Preparation of patient for Bronchoscopy

No food nor fluids are injected during the eight hours prior to bronchoscopy.

Dentures are removed and remaining teeth are well brushed before the patient comes to the operation room.

Nembutal $1\frac{1}{2}$ gr. at H.S. to give good night's rest and repeated in the morning one and half hours before the bronchoscopy.

Morphine sulphate $1/6$ gr. or $1/8$ gr. according to doctor's orders to be given to reduce metabolic rate and psychic sedation. This is given half an hour before bronchoscopy. Injection Atropine sulphate $1/150$ gr. given sub-

cutaneously to check the mucus secretions.

Patient is sent to the operation room.

Anaesthetic unit draped and set up with sterile equipment

Fig. 1. (below) (1) Kidney tray (2) Long right angle punch forceps. (3) Gauze wipes and cotton balls. (4) Two ounce glasses for Anathaine or cocaine. (5) 2 c.c. B.D. Syringe with a long curved nozzle (6) Laryngeal mirror. (7) Spirit lamp and match box.

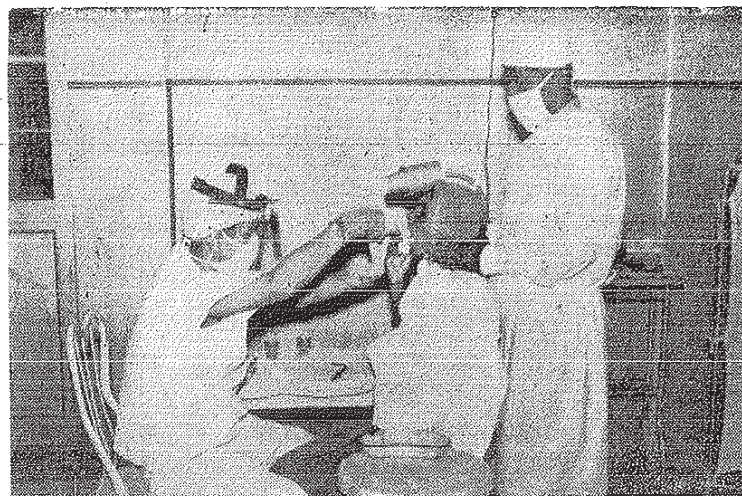
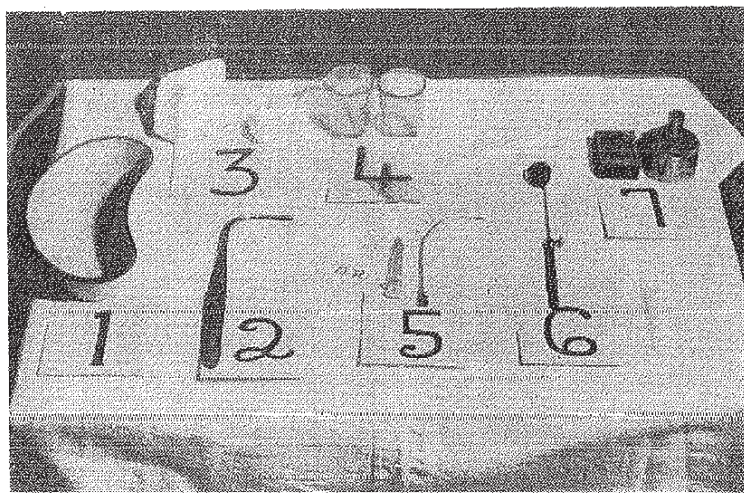


Fig. 2. (above) shows the doctor anaesthetizing the patient, and the nurse holding the patient's head.

The doctor anaesthetises patient by spraying and swabbing with anathaine 1% solution producing partial anaesthesia of the fuccal mucosa and the pharynx.

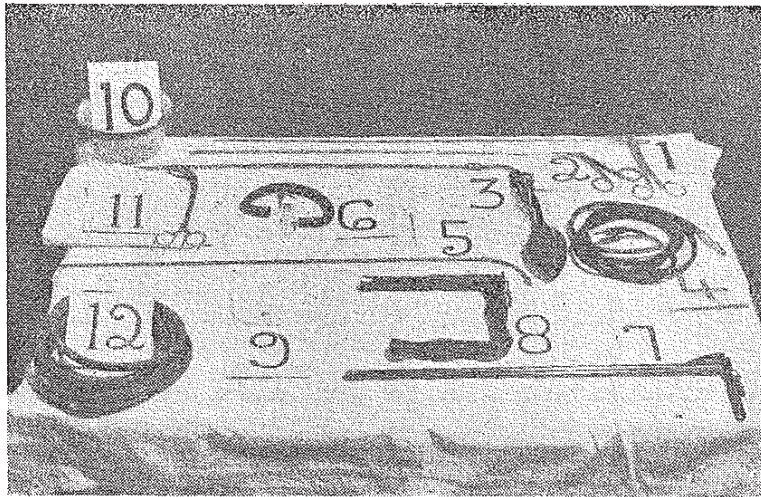
Anaesthesia is now adequate to permit through indirect laryngoscopy with the laryngeal mirror and good illumination anathaine 2% solution with syringe and long nozzle injected through the anaesthetized glottis into the trachea. This produces sharp sudden cough initially.

Fig. 3. (next page) shows the bronchoscopy instruments

(1) Foreign body forceps. (2) Biopsy forceps (3) Bronchoscopic atomizer. (4) Light cable. (5) Aspirating tube (6) Specimen collector. (7) Bronchoscope. (8) Laryngoscope. (9) Gauze pieces. (10) Bowl of sterile water (11) Head cover and the clip. (12) Suction tubing.

Fig. 4. (next page) shows how the bronchoscopy is done.

(1) Wheel stool (2) Foot switch for the suction. (3) Suction apparatus. (4) Container with anti-septic lotion. (5) Face masks.



The patient is placed in a recumbent position on the table and bronchoscopy is carried out. The Bronchoscopist is sitting on wheel stool which can easily be moved to any direction during the procedure. He is wearing a face mask to protect himself from the secretions.

One person is holding the head of the patient to change the positions according to the need of the Bronchoscopist.

Another person holding the patient to prevent from moving too much during the procedure.

The nurse is holding the aspirator ready for use; when it is needed, the nurse will switch on the suction with foot. If cough is troublesome, additional 2% anathaine solution is sprayed with the atomizer.

After finishing the bronchoscopy the used instruments are put into the anti-septic solution containers before they are sterilized.

After-care in cases of Bronchoscopy

After bronchoscopy, especially if it is prolonged beyond advisable limits of time, as some time is done in a foreign body case, the child should be put to bed in a quiet room.

The nurse or mother may be present but should not talk. Give

the patient time to rest and recuperate.

Secretions must be aspirated if necessary and plenty of water must be given to prevent dehydration.

All foreign body patients, especially children, should be watched day and night by special nurses until all danger or complications are passed.

Children under two years of age sometimes develop sub-glottic edema and become cyanotic, particularly in cases of foreign body. Such patients should not

be left unwatched and should never be given a sedative.

In many cases post-operative use of the oxygen tent will be helpful.

If respiratory distress is not completely relieved, tracheostomy should be promptly resorted to.

The nurse can aspirate as often as may be necessary with a soft rubber catheter passed through the outer cannula.

Adults usually do not require any special care after bronchoscopy, patients usually are not inclined to take any food for some time. Whether or not the patients should be specially instructed not to eat or drink for at least two hours, as there is a danger of aspirating food into the bronchus. When the effect of anaesthetic fades away and the cough reflex returns, it is safe to allow the patients to take food.

For children and infants special care must be taken because these patients are usually bronchoscoped under general Anaesthesia.

There is always a danger of developing edema of glottis for those children in whom bronchoscopy is prolonged e.g. in the removal of foreign bodies. Small babies may develop tracheitis

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