Introduction to indigenous technique of pleuroscopy

Thoracoscope, video-assisted thoracoscopes, and semi-rigid versions are recent advances in the medical world offering complete solutions to pleural problems. However, it is an additional cost to practicing chest physician. Fiber-optic bronchoscope too, alone or with available conduits, was used for the diagnosis of pleural diseases in the past.[1] However, the technique is not universally accepted due to many inherent deficiencies.

We have designed, developed, and used new set of medical-grade metallic steel conduits (Patent Application No. 1066/MUM/2012 published on December 14, 2012, and Application No. 1400/MUM/2012 published on November 16, 2012) to overcome all these deficiencies, reduce the cost, and modify the procedures to suit our country.

The physical aspects of conduits, safety and precise methods of passage of fiber-optic bronchoscope, and possible adverse effects on patients, all were studied carefully. Animal experiments were inevitable to assess any unwanted trauma to lungs. Some modifications in angulations, edges, and surfaces were necessary. When we were satisfied about safety to both animal and fiber optic bronchoscope (FOB), we tried in patients.

In short, this set consists of (1) straight simple conduit – for drainage of pleural contents, (2) curved simple conduit – for study of small radius parietal pleura, (3) parietal introducer without window – for larger area of parietal pleura, (4) parietal introducer conduit with window – for parietal pleura and various maneuvers, (5) parietal retractor conduit – for retracting lung and adhesiolysis, and (6) visceral conduit – for study of visceral pleura. Additional provisions such as beveled end, specific windows, and indicator for direction in situ are made. Detachable handles are provided for convenience of surgeon. Figure 1 shows the set of indigenous pleuroscopy conduits.

Usual thoracostomy is a point of access for the first straight conduit to drain all the pleural contents. Then, the conduits are passed in serial order one after another. FOB
is passed through the conduit, and systematic inspection of complete pleural cavity is done. Procedures such as biopsy, adhesiolysis, debridement, and inter costal drains (ICD) manipulations can be done. There are various provisions such as guide for repeated and precise approach to the same point, in vitro orientation of structures, double puncture for adhesiolysis, and atomizer for pleurodesis. Thus, this technique enables a physician not only to diagnostic work but also therapeutic as well.[2]

We have also made provisions such as airway tube which indicates direction of bevel in vivo, an insufflations balloon so that physician may increase the size of pneumothorax, and more advanced interventions can be done in the future.

Special procedures done are ICD manipulations, explorations of multiple loculi through one stoma, explorations of lung cavity through big bronchopleural fistula, retrieval of foreign body, superficial visceral debridement, and adhesiolysis.

Complications are mostly related to medications such as drowsiness or rarely chest wall bleeds and pain. With reductions in outer diameter, pain is not a feature.

Thus, with this technique, a physician can obtain diagnostic as well as therapeutic goals even in rural remote areas safely, economically, and effectively.

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Conflicts of interest
There are no conflicts of interest.

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