value in the treatment of DIP. Our observation may indeed suggest a possible viral contribution to the development of DIP in this case.

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Transthecal Oxygen to Produce Cough

To the Editor:

The use of a transthecal catheter for the treatment of postoperative

pulmonary complications,1 as well as for the oxygenation of patients with chronic lung disease,2 is well described. The catheter, inserted through the cricothyroid membrane, has been used for the instillation of fluids and mucolytic agents so that tracheobronchial secretions may be more easily drained. In addition, the transthecal route may be used for ventilation by insufflation.3 We wish to report the use of transthecal oxygen insufflation as a means to produce cough in debilitated, nonintubated patients.

The procedure is performed under aseptic conditions, with the patient's neck extended. The cricothyroid membrane is punctured with a No. 14 Bard Intracath needle attached to a syringe. Free aspiration of air indicates that the tip of the needle is in the trachea. The syringe is disconnected and the polyethylene catheter introduced through a needle, which is caudally pointed. The needle is then withdrawn, the plastic guard applied and the catheter secured to the skin with suture or tape. A high flow of oxygen is insufflated through the catheter by attaching the oxygen tube to the end of the catheter for 1 to 2 seconds. These short bursts of oxygen produce cough while the chest is being expanded with oxygen. Satisfactory cough or adequate expansion of the chest are signs for the operator to detach the oxygen tube from the catheter. This procedure can be repeated hourly, with the catheter remaining in place for several days.

We have used this method in 38 patients ranging in age from 32 to 84 years who had either chronic obstructive pulmonary disease, abdominal or thoracic surgery, or remained stuporous following initial extubation after head injury. All patients lacked spontaneous cough and necessitated frequent deep suctioning. The decision to introduce the transthecal catheter was made only in patients in whom there was hope that they would be able to manage without an artificial airway.

All patients reacted to oxygen insufflation by deep, persistent cough, even when previous insillation of saline solution into the trachea had failed to induce cough. Of these 38 patients, none had eventually undergone tracheostomy following reintubation due to severe pneumonia or neurologic deterioration.

The catheter had to be removed in two patients due to either severe persistent cough or because it was inserted in a cephalad direction and had passed the vocal cords. There was no incident of bleeding, subcutaneous emphysema, pneumothorax or bronchospasm.

The classic procedure of endotracheal suctioning in ICU is done with a catheter repeatedly introduced through the vocal cords. These "blind" repeated procedures may cause trauma to the vocal cords, as well as unwarranted response to stress. In addition, the

![Figure 1: Transthecal catheter in place.](image-url)
Another Unusual Position For Pulmonary Artery Catheter

To the Editor:

Since the introduction of flow-directed, balloon-tipped pulmonary artery catheters, several reports have described aberrant final position but, to our knowledge, no report has described its placement in the splanchnic circulation.

CASE REPORT

A 40-year-old man was admitted to our unit with multiple trauma. Initially, a triple lumen catheter was placed in the left internal jugular vein for fluid resuscitation. Twenty-four hours later, the patient developed ARDS and a Swan-Ganz catheter was inserted with a guide wire, exchanging the triple lumen catheter for an introducer sheath. During catheter advancement, recorded waveforms were compatible with right atrial, ventricular and pulmonary artery and pulmonary occluded pressures.

Post-insertion chest x-ray examination showed that the Swan-Ganz catheter had taken an unusual route through the diaphragm into a renal or other major abdominal vein.

DISCUSSION

Previous reports described various malpositioned Swan-Ganz catheters, but, to our knowledge, placement of the Swan-Ganz catheter through the left superior intercostal and hemizygous vein to abdominal vasculature has not been reported.

In normal circumstances, the catheter's balloon functions as a sail to flow-direct the catheter tip through the SVC into RA and ultimately into pulmonary artery. However, any kink or distortion of the introducer, as in this case, may direct the catheter into an aberrant position. This case also emphasizes the value of obtaining a chest x-ray film for position confirmation. In a recent report, Conce et al. suggest that, since incidence of complications following central line placement is very low, routine post-insertion chest roentgenogram should be avoided. As our case shows, even if PA catheter is placed in an existing site via guide wire technique, the cardiopulmonary profile and therapeutic decisions must be postponed until correct catheter position is confirmed by chest x-ray examination.

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