CORRESPONDENCE

haemoptysis led us to suspect the possibility of a tracheal rupture. He had also sustained a forearm fracture and a closed eye injury.

He was prepared for theatre urgently. A fibreoptic bronchoscope was passed orally under diazepam sedation and topical lignocaine spray and the tracheal tear was easily visualized 2 cm above the carina. A Portex endotracheal tube (7 mm) was passed over the bronchoscope into the left main bronchus and anaesthesia was induced using thiopentone and suxamethonium. The tracheal tear was sutured, with surgical access through a right thoracotomy. When the repair was complete the tube was pulled back into the trachea above the injury. Since testing at the end of the operation showed the repair to be airtight up to pressures of 60 cm H₂O, neuromuscular blockade was reversed and the trachea extubated immediately. After 12 h in the ITU he was discharged to the ward where he made an uneventful recovery and was discharged home on the 10th day.

Swelling of the neck as a result of surgical emphysema often makes estimation of the exact level of the rupture extremely difficult and it may occur at any point in the tracheobronchial tree, and the site of the rupture can affect management dramatically. Ruptures occurring in the lower trachea are approached via a right thoracotomy (Olson and Johnson, 1971; Urschel and Razzuk, 1973). For safe anaesthesia in these circumstances it is necessary to pass the cuff of the endotracheal tube past the rupture to allow intermittent positive pressure ventilation once the chest is opened. This can only be done with certainty by railroading the tube over the bronchoscope under direct vision. This technique should also minimize the possibility of failed intubation because of obstruction was caused by the disrupted trachea, as happened in the reported case.

If the diagnosis of tracheal rupture is suspected, bronchoscopy before intubation should be mandatory in order to assess correct management. This may be performed either before anaesthesia or following an inhalation induction.

Sir,—We would like to thank Dr Prince for showing a keen interest in our clinical report. Before commenting on the alternative method, we would like to clarify his misinterpretation of the anaesthetic management. In the discussion we have stressed the problem of intubation and admitted "intubation of the trachea would have been uneventful, had we refrained from manipulating the endotracheal tube to overcome the resistance." In the concluding paragraph we emphasized the danger of "manipulation of the endotracheal tube in order to overcome the resistance". His mention of "failed intubation" was never encountered during the anaesthetic management.

Anaesthesia is an ever changing specialty, as a result of introduction of new technology. We agree with the suggested alternative technique of Dr Prince—the use of fibreoptic bronchoscope for visualization of the tracheal tear and rail-reading of the endotracheal tube. However, this method of intubation requires the availability of suitable equipment. Although the method described by Dr Prince is useful in the hands of an expert, coughing has to be carefully avoided during bronchoscopy as it may lead to exacerbation of air leak through the tracheal tear, resulting in pneumothorax or pneumomediastinum.

Furthermore, only a few centres in the developing world possess the fibreoptic bronchoscope. In such situations the technique described in our article is safe and simple.

H. H. DASH
G. R. GODE
New Delhi

REFERENCE

SELECTIVE CONTRALATERAL BRONCHIAL INTUBATION IN CHILDREN WITH PNEUMOTHORAX OR BRONCHOPLEURAL FISTULA

Sir.—In their paper Baraka, Dajani and Maktabi (1983) have described in detail the management of anaesthesia in two children. One child had a tension pneumothorax on the left side, following rupture of a lung abscess. The preoperative x-ray clearly shows a tension pneumothorax on the left side, with depression of the left dome of diaphragm, a horizontal fluid level at the base, and very marked deviation of the mediastinum to the right. The mediastinal deviation to the right is so marked that the whole of the cardiac shadow is on the right side of midline.

The second child had empyema on the right side, following lobar pneumonia. The preoperative x-ray shows a horizontal fluid level on the right side of the chest with a slight shift of mediastinum to the left. With a horizontal fluid level the diagnosis in this patient is also a pneumothorax on right side with empyema.

In both these patients, the broncho-pleural communication is beyond suspicion, and in both there is a fluid level at the base. Tension pneumothorax is the main factor in the first patient, while highly infected empyema fluid with a communication with the tracheo-bronchial tree is the main feature in the second patient.

The authors have described the management of both patients, the main features of which can be summarized as follows:
(1) Supine position for induction.
(2) Pre-oxygenation.
(3) Induction with thiopentone and suxamethonium followed by apnoea.
(4) Endobronchial intubation.

After establishing, or even after suspecting, the existence of tension pneumothorax, I feel that the management described by the authors was not only not correct, but positively fraught with danger.

Before any induction of anaesthesia, it was absolutely essential to introduce an indwelling underwater drain to the first patient, under topical analgesia with the patient sitting up and not supine. The relief of the tension pneumothorax with correction of the shift of the mediastinum was the only way to restore the patient’s respiratory and circulatory status. Induction, as described, could have resulted in increasing the tension pneumothorax, and sudden cardiovascular collapse.

In the second patient there was a real danger, before endobronchial intubation of the contralateral side, of producing a tension pneumothorax and of soiling the healthy lung, unless an
underwater drain (preferably two tubes, one for the air and the other for the empyema fluid at the base) was inserted. A major spill over onto the healthy side did occur, as shown by the postoperative x-ray of the second patient.

Whatever the merits of the endobronchial intubation, it seems to me that, in the two patients mentioned, the management as described was inappropriate and, if repeated, the next patient may not be so lucky.

It should be emphasized that presence of pneumothorax and pneumoathorax with empyema makes it absolutely mandatory to put in underwater drains under topical analgesia, before any intubation, endobronchial or otherwise, is undertaken.

Y. G. BHOIRAJ
Bombay

REFERENCE

Sir,—Thank you for referring the letter of Dr Bhojraj concerning our report "Selective Contralateral Bronchial Intubation in Children with Pneumothorax or Bronchopleural Fistula". I agree with Dr Bhojraj that the merits of bronchial intubation should not deviate us from the proper anaesthetic management of such patients. As a matter of fact, the aim of our publication was to describe the technique of selective contralateral bronchial intubation in children having empyema or pneumothorax, and to report that massive transbronchial spread of empyema can occur despite selective bronchial intubation.

Also, I agree with Dr Bhojraj that preoperative underwater seal drainage under local anaesthesia is advisable in patients with pneumothorax or empyema. This is our practice in adults. However, general anaesthesia may be advised in children. In the paediatric age group, we recommended in our report the induction of general anaesthesia with a head-up tilt, while the child was breathing spontaneously an inhalation anaesthetic, or by using a ‘crash’ induction of anaesthesia as described in our report. In all cases of empyema or tension pneumothorax, we must presume the presence of a bronchopleural fistula and controlled ventilation should be commenced only after ensuring contralateral bronchial intubation.

A. BARAKA
Barut

EXTRADURAL DROPERIDOL POTENTIATES EXTRADURAL OPIOIDS
Sir,—The extradural administration of opioids has been effective in the treatment of pain. Nevertheless, especially in the case of terminal cancer, supplementary medication may be necessary.

It has been demonstrated that parenterally administered opioids may be potentiated by means of dopamine receptor blocking agents, such as neuroleptics (Tulunay, Ischiro and Takemori, 1976). Furthermore, a descending and an independent dopaminergic system has been discovered (Hokfelt, Phillipson and Goldstein, 1979; Karoum et al., 1980). In 1980, Kim and Stoelting showed that the simultaneous instillation of morphine and droperidol in rats prolonged the mean duration of action of morphine alone by approximately 40%. Neuroleptic agents may increase the analgesic effect of opioids by impairing the dopaminergic impulses at a segmental level of the spinal cord.

Inspired by this study, we attempted instillation of droperidol in order to potentiate extradural opiates in two patients suffering from intractable chronic pain from malignant disease. We chose droperidol on account of the previous results, the suitable concentration, identical pH values when compared with morphine, and the lack of preservatives in the solution.

In one patient, a 60-year-old female with cancer of the urinary bladder, the mean daily dose of extradural opioid had been increased from morphine 18 mg to a total of morphine 30 mg, without producing adequate analgesia. Supplementary medication with extradural droperidol 2.5 mg before the instillation of the morphine twice daily produced satisfactory analgesia. The patient experienced a minor degree of sedation, which she easily accepted. The dose of morphine remained constant for more than 2 months. The other patient, a 70-year-old female with terminal breast cancer, was treated with extradural buprenorphine 0.6 mg three times daily. Adequate analgesia was not achieved until droperidol 2.5 mg was added twice a day previous to instillation of the opioid. No unwanted side effects were observed and the dose of buprenorphine remained constant until the patient died 1 month later.

We find our results promising. Droperidol has been combined with pure agonistic as well as partial antagonistic opioids (buprenorphine), and in both cases with success.

Extradural neuroleptics may be beneficial when patients suffer from pain which is not eliminated by means of extradural opioids alone.

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REFERENCES