CORRESPONDENCE

RETROGRADE INTUBATION USING THE SUBCRICOID REGION

Sir,—Dr Shantha recommends puncture of the cricotracheal instead of the cricothyroid ligament for retrograde intubation, because he believes that bleeding complications may be avoided and the risks of subglottic oedema and stenosis decreased [1]. However, to our knowledge, these arguments have not yet been substantiated. In the presence of venous stasis, a frequent occurrence with difficult intubation, the incidence of bleeds at the puncture site is probably at least as frequent. Moreover, the subcricoid approach is more difficult or impossible in the obese, in the presence of goitre or cervical haematoma.

In common with Dr Shantha, we recommend the subcricoid route but for the following reasons: it has the greatest success rate with the guide threaded through the Murphy eye; it carries the smallest risk of damage to a vocal cord by the needle or the catheter; and it allows a deeper tracheal penetration of the trachea, thus decreasing the risk of accidental exrubation at catheter removal. These data were obtained during a study by our group published in a French journal of anaesthesia in 1989 [2].

Our study included 77 cadavers of adults who had died less than 4 h previously and were devoid of morphological causes of difficult intubation. They were allocated randomly to four groups depending on the site of puncture (cricothyroid ligament = groups 1 and 2; cricoatracheal ligament = groups 3 and 4) and the mode of catheter insertion (complete tracheal tube lumen catheterization = groups 1 and 3; only Murphy eye catheterization = groups 2 and 4). We used a Tuohy needle (17-gauge) with the corresponding extradural catheter. After the intubating manoeuvre, the airways were dissected and checked for local damage. The results (table I) demonstrated a success rate of 100 % in group 4. This was significantly different from those in other groups. Damage to a vocal cord occurred only with the cricoatracheal route (8 % of cases).

<table>
<thead>
<tr>
<th>Group</th>
<th>Successful intubations</th>
<th>Vocal cord damage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Total</td>
</tr>
<tr>
<td>Group 1</td>
<td>Cricothyroid puncture + ET</td>
<td>17</td>
</tr>
<tr>
<td>Group 2</td>
<td>Cricothyroid puncture + Murphy eye</td>
<td>20</td>
</tr>
<tr>
<td>Group 3</td>
<td>Cricoatracheal puncture + ET</td>
<td>20</td>
</tr>
<tr>
<td>Group 4</td>
<td>Cricoatracheal puncture + Murphy eye</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>54</td>
</tr>
</tbody>
</table>


Sir,—We have been using retrograde methods for almost 25 yr. We have seen almost every complication as reported in the article [1]. Haematoma is not an uncommon complication. There are reports of intratracheal bleeding when this route is used for aspiration, resulting in serious, life-threatening complications [2-5]. Of course, I agree with Dr Lieu and his group that bleeding into the trachea is rare, but haematoma and formation of subcutaneous emphysema, although perhaps unnoticed, are not uncommon.

We did have a case of massive goitre. All methods of intubation, including a fiberoptic bronchoscope, failed; the cricothyroid membrane was exposed by a small incision, enlarged blood vessels on the membrane were tied and a retrograde method was used successfully to intubate, avoiding the necessity for tracheostomy. The subcricoid region is difficult to use if there is a mass goitre.

We had cases of a prolonged change in voice and feeling of soreness after a somewhat traumatic retrograde intubation using the cricothyroid region. This was not the case when the subcricoid region was used.

I am happy to note that cadaver studies do agree with our and other reports of ease of intubating using the subcricoid region [1, 6, 7]. We have used the subcricoid retrograde method for difficult intubations successfully since 1982, with minimal complications [1]. I am sure that the incidence of damage to vocal cords and subglottic oedema may be much greater than 8 % if intubation is performed on live patients using the cricothyroid region. I conclude that, when all other methods to intubate the larynx fail, the subcricoid retrograde method is the best and least complex available.

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VENTILATORY EFFECTS OF LAPAROSCOPY UNDER GENERAL ANAESTHESIA

Sir,—The study by Puri and Singh [1] is well designed and a valuable contribution to our knowledge of respiratory physiology. However, we wish to make the following comments on this subject, as we were involved in previous studies utilizing similar methodology in pregnant subjects [2-4].

The haemodynamic changes during laparoscopy also are important in the interpretation of arterial to end-tidal differences in carbon dioxide tension (P(ETCO2)-P(A)O2) values and the relevant data have not been presented. Studies have shown that laparoscopy may be associated with increases in cardiac output and
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and alveolar deadspaces [2].

Second, in the absence of capnographic recordings, the authors could have estimated the components of physiological deadspace using traditional formulae [4, 7] instead of speculating that anatomical deadspace may have decreased during laparoscopy.

Finally, negative values of (Paco2 - PEO2) have been observed during anaesthesia in pregnant subjects (50%), in infants (50%) and in patients after cardiac bypass surgery (8.1%) [8]. The increased cardiac output and increased carbon dioxide production, reduced FRC and low compliance are factors that have been implicated in the production of negative values. Therefore, one would be interested to know the incidence of negative values, particularly during stage II of Puri and Singh's study where, after insufflation of carbon dioxide into the peritoneum, the subjects may resemble the pregnant in some features, namely reduced FRC, low compliance and increased carbon dioxide production.

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Sir,—Although (Paco2 - PEO2) in individual patients changed at different stages of laparoscopy, there were no overall mean changes in (Paco2 - PEO2) at various stages of laparoscopy studied (indicated in table 1 of our paper [1]). Some of these individual changes in this difference may have resulted from the changes in haemodynamic state produced by increased Pco2 and increase in intrathoracic pressure, but we did not study cardiac output and pulmonary artery pressure measurements as it was not ethically justified to insert a pulmonary artery catheter in a patient for diagnostic laparoscopy.

Regarding the incidence of negative values of (Paco2 - PEO2) there were three of 14 patients (21%) with negative values of (Paco2 - PEO2) at stage I (before insufflation of carbon dioxide) and the number increased to five of 14 (35%) after insufflation (stage II) during laparoscopy, but the trend was not similar in all patients; it decreased in some, while increasing in others.

Finding various fractions of physiological deadspace by the conventional formulae would have been a futile statistical exercise, as the derived values would not represent the anatomical and alveolar deadspaces [2].

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EUROPEAN STANDARDIZATION COMMITTEE ON ANAESTHETIC EQUIPMENT

Sir,—Our publication [1] on fresh gas utilization of eight circle systems was one of the first testing the new European CEN standard. Dr Greenbaum's statement [2] that our reference to the draft document of the CEN/TC215 proposal was not authorized, is incorrect. As stated in the introduction of the proposal, the standard may be quoted with the approval of the Convener of the working group or the Chairman. Approval for our publication was obtained from both before submitting the manuscript (the Chairmanship of the Technical Committee has changed in the meantime).

As already mentioned, our publication describes a testing procedure under well defined circumstances and nothing else. It does not set performance limits. I have no knowledge of any other type testing standard which reliably evaluates the efficiency of anaesthesia systems. It is left to the member states of CEN to accept, alter or omit it completely from the final document.

We consider it as essential that standards are discussed and evaluated by an international readership of various journals before they become accepted standards. In the past, too many standards have been designed in theory only and therefore tend to lack data for their applicability in clinical practice. By testing the standards we would hope, therefore to make a contribution towards avoiding such problems in the future.

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RADIOIMMUNOASSAY TESTS AND ANAPHYLAXIS

Sir,—Dr Fisher's letter [1] has raised doubts about the ability of the commercial paper radioallergosorbent tests (RAST) to categorize correctly patients who have suffered anaphylactic reactions when the commercial test was compared to laboratory methods. The documentation of false negatives with the commercial RAST is an important finding and suggests that diagnostic skin testing [2] also should be performed for appropriate drugs, particular if sera from known RAST-positive patients are not available to validate the commercial test.

Another area of concern is the use of these RAST for screening before anaesthesia [3]. Here, because larger numbers of patients would be tested, the false positive rate, in addition to the false negative rate, would be important [4]. After a fatality in Aberdeen from presumed suxamethonium-induced anaphylaxis, a prospective pilot study was undertaken to ascertain the rate of false positive reactions. Serum from 206 patients presenting for elective surgery were analysed using commercial RAST (Pharmacia) to detect antibodies to thiopeptone, suxamethonium and alcuronium. Eight (3.9%), seven (3.4%) and 20 (9.7%) patients tested positive for these agents, respectively, in this patient sample. None of these patients was reported to have had adverse reactions. Moreover, one patient documented as having increased antibody titre to suxamethonium has undergone several uneventful anaesthetics which included that agent. This finding is in variance with Assem's assertion that "high RAST was always associated with a severe reaction" [5].

If these results are representative, the concerns of Fisher regarding the use of RAST for screening [3] and the conclusions of the Association of Anaesthetists Working Party that "there is no support for routine screening of patients for specific drug antibodies at present" [6], are upheld.

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