A RECORD NUMBER OF ANAESTHETICS?
A Case Report
BY
JANE E. ANWAN

SUMMARY
A 6-year-old female patient was first admitted at the age of 2½ years with complicated measles. One of the long-term complications was a laryngeal web for which 94 (since extended to 101) general anaesthetics were required for procedures such as laryngoscopy, granulectomy, laryngeal dilatations. Halothane was used more frequently than other anaesthetic agents.

In the year 1968 a young girl was a patient in one of our wards almost continually. In the 3½ years that she has been a patient up to the time of preparing this report fifteen anaesthetists have anaesthetized her by various methods for a variety of procedures. It seems that this young patient may hold the record for the number of anaesthetic administrations.

CASE REPORT

History.
A young female born in January 1963 was first admitted into University Teaching Hospital, Ibadan, on June 7, 1965. She was then aged 2½ years. She had been ill for 6 days with fever, cough, measles, diarrhoea and vomiting. She had had convulsions for one day and was by the next day comatose; neck rigidity and positive Kernig's sign were demonstrated.

A diagnosis of meningitis was made. Treatment included intravenous fluid therapy, humidified oxygen, antimalarials, chlorotetracycline and atropine eye ointments, and parenteral antibiotics. She remained comatose for 21 days, after which she made a rapid recovery and was discharged on July 7, 1965.

The summary of the diagnosis during this first inpatient management was as follows: (i) mental deficiency due to measles encephalitis (there was a disagreement about this diagnosis later since the girl always behaved in an intelligent manner); (ii) right panophthalma; (iii) bronchopneumonia; (iv) gastroenteritis; (v) malaria (blood film positive for P. Falciparum). Heaf and Mantoux tests were negative and her haemoglobin was of genotype AA.

On October 29, 1965, she was readmitted for enucleation of her right eye but was found to be "hoarse and almost aphonk". Consultation with an ear, nose and throat surgeon was arranged. The mother then gave a history that the child had been hoarse since her first admission in June. It was thought that the child might have a laryngeal papilloma and laryngoscopy under general anaesthesia was arranged.

On November 26, 1965, laryngoscopy was performed under general anaesthesia without intubation and the child was found to have what looked like "a classical laryngeal web of congenital origin". The surgeon had previously seen acquired webs following smallpox but those were never so symmetrical and other scars could be seen in the larynx of those cases. It was just possible that this web may have been formed from an enanthematic measles lesion.

In view of the child's size and the fact that lesions of this type tend to re-form, it was advised that operation be postponed for a year or two, by which time her greater activity would probably require a larger laryngeal airway. It was suggested that a tracheostomy be done for the purpose of anaesthetizing the patient for the enucleation, since an attempt to intubate the larynx might have been catastrophic. In fact the enucleation was not performed until much later and the operations on her larynx were started much earlier than anticipated.

Her first anaesthetic (for laryngoscopy) was on November 26, 1965. On December 22, 1965 (26 days later), a second anaesthetic was given for laryngoscopy and excision of web, this being necessary because of respiratory difficulty. Since then she has been continually in the hospital.

Her anaesthetic and surgical managements were analyzed for the 3-year period November 26, 1965, to November 20, 1968, during which time she had 94 general anaesthetics.

Procedures. By far the commonest procedure was laryngoscopy. Others included granulectomy, laryngeal dilatation, intubation and bronchoscopy (table I; fig. 1).

<table>
<thead>
<tr>
<th>Procedure</th>
<th>No. of times</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laryngoscopy alone</td>
<td>51</td>
</tr>
<tr>
<td>Laryngoscopy and granulectomy</td>
<td>10</td>
</tr>
<tr>
<td>&quot; dilatation</td>
<td>14</td>
</tr>
<tr>
<td>&quot; intubation</td>
<td>10</td>
</tr>
<tr>
<td>&quot; bronchoscopy</td>
<td>3</td>
</tr>
<tr>
<td>Laryngofissure</td>
<td>5</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
</tr>
</tbody>
</table>

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She underwent five operations for laryngofissure and eventually enucleation of the right eye was performed. Her first tracheostomy was carried out on June 19, 1966.

FIG. 1
Patient intubated with Jackson-Rees nasotracheal tube.

Anaesthetic agents. Oxygen was used in all and nitrous oxide in all except one of the anaesthetics. Of other agents halothane was the most commonly used, given either alone or with another agent (table II).

TABLE II

<table>
<thead>
<tr>
<th>With halothane</th>
<th>Halothane and another</th>
<th>Without halothane</th>
<th>Agents not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>10</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

Oxygen was used on all occasions.
Nitrous oxide was used on all except one occasion.

Duration of anaesthesia. This was noted on the records of 67 of the 94 anaesthetics (table III; fig. 2). In 37 instances anaesthesia lasted 16–30 minutes. The shortest anaesthetic lasted 10 minutes and the longest 105 minutes. Total time of exposure to anaesthetics was 37 hours 15 minutes, as obtained from the 67 completed records.

Frequency of anaesthesia. The period of 3 years was divided into 3-month periods to ascertain the stage during treatment when she had been anaesthetized most frequently. The maximum frequency of anaesthetic administration occurred during the 3rd and 6th quarters inclusive after which time there was a gradual fall to monthly visits (fig. 3).

The intervals between anaesthetics were also examined to show the shortest interval and the longest interval between the anaesthetics in each quarter (table IV). The average length of interval between episodes decreased until the 5th quarter and then increased.
**TABLE IV**

<table>
<thead>
<tr>
<th>Quarters</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No.</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>11</td>
<td>11</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Shortest interval (days)</td>
<td>½</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>7</td>
<td>13</td>
<td>14</td>
<td>12</td>
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<tr>
<td>Longest</td>
<td>40</td>
<td>19</td>
<td>35</td>
<td>21</td>
<td>14</td>
<td>16</td>
<td>28</td>
<td>35</td>
<td>19</td>
<td>37</td>
<td>41</td>
<td>28</td>
</tr>
<tr>
<td>Average</td>
<td>11</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>9</td>
<td>13</td>
<td>14</td>
<td>12</td>
<td>26</td>
<td>16</td>
<td>18</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Apart from the sheer number of anaesthetics it is also noteworthy that halothane was used predominantly. Obviously this child does not fall among the unlucky 1 in 100,000 who are "sensitive" to halothane (Rollason, 1964), but it is conceivable that with repetition of anaesthesia on this scale a more toxic agent might have induced some constitutional disorder, in this case perhaps liver dysfunction. For this reason liver function was tested at intervals and, so far, there has been no indication of hepatocellular damage.

Serum glutamic pyruvic transaminase (s.g.p.t.) has been shown to be the most sensitive test for hepatocellular damage (Wroblewski and La Due, 1956). It has even been thought that the s.g.p.t. level can be used as a rough quantitative index of liver damage (Zelman and Wang, 1959) and this was never found to be elevated (normal value 5–25 Cabaud units/ml). Table V shows the results of urine examination. On February 12, 1968 (table VI) the s.g.o.t. was 43 units (normal value 5–35 units/ml). This blood sample was taken 12 days after an operation. S.g.o.t. was always in the upper range of normal in other reports (e.g., table VII) and unrelated to recent operation but s.g.p.t. was never raised. The patient herself remained remarkably bright and cheerful all through her long stay in hospital (fig. 4).

Search of the literature failed to reveal any report of a patient having received anything like the number of anaesthetics given to our patient. One article was found in which 42 episodes of halothane anaesthesia were reported to have been used, probably over a limited period of time (Bolčić-Wikerhauser, 1966). In view of the possible association of halothane with liver necrosis, it was felt to be of interest to report the present case. This child has had numerous anaesthetics and is likely to need more. Halothane has been used repeatedly on her and she has suffered no appreciable ill effect.

**ADDENDUM**

Since the preparation of the material of this report the patient has been anaesthetized on 7 more occasions (between December 18, 1968, and October 8, 1969). Halothane was used for each anaesthetic. Liver function tests were repeated on July 23, 1969 (7 days after an episode of anaesthesia and operation). S.g.o.t. on this occasion was 16 Cabaud units/ml and the s.g.p.t. 8 Cabaud units/ml. Other functions of the liver were also within normal range. The child remained in good general health.

The final summary up to October 8, 1969, therefore is as follows:

- Total number of general anaesthetics: 101
- Number for which duration was recorded: 69
- Total recorded exposure time (min): 2280
- Shortest anaesthetic (min): 10
- Longest anaesthetic (min): 105
- Number of anaesthetics including halothane: 89
- Number of anaesthetics without halothane: 3
- Agents unspecified: 9
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Patient was generally happy and settled in hospital—though camera-shy!

ACKNOWLEDGEMENTS
I thank Professor F. D. Martinson of the Ear, Nose and Throat Department for allowing me to study this case and for all help rendered. Mrs M. Amosu, the Medical Librarian, and her staff went to great trouble to gather the bibliography that I needed and Professor L. M. Beckham, then of the Department of Anaesthesia, University of Ibadan, with great patience, obtained photographs of the patient.

REFERENCES

UN RECORD DANS LE NOMBRE D’ANESTHESIES? DESCRIPTION D’UN CAS

ZUSAMMENFASSUNG

NORFOLK AND NORWICH INSTITUTE FOR MEDICAL EDUCATION

A SYMPOSIUM ON PAEDIATRIC ANAESTHESIA AND INTENSIVE CARE
will be held at Norwich on Saturday, October 24, 1970.

Speakers: Dr T. B. Boulton, Dr J. N. Lunn, Dr D. Gairdner, Dr G. H. Bush and Dr W. J. Glover.

Details from the Secretary, Norfolk and Norwich Institute for Medical Education, Norfolk and Norwich Hospital, Norwich NOR 53A.