ANAESTHETIC ACCIDENT CAUSED BY UNUSUAL LEAKAGE OF ROTAMETER

Sir,—We would like to report two fatal anaesthetic accidents occurring as a result of leakage of gas from the rotameter block of a Boyle's machine. The machine had been serviced recently and was used to anaesthetize a 62-year-old female who had a fracture of the neck of femur. Following induction of anaesthesia with thiopentone, suxamethonium was administered to facilitate endotracheal intubation. Spontaneous ventilation did not return and the patient was found to be cyanosed despite manual ventilation with nominal gas flows of oxygen 2 litre/min and nitrous oxide 5 litre/min. Cardiac arrest occurred, from which the patient did not recover.

Unfortunately, this episode did not arouse suspicion until the following day, when a 13-year-old girl was anaesthetized for an orthopaedic procedure. In this instance, arterial pressure and heart rate remained within normal limits throughout the 45-min duration of the operation. However, during the procedure, four episodes of cyanosis occurred which were treated with oxygen from the emergency source on the anaesthetic machine. After operation, the patient did not recover consciousness and she died 4 days later.

The machine was then examined by a group of anaesthetists, and it was found that with nominal flows of oxygen 2 litre/min and nitrous oxide 5 litre/min, the rate of filling of the reservoir bag was inappropriately slow. Additionally, compression of the reservoir bag produced loss of gas through an indeterminate site. The machine was then examined by engineers of the Indian Oxygen Company and it was found that the top sealing washer of the carbon dioxide rotameter was worn and faulty, producing a leak. This was obviously responsible for producing selective loss of oxygen as shown in figure 1.

To our knowledge, this is the first report of selective loss of oxygen from the top sealing washer of the carbon dioxide rotameter of a Boyle's machine.

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OXYGEN JET VENTILATION DURING BRONCHOGRAPHY IN CHILDREN

Sir,—In infants and small children, bronchography may produce airway obstruction (Atwood, 1965), which may result in serious complications including cardiac arrest. The essential requirements of any anaesthetic technique for bronchography are the provision of a patent airway and adequate oxygenation whilst ensuring the instillation of contrast medium into the respiratory tree. In order to provide successful yet safe bronchography in children, a technique of general anaesthesia similar to that described for bronchoscopic removal of inhaled foreign bodies (Baraka, 1974) has been adopted.

The children are given atropine 0.1 mg/year-of-age before the procedure. Anaesthesia is induced with 1–4 %
halothane in oxygen using a T-piece system. When the
level of anaesthesia is sufficiently deep, the airway is
sprayed with lignocaine 4% and the trachea is intubated
with a double arm adaptor (fig. 1). To maintain oxy-
genation and anaesthesia, the oxygen-halothane mixture is delivered continuously
from the Boyle’s machine by high-pressure tubing to
the site arm of the adaptor at a rate of 5 litre/min.

Interruption of oxygen from the emergency
level of anaesthesia is sufficiently deep, the airway is
adapted to act as an expiratory outlet, to provide an
inlet for instillation of the contrast material and for
suctioning purposes.

Following the removal of sputum and adequate
oxygenation of the child, a catheter is passed through
the unoccluded straight arm of the adaptor and down
the tracheal tube. The child is then placed in the required
position, the contrast medium is instilled via the
catheter and radiographs are obtained. After completion,
as much of the contrast medium as possible is removed
by suction and the lungs are inflated by intermittent
oxygen jet ventilation.

The technique described is simple and safe. It ensures
continuous oxygenation and oxygen jet ventilation
throughout the procedure, while keeping the proximal
end of the tracheal tube unoccluded.

REFERENCES
Atwood, J. M. (1965). Respiratory obstruction during
bronchography. Anesthesiology, 26, 234.

UNUSUAL BEHAVIOUR OF EXTRADURAL ANALGESIA
Sir,—Failures of extradural analgesia are encountered
from time to time in our practice. Unilateral extradural
analgesia, however, is not a common occurrence, and
such a case is reported here.

An 11-year-old male (weight 31 kg and height 142
cm) was admitted to Calcutta National Medical College
Hospital for repair of a left congenital inguinal hernia
which had been detected 4 years earlier. There was no
history of chronic cough, constriction or any other condi-
tion which might increase the intra-abdominal pressure.
Clinical examination and routine laboratory investigations
were normal. The patient was placed in the left lateral
position and an extradural puncture was made at the
L3—4 interspace with an 18-gauge needle, using the loss
of resistance technique with an air-filled syringe. The
initial test injection was 5 ml of lignocaine hydrochloride
solution 1.5%. After 5 min, an additional 15 ml of
lignocaine hydrochloride 1.5% was injected slowly and
frequent aspiration was made to avoid the risk of
subarachnoid or i.v. injection. The patient was then
turned into the prone position with a slight head-down
tilt. Ten minutes after the extradural injection, it was
observed that there was no analgesia on the left side,
probably resulted from an adhesion in the extradural
space following spinal analgesia 2½ yr earlier.

In our case, radiography revealed that the dye spread
to the right side only of the extradural space and not
into the paravertebral space. There was no history of
previous spinal or extradural analgesia and there was
no history of inflammation or infection in the extradural
space. It is suggested that a congenital midline tissue
membrane may be the possible cause of the unilateral
analgesia in our patient.

REFERENCES
Singh, A. (1967). Unilateral epidural analgesia. Anaes-
thesia, 22, 147.