made an otherwise uneventful recovery. The authors are unaware of the previous use of oxidised regenerated cellulose for the control of haemorrhage from 50% of the body surface area, with success.

Gammaglobulin therapy in burn management with a report on the treatment of a 5-year-old burn victim

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This communication reviewed briefly the immunological problems of the burn patient and the frequent complication of septicaemia. Antibiotic therapy alone is not sufficient. There is a case for boosting the patient's natural immunity. Attempts to do so have been reported in the literature over the last 20 years and involve either infusion of exogenous immunoglobulin (IgG) or vaccination. Problems of the former 'passive' therapy largely involve transfusion reactions but this has been solved by enzymatic modification of the native IgG molecule to reduce its antigenicity. One such product, Gamma-Veinine, is available from the Behring Institute, Marburg.

The case report described the successful treatment with Gamma-Veinine of a 5-year-old girl presenting with 22% surface burns from a house fire and who, despite conventional burn therapy, developed septicaemia on the 12th day post-burn.

Thirteen anaesthetics for facial reconstruction in a child

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At the age of 4, a 13-year-old sucked caustic soda pellets resulting in severe circumoral scarring. Many previous attempts at correction had failed.

At 12 years, a myocutaneous flap repair was undertaken. Premedication was with trimeprazine. The anaesthetic technique used was gaseous induction, blind nasal intubation, spontaneous respiration with positive end expired pressure and humidification. Pulse, blood pressure, temperature and blood gases were monitored. The problems of multiple and prolonged anaesthesia, difficult intubation and post-operative management were discussed in detail. It was emphasised that the case was managed in a district general hospital without special paediatric facilities.

Haemostasis and cleft palate surgery

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Previous workers have reported blood loss during

cleft palate surgery to range from 45 ml to 280 ml in children up to 3 years of age (Tempest, 1958; Jennings *et al.*, 1980). It rarely decompensates the patient except perhaps in the small infants. Even in this group, if the basic cardiovascular parameters are monitored and the blood loss carefully measured, it can simply be replaced. However, for the surgeon, operating accurately under a pool of blood in a small mouth can become impossible, making a successful repair difficult. Ideally therefore, even the smallest amount of bleeding should be prevented.

The effect of aspirin taken within 5 days of the operation should not be neglected, as it may contribute towards bleeding due to platelet dysfunction. Anaesthetic techniques range from spontaneous breathing with halothane and/or ether, to artificial ventilation. Some authorities believe that this has some bearing on the blood loss. Surgeons infiltrate the palate to produce a form of blunt dissection with hydrostatic pressure which also will produce some haemostasis. The use of vasoactive solutions will also cause local vasoconstriction. Halothane is an ideal agent for this type of surgery, but the production of dysrhythmias when adrenaline is also used is well known. Katz (1968) recommended that the maximum dose in any 10-min period was 1.4 µg/kg. More recently Wallbank (1970) and Karl (1981) reported the safe use in children of 1.5–5.8 µg/kg and 0.4–15.7 µg/kg respectively. The avoidance of hypercarbia is essential as it is important in the interaction between adrenaline and halothane.

A study is being conducted currently to discover whether the use of vasoactive solutions applied topically to the palate can reduce the blood loss in cleft palate surgery. The patients are induced with thiopentone, paralysed and ventilated to ensure hyperoxia and hypocapnia, anaesthesia being maintained with nitrous oxide, halothane (0.5% maximum) and papaveretum (0.1–0.3 mg/kg, i.m.). Gauze is soaked with approximately 0.1 ml Moffat's solution (cocaine 30 mg/ml and adrenaline 250 µg/ml). This is then applied to the soft and hard palate, being held in place with an airway, and ribbon gauze is packed into the nose. The dose being applied topically is 300 µg/kg cocaine and 25 µg/kg adrenaline. The palate is also infiltrated by the surgeon with a lignocaine (0.5%) and adrenaline (1 in 200000) solution. Losses are measured by collecting blood from the sucker, tubing and swabs by a washing technique. The early results from this on-going study indicate that 6 patients, with a mean weight of 7.4 kg, had a mean blood loss of 24 ml. The volume of lignocaine and adrenaline solution used was 2 ml in 5 patients and 1.5 ml in the 6th. There was no evidence of either cerebral or cardiovascular complications.

References

- JENNINGS, F.O., DELANEY, E.J. & PRENDIVILLE, J.B. (1980) Ether-cyclopropane anaesthesia for the primary repair of cleft lip and palate. *British Journal of Plastic Surgery*, **33**, 301.
- KARL, H.W., SWEDLOW, D.B., LEE, K.W. & DOWNES, J.J. (1981) Epinephrine-halothane interactions in children. *Anesthesiology*, **55**, A336.
- KATZ, R.L. & EPSTEIN, R.A. (1968) The interaction of anesthetic agents and anesthetic drugs to produce cardiac arrhythmias. *Anesthesiology*, **29**, 763.
- TEMPEST, M.N. (1958) Some observations on blood loss in hare-lip and cleft palate surgery. *British Journal of Plastic Surgery*, **11**, 34.
- WALLBANK, W.A. (1970) Cardiac effects of halothane and adrenaline in hare-lip and cleft-palate surgery. *British Journal of Anaesthesia*, **42**, 548.

Difficult tracheal intubation; improvements in trans-laryngeal guide wire techniques

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Many solutions have been proposed for achieving tracheal intubation in patients with anatomical abnormalities which preclude the conventional use of a laryngoscope. The use of a guide passed in a retrograde direction into the mouth via the larynx (Waters, 1963) or trachea (Ramsay and Salyer, 1981) has proved useful by allowing the tracheal tube to be guided over the guide from the mouth or nose into the larynx. Greater control is achieved by the use of a relatively rigid wire (Ramsay and Salyer, 1981; Roberts, 1981; McLean, 1982) but passage of the tube into the trachea is impeded by the guide protruding

through the skin of the neck. If the guide is removed the risk of displacing the tracheal tube as it is advanced is increased.

The risk of losing control of the direction of advancement of the tracheal tube is reduced by passing a second spring-ended flexible guide wire down the tube, past the wire introduced through the neck, and into the trachea before withdrawing the wire from the neck. A further modification of the technique involves using a long suction catheter passed down the advancing tracheal tube through which breath sounds can be heard, oxygen can be supplied and suction can be applied. These techniques were used in 2 cases of hemifacial microsomia.

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References

- MCCLEAN, A. (1982) Guided blind oral intubation. *Anaesthesia*, **37**, 605.
- RAMSAY, M.A.E. & SALYER, K.E. (1981) The management of a child with a major airway abnormality. *Plastic and Reconstructive Surgery*, **67**, 668.
- ROBERTS, K.W. (1981) New use for Swan-Ganz introducer. *Anesthesia and Analgesia*, **60**, 67.
- WATERS, D.J. (1963) Guided blind endotracheal intubation in patients with deformities of the upper airway. *Anaesthesia*, **18**, 18.

The following papers were also read at the meeting:

Neuromuscular blockade in the burned child: F. WHAN, F.F.A.R.C.S.

Anaesthesia for burned children—10 years on: E. VIVORI, F.F.A.R.C.S.

Induced hypotension for plastic surgery—a review: P. TATHAM, F.F.A.R.C.S.