

possible benefits regarding cardiovascular and respiratory complications. Spinal anesthesia has been recommended as an alternative to general anesthesia for high-risk infants who undergo herniotomy and has been associated with minimal respiratory and hemodynamic changes during this procedure (6,7).

Dohi *et al.* (8) studied hemodynamic stability during spinal anesthesia in young children and premature infants and found little or no change in BP or HR in response to sympathectomy.

It was postulated that the lack of hemodynamic changes was due to the immaturity of the sympathetic nervous system in young children. The lesser relative blood volume of the lower extremities compared with adult proportions may account for less lower extremity venous pooling during sympathectomy and thus fewer cardiovascular changes (6,9). Spinal anesthesia was carried out with administering 4.25 mg of 0.5% bupivacaine. The choice of hyperbaric bupivacaine was suggested by the study of Kokki *et al.* (10). The dose of 0.8 mg·kg⁻¹ administered to our patient is in the range suggested by Frawley *et al.* (11).

Our practice is in agreement with other authors, particularly for high-risk neonates. So, we consider the choice of spinal anesthesia for a high-risk child affected by Williams syndrome as good practice to minimize the risk of sudden perioperative death.

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Intraoperative anaphylaxis with a complicated pulmonary hydatid cyst

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SIR—The incidence of intraoperative anaphylaxis with hydatid cyst has been reported to be as low as 0.2–3.3% (1) and is usually associated with rupture of the hydatid cyst and spillage of its highly antigenic contents into the body cavities or systemic circulation. However, anaphylaxis without apparent cyst rupture can occur in patients with complicated hydatid cyst of the lung as occurred in our patient.

A 13-year-old ASA grade I female child, 30 kg presented with dry cough and scanty hemoptysis. A chest X-ray revealed two well-defined opacities in the left upper zone and right lower zone and CT scan confirmed findings of heterogeneous enhancing cystic masses measuring 36 × 36 mm in the left apicoposterior and 74 × 56 mm in the right posterior lung segments with minimal pleural thickening suggestive of hydatid cysts. Abdominal ultrasound ruled out hydatid cysts elsewhere.

As hydatid serology was positive (1:1458 titer) she was started on albendazole 400 mg twice daily. Six months later she coughed out white slimy pieces and albendazole was continued.

Three months later she developed continuous cough accompanied with mild fever and decrease in appetite. There were rhonchi in the left lung apex and creps in the right lung base. Repeat chest X-ray showed a homogeneous opacity in right lower zone with obliteration of the right costophrenic angle (pleural effusion), the left upper zone opacity was not visible. She was scheduled for right posterolateral thoracotomy and hydatid cyst removal.

Pretreatment with sabutamol inhaler and antihistaminics was done on the night prior and morning of surgery and she was fasted overnight.

On the morning of surgery there was no bronchospasm. She was premedicated (midazolam and fentanyl IV) and

an epidural catheter was inserted. Following standard monitoring, induction (propofol, fentanyl, vecuronium) and intubation with a 6.5-mm cuffed PVC tracheal tube (TT) were uneventful. Ventilation was with 50% O₂:N₂O and isoflurane. Postintubation, invasive blood pressure and central venous pressure were monitored. The patient was positioned in the left lateral position, air entry was bilateral and the blood pressure was 90/64 mmHg. After the chest was opened, the pleural fluid aspirated and the pericyst (the lung tissue surrounding the hydatid cyst) incised, the intact ectocyst was seen. A leak was apparent in the ascending bellows of the ventilator necessitating an increase in fresh gas flow. Suddenly, the patient desaturated from 98% to 88% despite ventilation with 100% oxygen (O₂). No secretions or cystic material were found blocking the TT on suctioning. The cyst was removed intact without rupture or obvious bronchial leak. The SpO₂ fell to 65% and rhonchi were heard in the left lung apex. An arterial blood gas showed severe hypoxemia [PaO₂ 6.3 kPa (48.3 mmHg), PaCO₂ 4.8 kPa (37.3 mmHg), pH 7.2, serum bicarbonate 15 mmol·l⁻¹ and SpO₂ 75% with an alveolar-arterial gradient of 6.6 kPa (51 mmHg)]. The blood pressure fell to 76/40 mmHg and further to 46/24 mmHg. A bolus of 200 µg IV adrenaline with hydrocortisone and pheniramine maleate was administered. The SpO₂ improved slowly to 95–96% on 100% O₂. Infusions of epinephrine at 1 µg·min⁻¹ and dopamine at 10 µg·kg⁻¹·min⁻¹ were started and IV fluids rapidly infused. The blood pressure increased to 110/70 mmHg.

The patient was electively ventilated for 24 h. The following day she was extubated and the epinephrine infusion weaned off. She was discharged home 1 week later.

Pulmonary hydatidosis is commoner in children than adults (2,3). Patients with intact pulmonary hydatid cysts are discovered incidentally or present with cough, dyspnoea and chest pain. A complicated hydatid cyst is defined as a cyst that has ruptured into a bronchus or pleural cavity (3). These patients in addition give history of expectoration of cystic contents, repetitive hemoptysis, productive sputum, and fever as was seen in our patient.

Medical management of pulmonary hydatidosis with albendazole is the preferred treatment in children because they can have repeated hydatidosis (2).

Ayles *et al.* (4) recommend praziquantel instead of albendazole in adults with pulmonary hydatid cysts as albendazole can disrupt the germinal membrane causing cyst collapse in the lungs where there are constant pressure changes during breathing. Most (63%) patients for surgery after albendazole treatment were found to have live scolices.

Spontaneous anaphylaxis in unanesthetized patients has been reported following minimal abdominal trauma (5), because of communications between the hepatic cyst, minor bile ducts and blood vessels (6) or to intravascular spread of the cyst contents resulting in a fatal anaphylactic

reaction (7). Sola *et al.* (1) report intraoperative anaphylaxis while aspirating hydatid cyst fluid without spillage of cyst contents. However, there are no reports of spontaneous anaphylaxis occurring in a patient under anesthesia prior to cyst handling as seen in our patient.

The right-sided hydatid cyst did not respond to albendazole as the intact endocyst sent for parasitological examination postoperatively had live scolices and daughter cysts. The left apical cyst might have developed a communication with a bronchus, i.e. become a complicated hydatid cyst. Erosion of blood vessels and expectoration of cyst contents can thus be explained. The patient might have become sensitized to the hydatid cyst fluid at this time. The bronchospasm and cough in the pre-operative period may have been a manifestation of an anaphylactic reaction. Resensitization from systemic absorption of even minimal cyst fluid through blood vessels or microscopic bronchial connections during intermittent positive pressure ventilation from either cyst could have precipitated the anaphylaxis in our patient.

For a complicated cyst a double lumen tube is preferable as cyst contents can leak through a bronchial communication blocking a single lumen TT.

Therefore, children with a history suggestive of complicated cysts should undergo early surgery. Albendazole may decrease cyst size but may not necessarily kill all live scolices. As anaphylaxis can occur without obvious cyst rupture or spillage, vigilant monitoring and aggressive perioperative management of patients with complicated hydatid cysts is required to ensure a favorable outcome.

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Transillumination for vascular access: old concept, new technology

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SIR—The use of transillumination for achieving vascular access is an old concept which was described back in the 1970s (1). Although it is a very useful technique, especially in the pediatric population, it has not gained significant popularity (2). This may be largely due to the unavailable and costly cold light source that is required.

Previously published literature reports the use of a cold light source with a fiberoptic cable (3). The disadvantage of this type of light source is the lack of availability in patient care areas of the hospital where vascular access is typically acquired. Fiberoptics are generally expensive, can be bulky to handle and quite difficult to carry on oneself. They may also require an AC power source, and therefore, have the potential for thermal or electrical injury to the patient (4). A light source >200 W may pose a similar risk.

The Vein Locator-Universal (VL-U; Sharn Anesthesia Inc., Tampa, FL, USA) is a new light source utilizing red light emitting diode (LED) bulbs for its illumination (Figure 1). This convenient gadget provides light intensity,



Figure 1
The Vein Locator-Universal transillumination device and method of use.

portability and cost effectiveness. The red LED is believed to transilluminate venous vasculature better than white light. During its development, it was found that white light passed through filters limiting the light to the 610–660 nm range of wavelengths was as effective as the full spectrum white light but resulted in much less heating of the tissues. Because LEDs produce light in narrow wavelength band, it was felt that LEDs with a wavelength of 625–635 nm would be effective. To be useful, the light had to meet the criteria of being transmissible through hand tissue, visible to the human eye, absorbed by hemoglobin, and of a wavelength available from ultra-bright LEDs. Those in the 620–660 nm range meet these criteria and were thus chosen for the device.

The VL-U is small and portable, measuring 7 cm × 4 cm × 3.5 cm ($2\frac{3}{4}$ " × $1\frac{1}{2}$ " × $1\frac{1}{4}$ ") in size and weighing approximately 67 g (2.4 oz.), and comes with a convenient belt clip. Veins can be easily identified using this disposable vein locator with a battery life running about 80 h under typical use. A single VL-U may be purchased for approximately US\$40. This cost can easily be justified if a few minutes of operating room time can be saved by decreasing the time for successful achievement of difficult venous access. In most instances, it reduces the number of venous access attempts which can be especially beneficial in pediatric or awake patients by decreasing the pain and trauma typically associated with repeated venous access attempts.

The Wee Sight™ Transilluminator (Respironics® Inc., Murrysville, PA, USA) is a similar product that is also available. It is similar in size and weight, however, it does not come provided with a belt clip attachment. The Wee Sight™ is nondisposable, utilizes a replaceable battery and may be purchased for approximately US\$85. Both the VL-U and Wee Sight™ products come with three LED bulbs and are equally efficacious.

The cost effectiveness, safety, portability and convenience of these LED transilluminator devices make it the ideal tool to have readily available in patient care areas.

The author does not have any financial interests in either transilluminator or their companies.

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