anaesthetist. A recent study has shown that epistaxis occurred significantly more frequently (44.4%) when the left nostril was used for nasotracheal tracheal intubation compared with the right nostril (11.1%). We agree that fibreoptic examination of the nasal pathways could be the surest way to confirm the most patent nostril. However, this is time consuming, needs more equipment, and carries the risk of trauma if done by an untrained person.

**Conflict of interest**

None declared.

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**Phasing out epidural analgesia for knee arthroplasty**

Editor—I was interested in the article comparing intra-articular infiltration with i.v. and epidural analgesia for total knee arthroplasty, which is widely regarded as one of the most painful orthopaedic procedures. In Figure 3, the authors present the mean visual analogue scale scores during knee flexion with each mode of analgesia. Epidurals can provide fantastic pain relief; however, they carry well-known serious risks and prevent adequate postoperative mobilization. However, it is interesting to note that the lowest pain scores are still found with epidural initially and on discharge, all patients’ pain scores (despite the mode of analgesia) seem to plateau to a range of 40–60, which is still disappointingly high.

It would be interesting to know if the authors followed the patients after discharge, arguably a more critical period. Have they used different agents/doses for the intra-articular infiltrate? This paper provides a very exciting alternative to epidural analgesia for this subset of patients.

**Conflict of interest**

None declared.

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**Reply from the authors**

Editor—we thank Dr Pushpanathan for her comments. We did a follow-up examination 6 weeks and 3 months after discharge. Moreover, we questioned all patients about 1 yr after surgery with the KOOS score. Results of these follow-up examinations have not yet been analysed.

Regarding the use of different agents/doses, we are currently designing a study comparing local infiltration analgesia (LIA) bolus doses with continuous intra-articular infusion.

**Conflict of interest**

None declared.

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**Coagulopathy during intraoperative cell salvage in a patient with major obstetric haemorrhage**

Editor—we would like to describe our experience of early detection and management of intraoperative coagulopathy during major obstetric haemorrhage where intraoperative cell salvage (IOCS) was used.

The patient (ASA I) had a Caesarean section under general anaesthesia complicated by intrapartum haemorrhage after delivery due to uterine atony. Bleeding continued despite prompt administration of oxycotinos (oxytocin 5 IU bolus followed by 10 IU h⁻¹ infusion, ergometrine 500 μg and carboprost 250 μg, 8 doses) in addition to bimanual uterine compression. After the first 2 doses of carboprost failed to achieve satisfactory uterine tone, IOCS was commenced. A B-Lynch suture was placed
after this, and uterine contraction was achieved. Transfusion of cross-matched blood was started when bedside haemoglobin (Hb) photometer (Hemocue®) showed Hb of 7.2 g dl⁻¹. However, rapid pooling of blood from the closed uterine wound and oozing from bladder base contributed to continued blood loss. This clinical evidence of coagulopathy was confirmed by a coagulation screen—activated partial thromboplastin time (APTT) of 52 s (normal range 24–35 s), prothrombin time (PT) 17 s (normal range 10–14 s), and platelet count 98×10⁹ litre⁻¹. Fibrinogen level was within normal limits, and Hb 4.7 g dl⁻¹. Tranexamic acid (2 doses, 1 g each) and calcium chloride (10 mmol) were administered, followed by transfusion of blood products (fresh-frozen plasma and cryo.precipitate) as per the advice of the haematologists. Platelets were requested, but were not immediately available. Arterial pH was within normal limits (>7.35). Total intraoperative blood loss amounted to 10 litre. Using the IOCS technique, 2200 ml blood was recovered. The patient was transfused with 2 litre of crystalloids, 3 litre of colloids, 9 units of packed red cells, 8 units of fresh-frozen plasma, and 2 units of cryo.precipitate in addition to the blood returned from cell salvage. Eventually, haemostasis was achieved. At that time, the patient’s Hb was 10.5 g dl⁻¹, platelets 60×10⁹ litre⁻¹, PT 12 s, and APTT 29 s. The patient was transferred to the ICU for monitoring, where two units of platelets were transfused. She was ventilated overnight and eventually made an excellent recovery.

In the setting of an obstetric haemorrhage, IOCS has now been endorsed by the National Institute for Health and Clinical Excellence, Obstetric Anaesthetists Association, Association of Anaesthetists of Great Britain and Ireland and in the CEMACH.¹ The amount of blood obtained by the IOCS system varies in different studies. A three-centre comparative study found that the median volume of re-infused blood was 250–450 ml per patient.² In another case series of 46 patients undergoing Caesarean section, the median volume (range) of blood returned was 390 (200–800) ml.³ The volume of re-infused blood (2200 ml) in our patient is significantly higher, and helped to decrease the requirement of allogenic transfusion and thereby avoid its hazards.

The management of our case with appropriate volume resuscitation and IOCS was complicated by the onset of coagulopathy. The coagulopathy in our patient may have been caused by a combination of a number of factors present. However, it is not possible to establish or refute any association with the use of IOCS. Coagulopathy is a potential complication associated with cell salvage, especially in large volume re-transfusion, as the washing process removes platelets and clotting factors, leaving only the red cells re-suspended in normal saline.¹ It has been postulated that platelets and leucocytes can be activated during the cell-concentration phase of blood salvage if there has been substantial prior dilution of the salvaged blood with saline and reinfusion of such blood can result in intravascular damage and inflammation, giving a disseminated intravascular coagulation-like picture.⁴ There is also the theoretical concern regarding amniotic fluid embolus (AFE) in obstetrics, but it has been demonstrated that the use of Haemonetics Cell Saver 5 combined with the Leucocyte Depletion filter (as was in our case) effectively removes all elements of amniotic fluid and hence prevent coagulopathy secondary to AFE.⁴,⁵ A recent review suggests that there have been at least 250 cases reported to date where salvaged blood has been returned to women during Caesarean section with a presumptive diagnosis of AFE in only one patient.⁶

Whatever be the cause of intraoperative coagulopathy, prompt detection and timely intervention remain the keys to survival as we have demonstrated in our case. Widespread availability of near-patient thromboelastographic (TEG) or rotational thromboelastometric (ROTEM) measurements may provide a unique perspective on early detection of intraoperative coagulopathy and also predict individual transfusion requirements in major haemorrhage.⁷ ⁸

Conflict of interest
None declared.

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