Update in
Anaesthesia

CASE REPORT

A percutaneous method for blood salvage in ruptured ectopic pregnancy: experience from a Médecins Sans Frontières hospital in Ivory Coast

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SUMMARY
A simple percutaneous closed system for peritoneal blood salvage is presented that may provide more sterility and be more immediately available than traditional methods. Four patients with ectopic pregnancy were transfused with peritoneal blood, salvaged using a closed percutaneous system. Sterile abdominocentesis was performed with a 14 gauge venous cannula connected to a standard blood giving set and a 450ml blood donation pack. Successful re-transfusion followed with no adverse sequelae. This method may reduce bacterial contamination compared with salvage from an open peritoneum and be available for immediate re-transfusion without having to wait for surgical collection.

CASE REPORT
In a four-month period at the district hospital of Man, Ivory Coast, 22 patients with ectopic pregnancy were treated by laparotomy. Six patients required blood transfusion of whom four received autologous blood salvaged using a previously unpublished percutaneous closed-system siphon method. Two patients received homologous donated blood because of unsuitability of the salvaged blood. In one case there was clinical evidence of sepsis and in the second the symptoms of ectopic pregnancy rupture pre-dated the operation date by two days and the possibility of hemolysis was thought too high. A centrifuge device for detecting haemolysis was not immediately available in theatre.

Blood salvage was undertaken in the operating theatre simultaneously with fluid resuscitation and preparation for general anesthesia. The indication for immediate transfusion was hypovolaemic shock. Immediate haemoglobin estimation was often not available. Antibiotic prophylaxis with a third generation cephalosporin was routinely administered. There were no adverse sequelae related to the transfusions and all patients were discharged home after 2 to 3 days.

DISCUSSION
Autotransfusion with unwashed blood has been shown to be a useful alternative for blood replacement, since it is available with no cross-matching and eliminates the risks and difficult supply of homologous blood.[1,2] There is growing evidence that it is at least as safe as donated blood.[3]

The previously described methods for salvage are attempted at the time of laparotomy either by gentle aspiration of blood or scooping with a gallipot or ladle into a sterile container. The blood is then passed through layers of gauze or a filter to remove clots before being anticoagulated in a citrate solution.[1,3] Even though this blood is usually defibrinated, it is possible that further clotting will occur whilst being manipulated.

The method used at the Centre Hospitalier Régional de Man utilized a 14 gauge venous cannula to perform an abdominocentesis located over the clinically established haemoperitoneum using a sterile technique and local anesthetic. A standard blood infusion set with integral 200 micron filter was connected to convey the blood (in a reverse direction) to a sterile blood collection bag containing acid-citrate-dextrose placed below the operating table. Filtered, sterile blood was then available for immediate transfusion via a new infusion set without the need to wait until surgical incision of the peritoneum. In our series there was always time to perform this procedure during the resuscitation and preparation for general anesthesia, however it is acknowledged

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that, in some circumstances, surgical control of bleeding must take absolute precedence, which may preclude this method of salvage. On withdrawal from the abdomen the blood is almost immediately filtered and anticoagulated, leaving little time for further clotting and wastage of salvaged blood.

It has been shown that blood collected in the traditional way at operation by aspirating or scooping with a bowl may grow "air contaminants" on blood culture.[2] Although blood culture was not available to us, a percutaneous system will avoid all contact with environmental pathogens.

A disadvantage is not being able to see the quality of the blood, but it has been noted that the history and clinical examination can be adequate to determine suitability for autotransfusion.[3] Where centrifugation is available, it should be employed on a small sample of salvaged blood to check that the supernatant is clear of free hemoglobin.

This method may also be more acceptable to Jehovah's Witnesses as the blood may be kept in total continuity with the patient as long as the blood donation pack used has at least two infusion set ports.

ACKNOWLEDGEMENTS

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3. Pathak UN, Stewart DB. Autotransfusion in ruptured ectopic pregnancy. *Lancet* 1970; **1**: 961-4.
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CORRESPONDENCE

Lateral Intubation

Dr W. A. Lesslie, SMO, Innisfail Hospital, Queensland, Australia

Dear Sir,

With reference to your Correspondence in *Update in Anaesthesia* 23, 2007:

For eight years I have been a GP-Anaesthetist in an Australian district hospital with no specialist. In February 2008 I revisited Oshakati Hospital where I worked once in Ophthalmology and spent three days in the operationg theatre with the energetic and capable Dr Polishchuk, your correspondent. I saw and practised the method he describes of visualising the glottis - 'lateral intubation'. I had never come across it during my training or reading around the subject and I feel that it ought to be better known.

Essentially, after muscle relaxation, the patient's head is rotated to the right. The jaws are opened by the right hand (crossed middle finger / thumb worked for me). The laryngoscope blade is inserted along (above) the left border of the tongue which is already displaced down, somewhat out of the way, towards the right cheek. The glottis is lifted from below into view by an assistant.

I have seen this technique make possible a visualised intubation which the standard head-neck positioning had not allowed. I saw it once fail to save the situation, simply, I believe, for the lack of a gum elastic bougie, the standard endotracheal tube being not ideal (too curved) for this side approach. (A stylet might also have made the difference).

Editor's comment

A recent letter to the *British Journal of Anaesthesia* describes the use of a 'right molar' approach to intubate a child with Pierre Robin syndrome, cleft palate and tongue tie.[1] The right molar approach has been described previously, generally using a straight-blade laryngoscope, and termed paraglossal or retromolar intubation. The technique is identical to Dr Polishchuk's lateral intubation technique, but using access from the right side of the mouth rather than the left. I feel that the term lateral intubation may be mistaken for the act of intubating a patient in the lateral position, and suggest that left paraglossal laryngoscopy is a more appropriate description of this technique, which has proven useful to me on a number of occasions.

Reference

1. Saxena KN, Nischal H, Bhardwaj M, Gaba P, Shastry BVR. Right molar approach to intubate a child with Pierre Robin syndrome, cleft palate and tongue tie (letter). *BJA* 2008; **100**: 141-2.