

EMERGENCY AUTOLOGOUS BLOOD TRANSFUSION IN RUPTURED ECTOPIC PREGNANCY

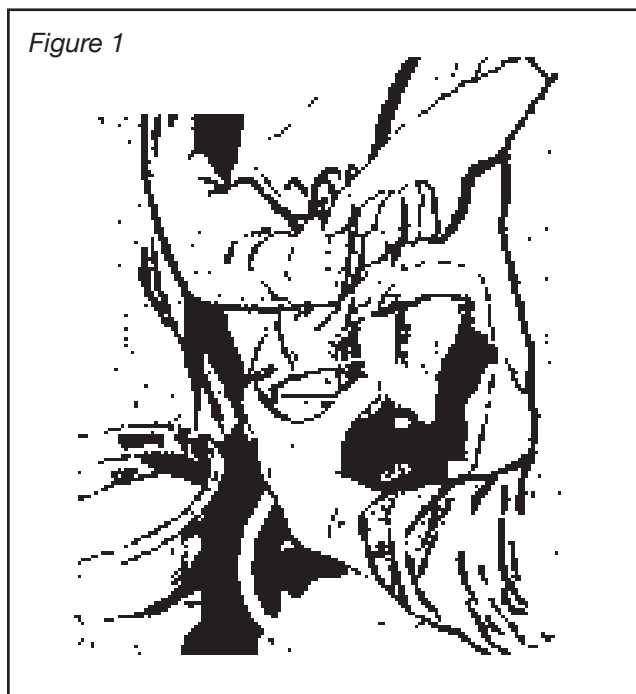
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Ruptured ectopic pregnancy is a common cause of massive intraperitoneal haemorrhage in developing countries. Many patients present with hypovolaemic shock, since considerable time may have elapsed between rupture and arrival at hospital. The mortality associated with hypovolaemic shock is very high in these countries due to the scarcity of donor blood available for transfusion.

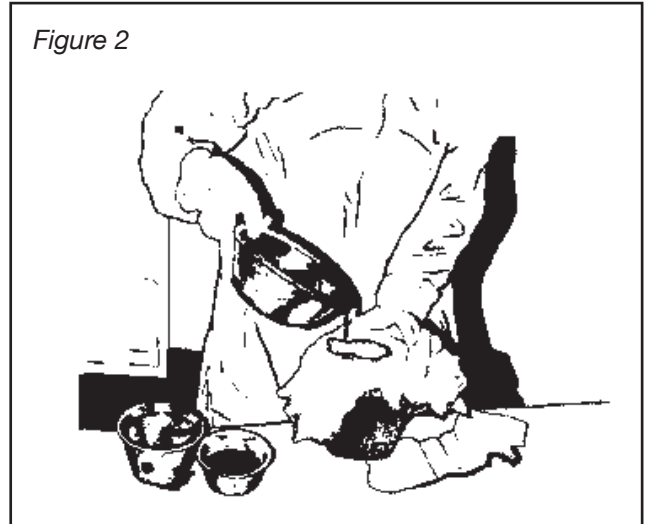
This article is based on our experience in a district hospital in Malawi where we transfused the patient's own blood (autotransfusion) collected from the peritoneal cavity in 25 cases of ruptured ectopic pregnancy. All of them survived without adverse effects.

Method of autotransfusion

After attention to the airway and breathing the hypovolaemic patient is rapidly infused with 0.9% sodium chloride solution or Ringer's lactate on the way to the operating theatre where general anaesthesia is induced. The sterilised equipment for autotransfusion is prepared ready for use. On opening the abdomen a small initial peritoneal incision is made. The peritoneum is "tenting" to avoid spillage (figure 1).

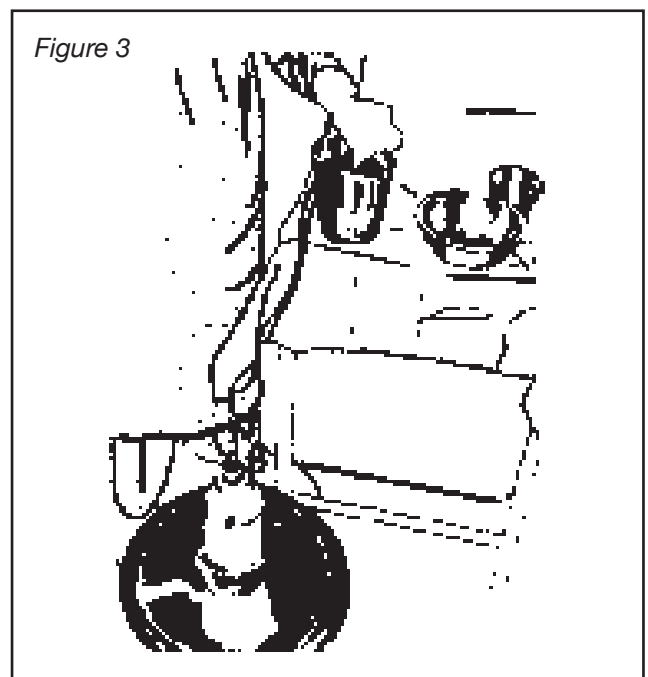


If the intraperitoneal blood appears fresh and of normal colour it is collected in small containers. After removing most of the fresh blood the peritoneal incision is enlarged and the bleeding site clamped. A few layers of sterile gauze are stretched over a large



bowl into which the collected blood is filtered through the layers of sterile gauze (figure 2). This retains small blood clots and tissue.

The distal end of a giving set is cut off and dipped into the blood in the bowl. The proximal end is inserted into the rubber stopper of a transfusion vacuum bottle containing 120ml of acid-citrate/dextrose solution as anticoagulant (figure 3).



Once the bottle is full the blood is immediately retransfused into the patient via a standard blood-giving set (figure 4). An alternative method is to pour the blood into a jug and then through the gauze filters

directly into the bottles (containing the anticoagulant), replace the rubber stopper and transfuse.



Figure 4

There are many variations of emergency “salvage” autotransfusion. For example blood may be recovered from the peritoneal cavity with the aid of gentle suction (<40mmHg) before filtration. Another method utilizes a cell-saver which separates the red blood cells from plasma and white blood cells before retransfusion, but this is an expensive technique.

Risks and complications

In a life-threatening situation, the advantages of autotransfusion far outweigh the potential disadvantages. The disadvantages include:

1. Infection or sepsis

Blood for transfusion should be discarded if there are signs of intraperitoneal infection such as an associated tubo-ovarian abscess. Blood contaminated by bowel contents or amniotic fluid from a ruptured uterus should not normally be used. Blood from the thoracic cavity may be used, provided the same precautions are taken.

To avoid bacterial growth, blood for autotransfusions should be given at once and not stored.

The equipment must be sterile.

2. Embolism, DIC or other coagulopathies

Although air and particle embolism were reported in early attempts at autotransfusion these were not encountered in our series. Emphasis is placed on thorough filtration of the recovered blood in order to prevent small particles from causing pulmonary embolism or disseminated intravascular coagulation and for this reason at least 3 layers of gauze should be used. There are no coagulation factors in the blood when it is retransfused and depletion of these will occur during the process.

Advantages

1. Safety

There is no risk of transfusion reactions caused by mismatching. Transmission of blood-borne diseases such as hepatitis, HIV, malaria, syphilis and tuberculosis is eliminated.

2. Availability

In contrast with donor blood, the patient’s type of blood is instantly available and requires no cross matching. The technique is also suitable for patients with other causes of uncontaminated intraabdominal bleeding such as a ruptured spleen or liver and in cases of haemothorax.

3. Simplicity

The method of blood recovery is simple and practical even in remote hospitals. It does not require sophisticated equipment, electricity or storage facilities. Since there is no need for laboratory investigations such as typing and crossmatching, autologous blood is more quickly reinfused than donor blood.

If acid-citrate/dextrose is not available, it can be prepared by mixing 2 grams of sodium citrate and 3 grams of dextrose in sterile water to make a total volume of 120mls, which is sufficient for 1 unit of blood.

4. Acceptance

In some cultures blood donation is the source of fear or taboo, in others the infusion of blood is prohibited by religion. Therefore autologous blood transfusion may be a useful method of overcoming some of these objections.