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Managing spontaneous first trimester miscarriage

We don't yet know the optimal management

Clinical review
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Spontaneous miscarriage (inevitable or incomplete) and early fetal demise (previously called missed abortion)[1] are components of pregnancy loss in the first trimester. For most of the 20th century spontaneous miscarriage was managed by evacuation of retained products of conception. Traditionally carried out with ovum forceps and curettage, this method changed to vacuum aspiration after advances were made in the equipment to deal with surgical termination of pregnancy. The belief that retained products always needed to be evacuated after spontaneous miscarriage developed because of the two major complications of inappropriately managed miscarriage, bleeding, and infection. However, changes in public health and medical practice have led to questioning of this dogma. Do all women really need evacuation of retained products? And if not, how can we decide who does require it? How likely are complications to arise if evacuation is undertaken—or if it is not?

In their review article in this week's *BMJ* Ankum et al describe the results of a literature search on managing spontaneous miscarriage.[2] They propose non-surgical methods as the management of choice and prefer expectant over medical management. Expectant management avoids a surgical procedure, allows patients to continue their normal routine, and appears to be more acceptable to most women.[3 4]

Formal comparisions of types of treatment have shown that women managed expectantly had more prolonged bleeding than those managed surgically[5–7] or medically.[8] Indeed, Jurkovic et al considered that prolonged bleeding was so profuse and the success of expectant management so low that its use was not justified.[8] The need for evacuation of retained products after expectant management ranged from 21-59%.[5 6 8] Primary care doctors in the Netherlands and elsewhere favour expectant management (see Ankum et al's review[2]), but hospital based clinicians are less committed to any one modality.[5–8]

When medical management (misoprostol often combined with mifepristone) has been compared with surgical management, medical management was associated with greater analgesic needs and more vaginal bleeding,[9 10] and in half of cases was unsuccessful in that an evacuation was required.[9] Is a 50% reduction in the need for evacuation of retained products effective, particularly when misoprostol is not innocuous? In one study 45% of women experienced diarrhoea on taking it.[10] When medical is compared with expectant management no differences are found in the number of days with bleeding, pain scores, blood loss, or complications, but women having medical treatment need longer to convalesce than those treated by expectant management.[11]

No study so far has addressed the question of which of the three modalities of treatment is best. This may partly result from difficulty in defining the "best" outcome. Complications, including bleeding and infection and the time to return to normal activity, must be a part of this. In Britain many women with early pregnancy bleeding present to an early pregnancy assessment unit. When early fetal loss is diagnosed the question arises whether any additional investigations are helpful in managing these patients. Most agree that the absence of tissue in the uterine cavity or products of conception less than <15 mm in diameter require no intervention.[6 8] Between 15 and 50 mm, women may be considered for medical or expectant management; more than 50 mm should be managed by evacuation.[11] When women with significant intrauterine tissue (intrauterine sac >10 mm in diameter) were managed by curettage or expectantly more of the expectantly managed group had complications (37% *v* 3%).[6]

The use of serum β human chorionic gonadotrophin[1 6] and progesterone concentrations[1] might identify women who require evacuation, but the evidence to recommend their routine use is insufficient. Colour Doppler imaging of uterine artery and intervillous space blood flow has been used in research.[12] Uterine artery blood flow did not distinguish between women whose miscarriage resolved spontaneously and those who required evacuation. Blood flow in the intervillous space was more useful: spontaneous resolution occurred in 80% of those with such blood flow but only 23% of those in whom flow was absent.[12] This technique is promising and requires validation in controlled trials, but in the meantime none of these adjuvant techniques can be considered effective in determining which women should be managed expectantly.

In the past we may have overmedicalised the management of spontaneous miscarriage, but caution should be exercised before completely moving the locus of care to general practice. The accurate diagnosis of ectopic[6] and molar pregnancies remains a particular concern. Rapid access to ultrasound and human chorionic gonadotrophin assays should remain part of the diagnostic management of bleeding in early

BMJ 2001;322:1315–6

pregnancy. Suspicious findings on ultrasound might direct management towards surgery. Once the bleeding has been evaluated its management may remain with general practitioners[2] or midwives.[13]

As yet the optimal management for women with spontaneous miscarriages is unclear. A Cochrane systematic review of the management of miscarriage is in progress. Also a study in the south west of England, the miscarriage treatment (MIST) study,[14] aims to recruit 1500 women to a randomised controlled trial of surgical, medical (misoprostol and mifepristone), and expectant management. It promises to cast some light on this complex subject.

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Caesarean section for fetal distress

The 30 minute yardstick is in danger of becoming a rod for our backs

Intrapartum hypoxia complicates about 1% of labours and results in death in about 0.5 in 1000 pregnancies and cerebral palsy in 1 in 1000 pregnancies.[1] When it is diagnosed clinically as "fetal distress" swift delivery is the aim, and the standard has become delivery within 30 minutes of diagnosing fetal distress. As two papers in this week's *BMJ* illustrate, however, this standard is hard to achieve. Is it actually necessary?

The pathogenesis of intrapartum hypoxia is often multifactorial but poorly understood. Processes such as uteroplacental vascular disease, reduced uterine perfusion, fetal sepsis, reduced fetal reserves, and cord compression can be involved alone or in combination, and gestational and antepartum factors can modify the fetal response.[2] Methods of screening and diagnosing the condition have limitations.[3] Thus when the condition is thought to be present, diagnosed clinically as "fetal distress," clinicians aim for a swift delivery because they lack a clear understanding of the severity of the hypoxia.

Audit of the speed with which such caesarean sections are performed is important for clinical governance and risk management, and 30 minutes has been adopted as an audit standard. In the United Kingdom, however, most caesarean sections for fetal distress take longer than 30 minutes.[4 5] Delays occur both in getting the patient to theatre and in achieving effective anaesthesia,[6 7] though delivery within 30 minutes is more likely if the patient gets to theatre within 10 minutes.[6 7] In a paper in this week's issue Tufnell et al (p 1330) showed that it is possible to improve the proportion of "urgent cases" achieving a 30 minute decision to delivery interval from 41% to 66% (with 88% delivered within 40 minutes) over a 32 month audit cycle.[7]

Papers pp 1330, 1334

For reasons which are not clear, logical, or evidence based, this audit standard of 30 minutes has become the criterion by which good and bad practice is being defined both professionally and medicolegally. The implication is that caesarean section for fetal distress that takes longer than 30 minutes represents suboptimal or even negligent care. Yet the evidence that 30 minutes represents a clinically important threshold is lacking both in theory and in clinical experience.

In theory, the speed with which hypoxia develops and the ability of the fetus to withstand this insult vary and are difficult to quantify. For example, sudden and profound hypoxia such as occurs with placental abruption or vasa praevia probably requires delivery within 10 minutes if death or serious disability is to be avoided. In contrast, if the hypoxic insult is more slowly progressive (as it usually is) delivery within 30 to 60 minutes is unlikely to result in serious harm. In such cases the usual threshold for intervention is a fetal scalp pH of <7.20, yet serious neurodevelopmental disability probably occurs only when the pH is <7.00.[8]

Practical experience supports this theoretical view and questions the value of an absolute threshold of 30 minutes. The audit of 126 caesarean sections for fetal distress in 5846 deliveries reported this week by MacKenzie et al (p 1334) showed a non-significant trend to lower umbilical artery pH values in babies delivered after 30 minutes by caesarean section for

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