vol. XXVI, no. 2
April/May/June 2005

The Iowa PERINATAL Letter

Bleeding in the Second Half of Pregnancy

Significant vaginal bleeding in the second half of pregnancy is uncommon and complicates fewer than 5% of pregnancies. Small amounts of bleeding or spotting, especially if admixed with cervical mucous, may represent "bloody show" and may herald the onset of labor, either term or preterm. Vaginal spotting from a friable cervix may reflect recent intercourse or digital examination. In very unusual circumstances, a cervical polyp or cancer may present with bleeding in pregnancy. The focus of this article, however, is on four conditions, which can cause bleeding in the second half of pregnancy in which the bleeding originates from above the internal os of the cervix. These conditions are: vasa previa, placenta previa, premature separation of the normally implanted placenta, and uterine rupture.

General Considerations

When a patient presents with bleeding in the second half of pregnancy, a history and physical examination (deferring vaginal examination) will be performed. The mother's vital signs are critical, as are the fetal heart rate and its pattern. On abdominal examination, one focuses on the presence or absence of tenderness, the size of the uterus, and uterine activity and tone. Most of these patients will be admitted to the hospital, and initially will be placed NPO. Intravenous access will be established and laboratory studies drawn. A CBC, type and screen, fibrinogen, prothrombin time, and partial thromboplastin time are commonly obtained. One wants to rule out the presence of a coagulopathy, related either to disseminated intravascular coagulation or to consumption secondary to massive blood loss. An ultrasound is indicated to confirm placental location. Urine output is monitored with or without a catheter depending on the patient's clinical circumstances. If blood loss has been substantial, crystalloid or colloid is given until blood is available. If several units of packed cells have been administered, consider fresh-frozen plasma and/or platelets depending in part on the results of laboratory testing. If the patient is between 24-34 weeks' gestation and delivery is not imminent, administer betamethasone.

Vasa Previa

Vasa previa is a rare condition (one in several thousand deliveries). It describes the circumstance where fetal vessels traverse the fetal membranes in the region of the cervix. Its requisites are either a velamentous insertion of the umbilical cord or the presence of a succenturiate placental lobe. The vessels are not protected by Wharton's jelly as they are in the umbilical cord, and the feared complication of vasa previa is a tear in the thin-walled fetal "umbilical" vein usually associated with either spontaneous or artificial rupture of the membranes. Bright red bleeding occurs (the umbilical vein carries oxygenated blood) and fetal distress is soon apparent. An emergent cesarean delivery may result in a good outcome, but often the baby is stillborn or dies soon after birth. In unusual cases, a practitioner has made the diagnosis of vasa previa on pelvic examination during labor. At times an ultrasound examination in patients with low-lying placentas or low succenturiate lobes, incorporating Doppler has been successful in identifying fetal vessels traversing the cervix. In these unusual, but fortunate circumstances, one can perform a cesarean delivery (34-36 weeks) and potentially prevent a perinatal death. Diagnosis before bleeding will be the exception and not the rule. Bleeding at the time of membrane rupture should suggest the diagnosis, and promptly moving toward cesarean delivery is the suggested management. Fetal distress will be manifested before you are ready.

Placenta Previa

Placenta previa is the condition in which the placenta, not the fetus, is presenting at the cervix. Although traditionally placenta previa has been characterized as being complete (cervical os entirely covered by the placenta), partial (cervical os partially covered by the placenta), or marginal (placental edge at the margin of the cervix), these distinctions are not particularly useful. One term or another may pertain depending on how far dilated the cervix is. About one in two hundred births is complicated by placenta previa. Increasing parity, advanced maternal age, cigarette smoking, and previ-

This letter is funded by the Iowa Department of Public Health, Bureau of Family Services, and is cosponsored by The University of Iowa Carver College of Medicine, Iowa City, Iowa.

ous cesarean delivery are predisposing factors. It is estimated that the risk of placenta previa following cesarean delivery ranges from one to four percent.

The typical presentation of placenta previa is vaginal bleeding to varying degrees in the third trimester of pregnancy. It is generally painless and, unless the mother is in shock, the fetal heart rate pattern is usually normal. *Because digital examination of the cervix in the presence of placenta previa can cause torrential hemorrhage, one should not perform a pelvic examination in a woman with bleeding in late pregnancy unless one has ruled out placenta previa.* Given the widespread use of ultrasound in midpregnancy, most patients with placenta previa will have the diagnosis made before bleeding occurs. It should be emphasized, however, that more than ninety percent of placenta previas diagnosed by ultrasound in the first half of pregnancy are no longer previas at delivery. This "placental migration" simply reflects growth of the lower uterine segment. The initial bleeding episode in a woman with placenta previa is typically not life threatening. The patient will be admitted to the hospital, intravenous access will be maintained, and the fetal and maternal conditions will be monitored. Depending on local capabilities and the circumstances, fetal / maternal transfer may be undertaken.

Traditionally, women who bled in late pregnancy from placenta previa were kept in the hospital until delivery. This remains an acceptable form of management. If, however, the patient's bleeding has been minimal, she lives close to the hospital, and has reliable transportation, discharge from the hospital after a few to several days of observation is acceptable. The typical history of placenta previa is one of repeated episodes of vaginal bleeding. When the patient who has been discharged from the hospital is readmitted with bleeding, both physician and patient will be less eager to discharge her again.

The management goal in the patient with placenta previa remote from term is expectancy. The need for blood transfusion in this circumstance is not necessarily an indication for delivery. Because fetal distress is unusual in the context of placenta previa, in most cases additional fetal maturity can be achieved. A frequent strategy in this circumstance, in an attempt to avoid the "last bleed," is to perform an amniocentesis at about 36 weeks' gestation, and to effect delivery by cesarean if fetal maturity is demonstrated.

A most concerning aspect of placenta previa is its association with placenta accreta (abnormal placental adherence to, into, or through the myometrium). This complicates approximately 4% of placenta previas in the absence of prior uterine surgery. If a patient has had a previous cesarean delivery and now has an anterior placenta previa, there is about a 25% risk of placenta accreta. This increases to 67% if the woman has had four or more previous cesarean deliveries. Placenta accreta is associated with hemorrhage, which is difficult to control and hysterectomy is usually required. At times ultrasound has been useful in making the diagnosis of placenta accreta, but both false positive and false negative results have occurred. If there is a strong suspicion for placenta accreta, special arrangements for delivery should be made. The facility should be able to provide for massive blood transfusion and personnel should be available to perform hysterectomy, bladder repair, etc. if necessary.

Premature Separation of the Normally Implanted Placenta

Premature separation of the normally implanted placenta is the most accurate description of this entity, but other terms are frequently used. Placental abruption or abruptio placentae are probably the most common synonyms.

Premature separation of the placenta in its clear-cut form complicates about one in two hundred pregnancies. If all patients with vaginal bleeding without other explanation in the second half of pregnancy are included, the incidence is higher. Placental separation is predisposed to by increasing parity, advanced maternal age, and cigarette smoking. Other important associations include hypertension (both chronic hypertension and preeclampsia) and trauma (especially motor vehicle accidents, but also battering). At times placental separation is associated with rapid decompression of the uterus, such as following the delivery of one baby in a multiple gestation pregnancy or rupture of the membranes in cases of hydramnios.

The typical clinical presentation of premature separation of the placenta is different from that of placenta previa. Both may be associated with heavy vaginal bleeding, but uterine contractions, abdominal pain, and fetal distress are more common with placental separation. Classically, the patient complains of constant pain, has frequent uterine contractions, and has elevated tone between her contractions. Even in the absence of maternal hypotension, fetal distress is common, because part of the placenta is no longer functional and the increased uterine tone diminishes blood flow to that portion of the placenta which remains attached. If a woman with painful third trimester bleeding and excessive uterine activity presents with a *normal* fetal heart rate tracing, consider moving toward cesarean delivery, because that tracing won't stay normal for long. Patients with significant placental abruptions often have hypofibrinogenemia on the basis of disseminated intravascular coagulation, and therefore, women with bleeding in late pregnancy should have their coagulation status checked. Patients with significant placental abruptions often present to the hospital with no fetal heart tones. In this circumstance, amniotomy and oxytocin are generally indicated with the goal being vaginal birth.

In contrast to the dramatic picture described above, many other women will have vaginal bleeding in the latter half of pregnancy which is modest in amount, is not associated with uterine activity or fetal distress, and occurs in the absence of placenta previa. This bleeding undoubtedly represents minor degrees of placental separation. These patients often wind up in the hospital for a day or two and are then discharged undelivered if things remain quiet.

In one in five cases of placental separation, vaginal bleeding is not seen. The hematoma collects behind the placenta or beneath the chorion, and blood does not escape from the vagina. At times ultrasound examination will demonstrate this collection of blood, but may fail to do so. Patients with placental separation and no external bleeding may present with labor, term or preterm, or, if there is posterior implantation of the placenta, with back pain. In such cases, one hopes to accurately assess uterine activity and fetal well-being.

Whether tocolytic agents should be employed in the woman with placental separation who presents in preterm labor is controversial. My bias is not to inhibit the labor, but the data are mixed.

Uterine Rupture

Uterine ruptures may be traumatic or spontaneous, may occur in scarred or unscarred uteri, may occur before labor or in labor, and may or may not be accompanied by vaginal bleeding. Because uterine rupture may present with vaginal bleeding, abdominal pain, and fetal distress or death, the preoperative diagnosis in such patients will often be placental abruption.

Maternal/Fetal Transfer

Whether to care for a patient with vaginal bleeding in the second half of pregnancy locally or to transfer her to a center hospital is not always an easy decision. Blood banking and surgical capabilities must be considered along with the stability of the patient. At times, either fetal distress or an unstable mother will preclude transfer in a situation where generally transfer would be undertaken. We have to do what we have to do.

—Frank J. Zlatnik, M.D.

VBAC: 2005 Update

Vaginal birth after cesarean (VBAC) was last considered in *The Iowa Perinatal Letter* in January 2000 (vol. XXI-no. 1). Note was made at that time of the ACOG recommendation that there be immediate availability of anesthesia and operating room personnel to perform an emergency cesarean delivery, if indicated, on the woman undergoing a VBAC attempt. The word "immediately" replaced "readily" and had very significant effects across the nation and in Iowa. The change in the ACOG recommendation was prompted by increasing recognition of the potential risks of uterine rupture and its consequences in women attempting VBAC. A VBAC attempt in a woman with a history of a single previous low transverse cesarean has a uterine rupture risk of slightly under 1%. The usual sign of uterine rupture is fetal distress. Prompt laparotomy usually results in a good outcome, but fetal or neonatal death or hypoxic-ischemic damage are genuine hazards. My guess is that only about 1/3 of Iowa obstetric services are currently offering VBACs to at least some women. More women are choosing elective, repeat cesarean delivery. On our service at University Hospitals, fewer than 1/3 of women with previous cesareans opt to attempt a VBAC. Nationally, in 1996 the cesarean delivery rate in the U.S. was 21%. Of women with a previous cesarean, 28% delivered vaginally. In 2003 the cesarean delivery rate in the U.S. was 28% and only 10% of women with a previous cesarean delivered vaginally.

Advantages of VBAC include decreased maternal morbidity and mortality (some morbidity advantages extend to the next pregnancy as well) and, for some women, extremely important emotional gains. The disadvantages of a VBAC attempt include uterine rupture and its consequences and the possibility of adverse perinatal outcome from other causes after 39 weeks' gestation (the time at which a repeat cesarean delivery would be performed).

Uterine rupture risk factors include: a doubly scarred uterus, a previous vertical uterine incision, oxytocin or prostaglandin induction of labor, abnormal labor progress – especially in late labor, previous uterine rupture, and an inter-delivery interval of less than 24 months. Even with immediate emergency cesarean delivery capabilities, uterine rupture can be associated with adverse perinatal consequences. The absolute magnitude of this risk is low. About 1 in 1000 VBAC attempts will be associated with a very severe, permanent adverse perinatal outcome related to uterine rupture. To limit this risk it is important that we select good candidates for a trial of labor, that the labor is carefully monitored, and that prompt laparotomy is performed if the need arises. In addition, about 1 in 1000 pregnancies is associated with an adverse perinatal outcome for reasons other than uterine rupture after 39 weeks' gestation. This means that the woman who opts for a VBAC attempt, rather than elective repeat cesar-

ean delivery, has an increased risk of serious adverse perinatal outcome (perinatal death or significant disability) of about 1 in 500. She must weigh this risk against her desire for vaginal birth.

Contraindications to VBAC

What follows is a personal list of contraindications to VBAC.

1. Additional indication for cesarean.
2. Inadequate pelvis.
3. Previous classical cesarean.
4. Previous T-incision of lower uterine segment extending into the contractile portion of the uterus.
5. Previous uterine rupture.
6. Advisability of delivery prior to the onset of labor.
7. Estimated fetal weight greater than 4000 g (9 lbs.)
8. Two previous cesareans and no vaginal births.
9. Unenthusiastic patient.

Some of these contraindications are relative and not absolute (need for induction of labor and fetal size greater than 4000 g, e.g.).

Elective cesarean delivery is not without its own difficulties. These are primarily maternal, rather than perinatal, and include a small increase in maternal mortality (perhaps 1 in 30,000 elective cesarean deliveries) and an increase in maternal morbidity as well, although studies are mixed regarding the latter. A cesarean delivery predisposes to placenta previa and placenta accreta in subsequent pregnancies and so a woman's decision as to whether or not to attempt a VBAC may in part depend on her plans concerning future childbearing.

If an Iowa hospital is to offer VBAC, immediate availability of personnel for an emergency cesarean delivery means that all hands should be on deck. If VBAC is not offered by a local facility, because these staffing requirements can't be met, then the physician and patient should decide whether referral to a center hospital for a VBAC attempt or repeat cesarean delivery at the local hospital is the better choice in her particular situation.

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50528/4-05 Printed by UI Printing Department