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Managing the early puerperium

Increasingly the province of the GP

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Key points

- Maternal conditions that were common for hospital staff to manage have become the province of the GP and the home visiting midwifery service.
- Potentially life-threatening emergencies include postpartum haemorrhage, infection, severe hypertension and eclampsia, venous thrombosis and embolism, and occasionally severe psychiatric disorders.
- Postpartum haemorrhage may be due to retained products of conception, infection, uterine atony, genital tract trauma or blood coagulation abnormalities.
- Postpartum infection may be located in the breast, birth canal or bladder.
- Good liaison between hospital staff and GPs remains the key to providing excellent care for new mothers and their babies.

Complications such as incontinence and haemorrhage sometimes occur after birth. With women spending less time in hospital, managing women with these problems falls to the GP.

Multiple pressures from patients, hospital managers and economists have led to shorter lengths of stay in maternity hospital after childbirth. With new mothers now only staying in hospital for a few hours up to three days, maternal conditions that were common for hospital staff to manage have become the province of the GP and the home visiting midwifery service.

CHANGES DURING THE PUERPERIUM

The puerperium may be defined as the period during which a woman's reproductive organs return to their prepregnancy state. This time is stated as being six weeks following the completion of the third stage of labour.

During the puerperium the uterus involutes, the placental implantation site heals, the cervical canal closes and the vagina, introitus and vulva return to near their prepregnancy size. The involuting uterus reduces in weight from 1000 to 60 g due to catabolism of the myometrium, and returns to the true pelvis over 10 to 14 days. After delivery of the placenta, the uterine fundus can be palpated abdominally at the level of the umbilicus; by two weeks it is not palpable suprapubically (Figure 1). Other tissues that changed during the pregnancy, such as the urinary and gastrointestinal tracts, also return to normal between six and 12 weeks after the birth.

The vaginal discharge (lochia) gradually changes over the first few days after the birth from a red colour to a serous colour that

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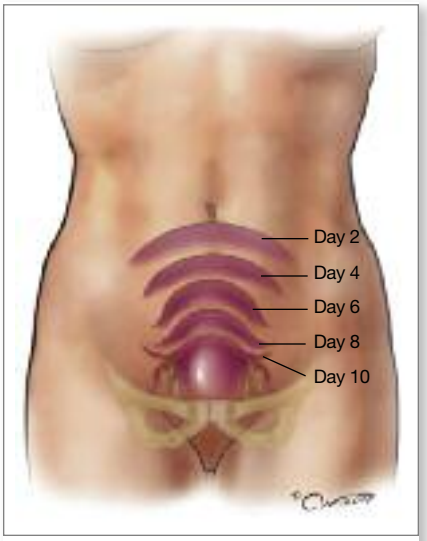

Figure 1. Uterine involution during the early puerperium.

persists for up to three weeks, and then becomes pale white or clear. The discharge persists for longer when the woman is breastfeeding (because of the associated vaginal atrophy) and may be present for up to eight weeks.

Ovulation is often inhibited by lactation but can return within six weeks if regular frequent breastfeeding does not occur. Menstruation, ovulatory or anovulatory, returns in six to eight weeks in most women who are not breastfeeding. Regular breastfeeding generally delays menstruation. Lactational breast changes occur following childbirth, with the breasts enlarging and colostrum being produced for the first three to four days.

Emotional changes also occur during the puerperium, ranging from transient weepiness to long-lasting and severe depression.

Major changes in hormone levels, blood composition and volume, and renal, cardiovascular, respiratory and other endocrine functions occur during this period. Within hours of the delivery of the placenta, human chorionic gonadotrophin and human placental lactogen levels fall rapidly. Oestrogen and progesterone levels fall to nonpregnancy levels by day seven.

The raised temperature and pulse rate often observed following delivery return to normal within 24 hours. Vital signs may be affected by excessive blood loss, infection and hypertension, and also by spinal and epidural anaesthesia. Of the 65 maternal deaths in Australia between 2003 and 2005 (the latest report), four were due to obstetric haemorrhage, six to psychiatric disease, eight to amniotic fluid embolism and three to cardiac disease.[1]

EMERGENCIES IN THE EARLY PUERPERIUM

Potentially life-threatening emergencies in the early puerperium include postpartum haemorrhage (PPH; especially where there was antenatal anaemia), infection, severe hypertension and eclampsia, venous thrombosis and embolism, and occasionally severe psychiatric disorders.

Haemorrhage

Primary PPH (incidence of 3 to 6%) is defined as haemorrhage occurring in the first 24 hours after delivery, with a blood loss of 500 mL or more. Secondary PPH (incidence of 1 to 2%) is defined as haemorrhage occurring between 24 hours after delivery until the completion of the puerperium, with a blood loss in excess of the normal lochial loss. In both types of PPH, estimating blood loss is difficult and is usually underestimated by 35 to 50%. There is, therefore, no place for complacency when dealing with these conditions.

Primary PPH

A GP may be faced with the initial management of a woman with primary PPH if she has an unplanned out-of-hospital delivery or is discharged very early after delivery and then has a PPH at home.

The emergency care of women with primary PPH involves management of the atonic uterus, resuscitation and transfer to hospital. The uterus can be made to contract by 'rubbing up' (massaging) and ensuring that the bladder is emptied (either naturally or by urinary catheter). In the hospital environment, an intravenous infusion should be commenced and 10 IU of oxytocin given as an intravenous bolus, followed by oxytocin 40 IU in one litre of normal saline (or other appropriate solution) infused over the next two hours. Ergometrine plus oxytocin, one ampoule given intramuscularly or slowly intravenously, or ergometrine alone, 500 µg intramuscularly or 250 µg given slowly intravenously, could be used if oxytocin alone is not available. In the general practice environment there may be unavoidable delay in getting the woman to hospital and so the use of the longer-acting ergometrine preparation may be the drug of first choice. In these circumstances, the common drug side effect of vomiting can be avoided by using an antiemetic. Ergometrine can cause hypertension, although this may not be a concern if the patient is hypotensive from blood loss. It is not possible to distinguish causes of PPH other than uterine atony without hospital facilities.

Primary PPH can develop rapidly, resulting in varying degrees of shock or even death unless the patient is managed correctly. Its causes are listed in the box on page 33. Retained products of conception require surgical removal but the use of oxytocics (oxytocin and/or ergometrine in the doses recommended above) may assist natural expulsion. If possible, any expelled tissue should be collected and sent with the woman to hospital for further examination. Genital tract trauma requires assessment and treatment under anaesthesia in an operating theatre. Clues to the presence of coagulation defects include no clotting in the blood coming from the vagina and skin bruising and bleeding from needle puncture marks when obtaining blood samples.

The rare occurrence of an inverted uterus may be detected by palpating a dip in the uterine fundus and sometimes by

seeing a fleshy mass protruding through the introitus. These conditions require management of the patient in hospital.

Although the definition of primary PPH is more than 500 mL of blood loss in the first 24 hours, many obstetricians believe that a significant drop in blood pressure or haemoglobin level or the need for a blood transfusion are better indicators of significant haemorrhage.

Secondary PPH

Secondary PPH is often found in association with infection and previous anaemia and presents with vaginal bleeding, pelvic cramps, lower abdominal pain or fever. Causes of secondary PPH are listed in the box on this page. It may be an emergency if there is shock due to blood loss, infection or both. Management of patients with secondary PPH involves resuscitation if needed and referral to hospital for correction of blood loss and treatment of any infection.

Vaginal examination is not helpful if there is heavy blood loss because the view of the cervix and vaginal walls will be obscured by blood; also, the procedure is unpleasant for the patient. However, inspection of the cervix with a vaginal speculum can be helpful where there is less life-threatening blood loss or infection. An open cervical os (normally closed by seven to 10 days' postpartum) may be discovered, which suggests that retained products of conception or such tissue coming out of the cervical canal may be found. If possible, this tissue should be removed if this removal is straightforward. Again, this tissue should be collected and sent to hospital with the patient. If there is an offensive discharge, swabs should be collected from the endocervix for microbiological testing and antibiotics commenced to cover anaerobic and coliform organisms. Appropriate antibiotics for anaerobes are oral metronidazole 400 mg twice daily or oral tinidazole 2 g stat, and for coliforms, oral amoxycillin/potassium clavulanate 500/125 mg 12-hourly for five days or, if the patient is allergic to penicillin, oral erythromycin 500 mg eight-hourly for seven days. If the woman is septicaemic, hospital treatment will include intravenous antibiotic therapy.

If the bleeding is not heavy there may be time to arrange an ultrasound scan to exclude retained intrauterine products of conception and the need for a subsequent uterine curettage. However, the sonographer may have difficulty in distinguishing between retained products of conception and retained blood clots. If there are no clinical signs of infection (such as offensive vaginal discharge and a tender lower abdomen and uterus when examined bimanually) and the white cell count and C-reactive protein level are within normal ranges then antibiotics are not required. A low but nonlife-threatening haemoglobin level can be corrected with oral iron therapy. A follow-up check of abnormal pathology test results is recommended.

Heavy vaginal bleeding in the first week postpartum suggests pathology but bleeding four to six weeks' postpartum, especially if it follows a couple of weeks of amenorrhoea, suggests the arrival of the first postpartum period. The use of progesterone-only contraception tends to cause irregular vaginal bleeding that is not heavy in amount. The timing for resumption of menstruation is influenced by whether the woman is lactating.

Another rare serious condition is the Sheehan syndrome, a shock-produced necrosis of the anterior and, infrequently, the posterior lobes of the pituitary gland. In most cases, this shock is due to PPH; however, pituitary necrosis may follow antepartum haemorrhage, intrapartum shock and disseminated intravascular coagulation. Lactation failure, amenorrhoea and then hypothyroidism and hypoadrenalism follow.

The recommended timing of recommencement of sexual activity is when vaginal bleeding has ceased. The cessation of lochia suggests that the placental site has healed and the cervix is closed, and so the risk of introducing infection into the upper genital tract during coitus is reduced.

MAJOR CAUSES OF POSTPARTUM HAEMORRHAGE (PPH)

Primary PPH

- Uterine atony
- Retained products of conception
- Genital tract trauma (vulva, vagina, cervix, lower uterine segment, upper uterine segment)
- Coagulation abnormalities
- Uterine inversion (rare)

Secondary PPH

- Retained products of conception
- Infection
- Undiagnosed genital tract trauma
- Undiagnosed bleeding disorders
- Complications of uterine fibroids, genital tract malignancy including gestational trophoblastic disease (all rare)
- Coitus (rare)
- No cause is found in one-third of cases

Infection

Puerperal infection is defined as a rise in temperature to 38°C or above, maintained for 24 hours or recurring by the end of the first day until the end of the 10th day. The woman will experience both general and local symptoms and signs of infection.

The infection may be genital or nongenital in origin and the sites involved are, in order of frequency, the birth canal (genital tract), the breast and the bladder (urinary tract). The risk of urinary tract infections (UTIs) is increased if catheterisation has been performed, as for example in association with epidural anaesthesia, assisted vaginal delivery or caesarean section.

Genital tract infections

Infection can affect any level of the genital tract and can spread into the surrounding

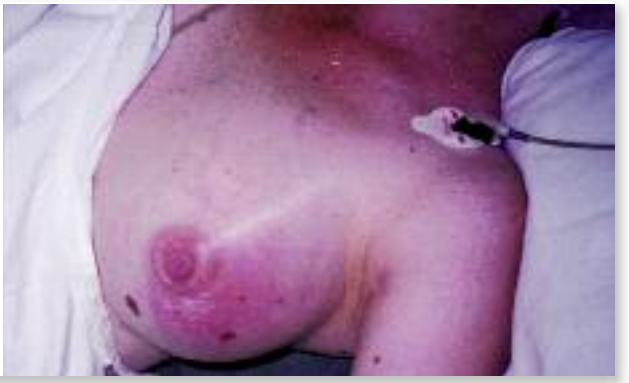

Figure 2. An abscess in the left breast. Note the triangular area of redness with the apex pointing to the nipple.

tissues and the peritoneal cavity. Risk factors for puerperal genital tract infection include prolonged membrane rupture, prolonged labour, assisted vaginal delivery, incomplete delivery of the placenta, manual removal of the placenta, emergency caesarean section, excessive blood loss and prolonged surgery. Occasionally retained surgical packs are a cause of infection.

Signs of infection include an offensive vaginal discharge and uterine and lower abdominal tenderness. Anaerobes such as *Peptostreptococcus*, *Bacteroides* and *Clostridium* comprise 60% of the organisms involved, and aerobes such as *Streptococcus*, *Enterococcus*, *Escherichia coli* and *Staphylococcus aureus* the remainder. Samples taken for bacteriological examination include vaginal swabs and blood cultures. Treatment includes broadspectrum antibiotics and removal in hospital of any retained products of conception.

Both GPs and specialists need to be vigilant when managing pelvic infections because apparently healthy young women with vague pelvic symptoms can rapidly deteriorate with overwhelming infection, become shocked and may die.

Urinary tract infections

UTIs occurring in the puerperium include cystitis and pyelonephritis. Lower tract infection signs and symptoms include bladder tenderness, urinary frequency and dysuria, and upper urinary tract infection is suggested by marked renal angle tenderness and rigors. General symptoms and signs of infection may also be present. Risk factors include previous UTI during pregnancy and catheterisation. The organisms involved are similar to those in genital tract infections. Samples taken for bacteriological examination include midstream urine and blood cultures.

Treatment includes broadspectrum antibiotics, increased oral fluid intake and intravenous fluids where appropriate. Intravenous therapy and pyelonephritis are more conveniently managed in hospital. Follow up is important to ensure that the infection has been successfully treated. Repeated infection requires further investigation.

Breast infections

Acute breast pain may be due to breast engorgement or acute mastitis. Engorgement affects all areas of both breasts whereas infection usually affects only one or two lobes of a single breast. Infection is mostly with *S. aureus*, followed by *Streptococcus epidermidis*, *Streptococcus saprophyticus, Streptococcus viridans* and *E. coli*, but occasionally group B streptococci may be involved.

Infection is usually nosocomial, with transfer from the baby to the nipple, entry via skin cracks and then extension into the breast lobe, giving a unilateral wedge-shaped red area on the breast. The infection may localise and form an abscess (Figure 2). Early treatment with antibiotics is recommended, using, for example, cephalexin, flucloxacillin or dicloxacillin 500 mg every six hours, or erythromycin or clindamycin if the infective bacteria are penicillin-resistant or the woman is allergic to penicillin.

Options for the management of women with breast pain due to engorgement or infection include cold packs, cool showers, supportive nursing brassieres and gentle massage, as well as simple analgesics such as paracetamol. The use of cool cabbage leaves has its advocates but research has not shown any superiority for pain management over other treatments. Breastfeeding or milk expression should continue but will be painful and require pain relief. If an abscess forms, surgical drainage or aspiration under ultrasound guidance will be required.

A much rarer cause of infection is that of an epidural abscess secondary to the obstetric use of epidural anaesthesia. Despite it being extremely rare, fatal cases resulting from the development of epidural abscesses have been recorded in Australia.

Nonobstetric causes of infection should also be considered and managed appropriately.

Severe hypertension and eclampsia

Hypertension

Pregnancy-induced hypertension has an incidence of 5 to 10% and can last for up to three months but usually settles within 10 days of delivery. About one-third of eclamptic fits occur postpartum. Pregnancy-induced hypertension may be superimposed on other causes of hypertension, which will require diagnosis and treatment after the pregnancy if not previously diagnosed.

Eclampsia

The control of convulsions associated with pregnancy is the same whatever the cause. Standard management is the basic ABC of resuscitation and use of the coma position, prevention of maternal injury

TABLE. CAUSES OF DIRECT MATERNAL DEATHS* IN AUSTRALIA FROM 2003 TO 2005[1]

Cause	Number of deaths
Amniotic embolism	8
Hypertensive disorders of pregnancy	5
Thromboembolism	5
Obstetric haemorrhage	4
Cardiac conditions	3
Infection	1
Deaths associated with anaesthesia	1
Thrombotic thrombocytopenic purpura	1
Nongenital tract haemorrhage	1
Total direct maternal deaths	**29**

* A direct maternal death is defined as a death resulting from obstetric complications of the pregnant state, that is, pregnancy, labour and the puerperium.

and controlling of the convulsion. Maintaining the airway, obtaining intravenous access and using intravenous medication to control the current fit and reduce the risk of further convulsions are paramount. Intravenous diazepam in 10 mg doses is probably the most suitable drug readily available for general practice use for controlling convulsions. Another option is the use of magnesium sulfate. There are two regimens for the use of magnesium sulfate in eclampsia – intramuscular and intravenous. The intramuscular regimen is presented here because monitoring for drug toxicity will be on clinical signs only.[2] A loading dose of 5 g of 50% magnesium sulfate solution into each buttock by deep intramuscular injection (total loading dose 10 g) is followed every four hours by a deep intramuscular injection of 5 g of 50% magnesium sulfate solution into alternating buttocks. Toxicity is monitored by looking for an absence of the patella tendon reflex, a respiratory rate below 16 breaths per minute and a low urine output of less than 100 mL in four hours. In any of these cases, the next dose of magnesium sulfate is withheld.

Thrombosis

Venous thrombosis following childbirth is an important cause of maternal mortality because of the sixfold increase in its risk during pregnancy (see Table). Risk factors for venous thrombosis include family or past history of thrombosis (inherited or acquired thrombophilia), operative delivery, obesity, grand-multiparity and prolonged immobility either pre- or postpartum.

Management includes treatment and prevention of further thromboses using enoxaparin sodium 1 mg/kg given subcutaneously twice daily. Anticoagulation should be continued for six weeks' postpartum unless there are other factors, including pulmonary embolism, necessitating longer courses of treatment. Anti-factor 10a and platelet levels should be measured monthly with longer term use of enoxaparin. Warfarin is not contra-indicated in breastfeeding women because it is not excreted in the milk. Enoxaparin is safe for use in lactating mothers because its large molecule size means both that only minimal amounts get into the breast milk and that it is not available for absorption by the baby's gut.

Postpartum psychosis

Between 8 and 20% of postpartum women develop clinically diagnosed depression that typically occurs two to three weeks' post delivery. This depression, which develops from the usually transient weepiness experienced by most women a few days after childbirth, may develop further into postpartum psychosis (incidence of 0.2%). A nonreactive mood, sleep disturbance, lack of confidence, low energy, poor bonding with the baby and panic attacks in a new mother should, therefore, be taken seriously and expert psychiatric help sought.

Postpartum psychosis is mostly affective in type and leads to a greater incidence of infanticide. Schizophrenia rarely presents for the first time during the puerperium. Delusions, hallucinations and extremes of behaviour require urgent expert management in hospital.

While treatment of severe depression is being arranged, the woman and her baby should not be left alone in case the mother harms herself or her baby.

OTHER EARLY PUERPERIUM MATERNAL CONDITIONS

After pains

Following childbirth and especially during breastfeeding, the uterus contracts in response to the release of oxytocin from the posterior pituitary. The contractions can be of such severity that simple analgesics are required. These afterpains are more severe in multigravid women.

Lactation problems

Lactation problems include breast engorgement, breast pain and sore or cracked nipples. The assistance of lactation consultants when breastfeeding is being initiated and established can prevent many problems arising; their help is also of great value when problems do occur.

Lactation suppression

Lactation may need to be suppressed if there is perinatal death, puerperal

psychosis, recently acquired syphilis, HIV positivity or maternal use of cytotoxic drugs, radioactive compounds, lithium or chloramphenicol, or if a woman simply chooses not to breastfeed.

Advice on breast management postpartum should be given, including avoiding stimulating the breasts, keeping the nipples clean by regular washing with warm water and careful drying, and using a supportive brassiere. Analgesia may be required for relief of engorgement pain.

Suppression of lactation occurs naturally in up to 70% of women if breast stimulation does not occur. For the 30% of women in whom such suppression does not occur, medication may be required (cabergoline 1 mg orally stat or bromocriptine 2.5 mg orally twice daily for 10 to 14 days). Nausea, giddiness and hypotension are side effects of cabergoline and bromocriptine, and patients should be warned about this (bromocriptine has more side effects than cabergoline). These drugs have PBS restrictions applied to their use.

Constipation

Constipation during pregnancy is not uncommon. Managing this condition postpartum can be a challenge, especially if the woman has experienced vulvovaginal trauma during her delivery. Multiple vulvovaginal sutures and abrasions discourage defaecation because of the fear of damaging the repair or even making haemorrhoids worse. Women are frequently reluctant to raise such concerns and so the GP must ask the question, provide reassurance and suggest faecal-softening treatment as mentioned below. Review after a few days and again at the six-week postnatal check is not only beneficial but most reassuring.

Haemorrhoids

The reported incidence of postpartum haemorrhoids is 15 to 25% and they are associated with long second-stage labours, instrumental deliveries, episiotomies, perineal trauma and the delivery of large babies. Haemorrhoids usually resolve during the puerperium and therefore few women are referred for surgical treatment. Constipation is often an associated condition. There is no consensus on the best management of moderately severe

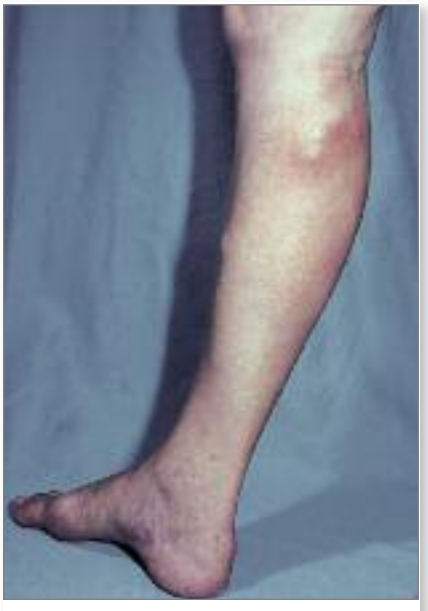

Figure 3. Superficial vein thrombophlebitis.

haemorrhoids but keeping the motions soft with high-fibre diets or faecal softeners usually helps, as does the local application of ice packs and haemorrhoid ointments. Incising thrombosed haemorrhoids brings instant relief of pain.

Incontinence and voiding difficulties

Faecal incontinence

Faecal incontinence is rarely complained of but has an incidence of about 5% and so women should be asked after childbirth about their ability to control both faeces and flatus. Faecal incontinence is more common following forcep-assisted deliveries and is rare after caesarean section. The possibility of damage to the anal sphincter needs consideration. Ultrasound imaging studies of the anal sphincter postpartum demonstrate occult defects in 35% of primigravida and 44% of multigravida.

Trials of biofeedback and sphincter exercises to improve faecal continence have shown some benefit but there is little evidence to support electrical stimulation treatment techniques. Surgical repair is reserved for those symptomatic women with complete tears of the anal sphincter.

Urination difficulties

Up to 18% of women may have postpartum voiding difficulties. Risk factors for voiding difficulty include epidural anaesthesia, caesarean section, instrument-assisted vaginal deliveries, prolonged first and second stages of labour and the delivery of macrosomic infants. Treatments include ambulation, privacy and warm baths or showers. If these simple techniques fail, intermittent or indwelling bladder catheterisation may be required. UTIs occur in 3 to 17% of women, with risk factors including past history of UTI, bacteriuria of pregnancy, operative delivery, epidural anaesthesia and bladder catheterisation.

Urinary incontinence

Up to one-third of women report postpartum urinary incontinence. The aetiology is multifactorial but includes obesity, grand multiparity, vaginal delivery, prolonged labour and fetal macrosomia. Strengthening the pelvic floor muscles by performing specific pelvic floor exercises during pregnancy should reduce the risk of incontinence.

Many women do not report the condition because they regard it as normal following childbirth. Urinary continence usually returns once the oestrogen levels return to normal. Most women benefit from intensive physiotherapy to improve the tone of their pelvic floor muscles. If this is not successful, referral to a gynaecologist or urogynaecologist is recommended.

Tiredness

Most women expect to be tired after childbirth, with almost 20% of new mothers reporting extreme tiredness and up to 50% of women still tired a year later. Along with interrupted sleep because of night-time feeding, uncorrected anaemia, anxiety, lack of social support and depression may contribute to the tiredness.

Mood changes and depression

Up to 80% of women experience transient weepiness – the postpartum or baby blues – a few days after childbirth. A few, however, experience severe depression – postpartum psychosis – as discussed earlier, and about 15% have mild to moderate postpartum depression.

Depression may be associated with tiredness, backache, minor illnesses, urinary incontinence, constipation and sexual difficulties. Social and relationship (partner and family) problems and a past history of depression are risk factors for postpartum depression.

Leg pains – superficial thrombophlebitis

Superficial thrombophlebitis develops in about 1% of pregnant women and is 10 times more common than deep venous thrombosis (DVT). Examination reveals a red and tender area over a superficial leg vein (Figure 3). This problem occurs more frequently in varicose veins than in nonvaricose veins, and the presence of varicose veins increases the chance of developing postpartum superficial thrombophlebitis.

Local treatment consists of heparinoid ointment and an elastic compression bandage. Ambulation is encouraged. The use of soluble aspirin can be beneficial (soluble aspirin has fewer side effects than insoluble aspirin). Anticoagulants are only required if the thrombophlebitis is extensive. There is the potential for superficial thrombophlebitis to progress to DVT.

Back pain and coccygodynia

Between 50 and 80% of women have some musculoskeletal problems during pregnancy, and postnatal backache occurs in almost 50% of women. Contributors to lower back pain postpartum include the physiological changes that occur during pregnancy and delivery, the hormone relaxin, the weakening of back and pelvic supports during delivery by, for example,

episiotomy, perineal tears and caesarean section surgery, and incorrect lifting techniques, including incorrect lifting of the baby. The increased level of relaxin during pregnancy causes increased mobility in joints, which can result in pain. This joint laxity may persist for several weeks after delivery and is often a reason for the low back pain felt by a new mother when lifting her baby in and out of car seats and cots. Management of these women includes prophylaxis by education and exercise, and therapy with rest, hot or cold packs, massage, belts, transcutaneous electrical nerve stimulation (TENS), simple analgesics and, rarely, hospital admission and judicial narcotic use.

Coccygodynia due to an overextension of the coccyx may occur with a normal vaginal delivery or an assisted vaginal delivery. The pain is localised to the sacrococcygeal joint and is made worse by sitting. Treatments include hot or cold packs, oral NSAIDs and local anaesthetic or corticosteroid injections.

Headache

There is an association between headache, backache and epidural anaesthesia. Treatment of the cause with simple analgesics is the first-line treatment. Severe postepidural headache may require readmission to hospital and the placement of a blood patch to the dural puncture site by an anaesthetist. However, because headache may have other serious causes unrelated to the recent pregnancy, non-obstetric causes of headache should also be sought during the puerperium.

Perineal pain

Pain in the perineum affects up to 40% of women after childbirth and can adversely affect postpartum recovery, breastfeeding and sexual intercourse. Pain is more common after forcep vaginal deliveries and large episiotomies. Adequate pain relief is required (simple analgesics and/or ice packs and, rarely, pethidine). Suturing techniques in which the sutures are not tied too tight and the use of subcuticular perineal skin sutures, synthetic and dissolving suture materials and faecal softeners have been shown to reduce the incidence of perineal pain.

Perineal wound breakdown occurs in up to 5% of wounds. The causes of this are infection, incorrect suturing techniques and suture materials and, rarely, excessive straining at stool. Most often perineal wound breakdown will heal by secondary intention, with possible surgical revision later.

Abdominal wound pain following caesarean section

Excessive wound pain after a caesarean section may be due to a haematoma, infection or both. A painful wound will look swollen and may be bruised, and will be tender to touch. A haematoma may spread upwards and downwards, the extent depending on whether it is subcutaneous or under the rectus sheath. Pain relief is likely to be required, as are antibiotics, and the wound may need drainage in hospital. Wound herniation and wound dehiscence plus bowel obstruction are other possible causes of wound pain.

Abdominal wound infections are often the result of contamination with vaginal flora but *S. aureus* (from the skin or exogenous sources) is isolated in 25% of cases. Risk factors for infection includes diabetes, hypertension, obesity, treatment with corticosteroids or other immunosuppressants, anaemia, haematoma, chorionamnionitis, prolonged labour, prolonged rupture of the membranes, prolonged surgery, abdominal multiple pregnancy delivery and excessive blood loss. Randomised trials show a clear reduction in postcaesarean section wound infection with the intraoperative use of prophylactic antibiotics.[3]

Wounds may break down secondary to wound haemorrhage, excessive coughing, poorly controlled diabetes, infection and the use of anticoagulants resulting in wound haemorrhage.

FOLLOW UP OF PROBLEMS DIAGNOSED DURING PREGNANCY

Anaemia

Postpartum anaemia occurs in up to 30% of women but most women can cope with it without treatment. Risk factors for postpartum anaemia include prepregnancy menorrhagia, antenatal anaemia, multiple pregnancies, perineal trauma and PPH. Diagnosis and treatment follow conventional practice.

Thyroid dysfunction

Thyroid abnormalities occur in between 5 and 15% of pregnant women and between 4 and 8% of women postpartum. During pregnancy, clinical or subclinical hypothyroid may be diagnosed requiring treatment with thyroxine or an increase in the dosage of thyroxine. Postpartum treatment levels will need to be monitored, with possible adjustment of the dosage.

Diabetes

Women with type 1 diabetes may have had their insulin requirements altered during pregnancy and following birth these levels may need further adjustment. Therefore, follow-up monitoring by their GPs is required.

Women who developed gestational diabetes require a 75 g glucose tolerance test (not a 50 g glucose challenge test) six weeks' postpartum. They will continue to require monitoring because they have a 50% risk of developing type 2 diabetes later in life.

Vitamin D deficiency

Vitamin D deficiency is being diagnosed and treated more frequently during pregnancy. Postpartum follow up of this form of deficiency is usually recommended but there is some contention regarding improved long-term outcomes for patients.

Obesity

Excess weight has become epidemic in Australia, with five out of 10 women being classified as either overweight or obese.[4]

There is no doubt that the increase in the incidence of obesity in the general population is also reflected in the obstetric population. Pregnant women who are obese have a 11% increased risk of gestational diabetes, 23% increased risk of gestational hypertension and a 1.6 times increased risk of preterm delivery. These problems are in addition to the increased risks of protracted labour, fetal macrosomia and associated shoulder dystocia, difficulties performing caesarean sections and problems for the anaesthetist, plus musculoskeletal, dermatological and cardiovascular problems. Continued management of this problem postpartum is required to reduce the general risks associated with obesity.

REVIEW DURING THE EARLY PUERPERIUM

A woman's antenatal tests should be reviewed during the early puerperium. The following antenatal tests may require follow up:

- antenatal anaemia – review with a full blood count and instigate treatment if necessary
- the maternal blood group – check that if anti-D gamma globulin was required it was administered
- rubella status – immunisation may be required
- hepatitis B status – immunisation may be required for the mother, baby or both
- hepatitis C and HIV status – ongoing management may be required
- syphilis status – treatment may be required for the mother and baby
- Pap smear – another screening may be due.

Contraceptive advice may also be appropriate and appreciated at this early stage.

The ongoing management of women who have had hypertension, diabetes, epilepsy, renal dysfunction or infection, or liver dysfunction should be reviewed, because the conditions will have been affected by pregnancy. This includes reassessing medications that may have had dosages changed during pregnancy.

CONCLUSION

The continuing trend for shorter post-partum hospitalisation has extended the responsibilities and challenges of general practice. Good liaison between doctors in hospitals and in general practice remains the key to providing excellent care for new mothers and their babies. MT

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COMPETING INTERESTS: None.