fact sheet

Monash IVF actively supports research and development in reproductive medicine to ensure improved results for all Monash IVF patients

miscarriage - a guide for parents

What is miscarriage?
Miscarriage is a term used to describe the loss of a pregnancy before 20 weeks gestation. Unfortunately miscarriage is very common, occurring in approximately 15% to 20% of clinically detectable pregnancies. The vast majority of these losses (80%) occur in the first 12 weeks of pregnancy.

The loss of any pregnancy can result in significant grief and sorrow for couples. Questions regarding why and how the miscarriage occurred naturally arise, and many couples wonder whether they should seek consultation for treatment of pregnancy loss. This fact sheet will identify the common causes of miscarriage and outline when further investigations and treatment are recommended.

What causes miscarriage?
Miscarriage can be caused by many different factors and unfortunately many couples never find out the cause of their miscarriage. Many hospitals will only offer tests or investigations after a couple has had three or more miscarriages in a row. Although this can be frustrating and upsetting, this policy is in place because the majority of couples who have experienced one or two miscarriages will have a successful pregnancy the next time and tests for recurrent miscarriage will probably be negative.

The most common reasons for miscarriage include:

Genetic abnormalities
Approximately 50% of first trimester miscarriages and 20% of second trimester miscarriages occur as a result of a genetic abnormality in the developing embryo. The most common genetic defect resulting in miscarriage is an abnormal number or structure of chromosomes. Chromosomes are tiny thread-like structures that are located in each cell. Each chromosome is made up of genes, which are the basic units of inherited characteristics. Normal human cells have 23 pairs of chromosomes, with one chromosome from each pair coming from the mother and one from the father.

In some cases, eggs or sperm are produced that have the wrong number of chromosomes (ie: missing or extra chromosomes). As a result of this chromosome imbalance, the resulting embryo cannot develop normally and will either fail to implant, miscarry, or give rise to the birth of an affected child. The risk of miscarriage due to a chromosomal abnormality increases with maternal age. For example, a 40-year-old woman is almost twice as likely to miscarry as a 20-year-old woman. This is because women are born with their life supply of eggs and the quality of these eggs deteriorates over time.

In order to determine whether there is a genetic cause for repeated pregnancy loss, physicians may order a chromosome analysis (called a karyotype) on the fetal tissue. The physician may also request that a karyotype is done on a blood sample taken from each parent. In approximately 96% of cases, both parents will have a normal karyotype (ie: a normal set of chromosomes). In these cases it is likely that the genetic abnormality in the fetus was a chance event. In the remaining 4% of cases, one parent will be identified as having a chromosomal abnormality, such as a translocation. A translocation is a rearrangement of chromosome segments between two different chromosomes. Carriers of these translocations are considered “balanced” because all their genetic information is present. However, they are at risk of producing sperm or eggs with an “unbalanced” form of their translocation. This may result in difficulty to conceive, recurrent miscarriages or the birth of a child with developmental abnormalities. If a translocation is identified, the couple should undergo genetic counselling to discuss their reproductive options. Options may include using IVF coupled with Preimplantation Genetic Diagnosis (PGD) to screen out genetically unbalanced embryos (Please refer to the Monash IVF “PGD for translocations” Fact Sheet for more information).

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Uterine abnormalities
Approximately 15% of women with a history of recurrent miscarriage have an abnormal uterus. One example of an abnormally shaped uterus is a septate uterus, in which a central ridge or septum of tissue protrudes into the inner cavity of the uterus. This congenital abnormality occurs in approximately 3% of women, and only half of these women have reproductive difficulty. Theoretically, a miscarriage occurs in a septate uterus because the blood supply to the septum may not adequately support normal fetal growth.

Uterine fibroids can also cause an abnormally shaped uterus. Uterine fibroids are common, non-cancerous tumours in the wall of the uterus, which are estimated to affect 20% of women of reproductive age. These fibroids may interfere with the implantation or growth of a fetus.

The main procedure used to examine the uterine cavity (inside of the uterus) is called hysteroscopy. A narrow telescope-like instrument called a hysteroscope is inserted through the cervix into the uterus so that the physician can view the uterine cavity. This procedure is usually performed as a daycare procedure with general anaesthesia or during a laparoscopy. Once identified, some uterine abnormalities can be surgically corrected, thereby increasing the chance of a successful pregnancy.

Cervical abnormalities
In some cases the cervix, which is the narrow, lower end of the uterus, is too weak to support a pregnancy without surgical correction. In these patients, the cervix begins to open prematurely. Up to 16% of mid-trimester (12 to 20 weeks) pregnancy losses are caused by this condition, known as cervical incompetence. Once an incompetent cervix has been discovered, surgery may be performed during subsequent pregnancy. The surgical procedure for correcting cervical incompetence is referred to as cerclage, also known as a “cervical stitch”.

Hormonal abnormalities
When the body produces too much or too little of certain hormones, the risk of miscarriage may increase. For example, disorders of the thyroid gland, such as overactivity (hyperthyroidism) or underactivity (hypothyroidism), have been linked to miscarriage. Thyroid antibodies have also been associated with a two-fold increase in miscarriage. Once a diagnosis of hypothyroidism or hyperthyroidism is made with a blood test, these disorders can be treated with proper medication.

If prolactin (a pituitary hormone that stimulates milk production) is elevated, disturbances in ovulation and the luteal phase can occur. One indication of elevated prolactin levels is the presence of galactorrhea, a milky discharge from the nipple of a woman who is not nursing. A blood test is used to measure the prolactin level. Medication is usually effective in lowering elevated levels.

Infection
Infections may cause recurrent pregnancy loss, but studies have failed to indicate a greater incidence of infection in women with a history of recurrent miscarriages when compared to normal fertile women. For example, chlamydia has been linked to miscarriages but is more clearly associated with tubal infection and infertility. Mycoplasma (a type of bacteria) has also been implicated as a cause of recurrent pregnancy loss, but the evidence is not strong.

When evaluating a couple with a history of repeated early pregnancy loss, many physicians will take cultures to check for infectious organisms. If an infection is identified, antibiotics are usually prescribed for both partners and a re-culture is done. However, there is no definite proof that antibiotic treatment will increase the chances of normal pregnancy.

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The immune system

The human immune system plays an important role in maintaining general health and responding to infection, injury, or introduction of foreign material. During pregnancy the immunologic interaction between mother and fetus is very important. Specific disorders of the maternal immune system can play a role in miscarriage.

The first category of immune disorders involves the production of certain proteins, called antibodies, by the mother. During a normal immune response, the human body produces antibodies to fight off infections. Some people, however, produce auto-antibodies that attack their own tissues. This can cause a number of different health problems. For example, the auto-antibody called anticardiolipin can cause blood clots that can clog blood vessels in the placenta. This and other auto-antibodies, called the antiphospholipid antibodies, are believed to be responsible for between 3-15% of recurrent miscarriages. A blood test can be used to measure antibody levels so that treatment can be provided. If high levels of antiphospholipid antibodies are identified, small amounts of heparin or aspirin may be prescribed. Treatment with these drugs has been shown to result in a healthy baby in 70-75% of affected women.

The second category of immune disorders involves an alteration in the immunologic response of the mother towards the fetus. In a normal immune response, cells called “NK” cells protect us from attack from foreign material such as bacteria, viruses and organ transplants (people who have had an organ transplant are therefore prescribed immuno-suppressive drugs to prevent their body rejecting the organ). During pregnancy, the fetus contains “foreign” genetic material from the father. However, it is able to survive in the mother’s uterus because of a special protective response from the mother’s immune system. For certain couples this protective response does not occur. As a result, the maternal immune system is activated to reject the father’s foreign material in the fetus, resulting in miscarriage.

At this time, other therapies including various types of immunisation to prevent the maternal immune system from rejecting the fetus are experimental and unavailable at most centres.

Maternal illness

Certain maternal illnesses have been associated with a higher rate of pregnancy loss. These medical conditions include autoimmune diseases (eg: antiphospholipid syndrome), congenital heart disease, severe kidney disease, and uncontrolled diabetes. Treatment of some of these illnesses can improve chances for successful pregnancy especially prior to conception and during the first 12 weeks of pregnancy. Special care and monitoring during the entire pregnancy is recommended.

Lifestyle and environmental factors

Smoking, drinking, and the use of illegal drugs can all increase the risk of miscarriage. Exercise, working, intercourse and exposure to video terminal and computers do not increase the risk of miscarriage, nor does the use of hair spray, hair colourings, or permanents. Although most medicines do not have an effect on pregnancy, there are some that may lead to miscarriage and birth defects. Women should always consult with their physician before taking any medicine during pregnancy, and also need to alert doctors and dentists before receiving x-rays or prescriptions for medication. If couples are concerned that their home or work environment may contain hazardous agents, they should consult their physician about this issue.

Couples who are interested in making lifestyle changes may like to join the Lifestyle Program at Monash IVF. The Lifestyle Program is a free service that aims to provide couples with up-to-date information on lifestyle factors that may impact on conception, pregnancy and IVF outcomes. The ultimate goal of the Lifestyle Program is to equip you with the knowledge and resources to assist you in your IVF journey. If you are interested in joining the lifestyle program please contact Monash IVF.

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What is the chance that I will miscarry again?
The chances of having a repeated miscarriage vary widely. Women who have had at least one full-term normal delivery have an improved chance of a subsequent healthy pregnancy, despite experiencing a miscarriage. A woman with a history of three consecutive miscarriages, but no live births, has a 60% chance of having a miscarriage in the next pregnancy. However, if she has had at least one live birth, followed by three miscarriages, the chance that her next pregnancy will end in miscarriage is only about 30%.

What if I have experienced more than one miscarriage?
Approximately 1% of couples will experience recurrent miscarriage. Recurrent miscarriage is defined as three or more early miscarriages (before 13 weeks gestation) or two late miscarriages (13 to 20 weeks gestation). In these cases, tests are usually recommended to help determine whether there is an underlying problem that is causing the miscarriages and what can be done in a subsequent pregnancy to minimise the risks.

Tests can include:

- Blood tests to check for chromosome abnormalities in both parents.
- Testing tissue from the miscarriage for chromosomal abnormalities (if tissue is available).
- Blood tests to check for hormonal or immune system disorders in the mother.
- Ultrasound examination of the uterus.
- Hysteroscopy (viewing the uterus through a special microscope inserted through the cervix).
- Hysterosalpingography (an X-ray of the uterus).
- Endometrial biopsy (suctioning a small piece of uterine lining).

If a cause for recurrent miscarriage is identified, treatment can often resolve the problem. However, it is important that couples are aware that having these tests does not guarantee that a cause for recurrent miscarriage will be identified. In fact, a cause for recurrent miscarriage is typically only found for about 50% of couples. If a cause for recurrent miscarriage is not identified, couples should not lose hope. Even without treatment, approximately 60-70% of couples that have experienced repeated miscarriages go on to have a successful pregnancy.

The emotional aspects of miscarriage
Experiencing a miscarriage often creates feelings of shock, disbelief, guilt, anger, sadness, loneliness, and depression. After a miscarriage, it's normal for couples to experience a period of grief and to repeatedly ask themselves why this has happened. With repeated miscarriages, these feelings can become more intense. These feelings are normal, and it is important to understand that women and men may feel and cope differently with this loss. Grieving is a very personal experience. It is helpful if both partners realise this and do not expect their reactions to be the same.

To aid in healing, a woman should eat a balanced diet that includes protein, vegetables, fruit and whole grains. Engaging in physical activity every day is very therapeutic, even if the activity is just a short walk around the block. Getting adequate rest is also important and encourages the healing process. Some couples need to symbolically acknowledge their loss by having a memorial service, giving a donation to a favourite charity, or planting a special tree.

Although it may be difficult, couples should talk about the loss of their pregnancy and their feelings with family and friends. Reading literature about miscarriage often provides comfort and support. Recording thoughts in a diary or journal can also be helpful. Some couples write letters as a means of saying goodbye and dealing with the loss. It is helpful to seek support from others who have had similar experiences. Talk with friends, join support groups, or see a professional counsellor.

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Preparing for another pregnancy

Deciding when to try for another pregnancy is a very personal decision. Some people need time to adjust to their loss, while others want to try again right away. There is no "right" thing to do and you and your partner will need to decide what is best for the two of you. You may have different feelings about trying again and this may need talking through. It is usually suggested you wait until after your next period before trying again so that you have more time to recover physically and emotionally. As it is possible to become pregnant again straight away, it is important to use contraception until you are ready to try again.

Where can I get support?

Monash IVF offers support for couples that have experienced one or more miscarriages. Our experienced counsellors are always on hand to listen to your concerns in a supportive environment. If you would like to make an appointment to see one of our counsellors please contact Monash IVF reception.

You may also be interested in contacting one or more of the following support and information groups:

- Recurrent Miscarriage Clinic, Royal Women's Hospital
  (03) 9344 2709
- Stillbirth and Neonatal Death Support (SANDS)
  (03) 9899 0218
- Bonnie Babes Foundation, for grief counselling
  (03) 9792 2344