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Review Article

Review of the Current Concepts in the Management of Abortion

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Abstract

This current concepts review was carried out to elucidate the problems of abortion and their management.

Abortion may be defined as expulsion or extraction of pregnancy before the age of viability or when the foetus weighs less or equal to 500g. It is classified into spontaneous, induced and tubal abortions. The common presentation of abortion is that of amenorrhoea, vaginal bleeding, lower abdominal pain and expulsion of wholly or partly product of conception. Spontaneous abortion may be threatened, inevitable, complete, incomplete, missed, septic and recurrent in nature. Ultrasound scan where available is the investigation tool of choice to determine the type of abortion, albeit speculum and vaginal examination remains the standard method of assessment. The main stay of treatment depends on the type of abortion, mode of presentation and clinical findings. There is room for conservative management in threatened abortion with the aim of treating the cause of the abortion. Recurrent abortion due to cervical incompetence may require cervical cerclage. Incomplete, missed and inevitable abortions will require evacuation of the retained product of conception. Tubal abortion often goes unnoticed or may end up as abdominal pregnancy. Post - abortion sepsis and secondary infertility due to mismanagement are major complications. Counselling and support are important tools in the prevention and management of abortion.

Keywords: *Abortion; Management; Complications; Prevention; Counselling; Review; Nigeria*

Introduction

Abortion can be defined as expulsion or extraction of pregnancy before the age of viability. The age of viability of pregnancy varies from one country to another [1]. In Nigeria, abortion is expulsion or extraction of pregnancy before 28 weeks of gestation while it is 24 weeks in UK and 20-22 weeks in USA [2]. However, WHO defined abortion as expulsion or extraction of pregnancy that occurs when the foetus weighs less or equal to 500g [3].

Abortion can be classified into three categories. It could be spontaneous, induced or tubal abortions. The spontaneous abortion is further classified into threatened, inevitable, complete, incomplete, missed, septic and recurrent abortions.

Other types of abortions are biochemical pregnancy loss, pregnancy of unknown origin and pregnancy of unknown viability [4].

The induced abortion could be therapeutic or criminal abortion. In Nigeria, an estimate of 40% of maternal deaths result from abortion complications with a procedure related death rate of 68,000 globally [5,6].

The clinical presentation of miscarriage is that of history of amenorrhoea, vaginal bleeding, lower abdominal pain and possibly expulsion of product of conception. Therefore, speculum and bimanual vaginal examination are standard assessment procedures.

The investigations include check of packed cell volume to rule out anaemia, malaria parasite as possible aetiology of the miscarriage, urinalysis, obstetric scan for viability and retained product of conception. The clinical findings and ultrasound scan reports are necessary for diagnosis.

The prognosis is usually good following evacuation of retained product of conception. Counselling and support including family planning may be necessary to avoid a repeat miscarriage and its antecedent complications. Prophylactic antibiotics may be necessary to prevent post abortion sepsis. The aim of this review is to highlights the current concepts in the management of abortion.

Epidemiology

Miscarriage is a common complication of pregnancy with incidence of 15% of all pregnancy [7]. The rate of spontaneous abortion decreases with increase in gestational age. About 25% of spontaneous abortion occurs in first trimester, 43% of this is based on biochemical diagnosis. Miscarriage rate increases with maternal age as 12% occur in women less than 20 years of age and 50% in women greater than 45 years old [3]. Abortion contributes 10 - 15% to maternal morbidity and mortality [8]. Up to 50% of early pregnancies will fail within 4 weeks from last menstrual period, so called biochemical pregnancies. First trimester miscarriage occurs below 12 weeks gestation and account for the majority. The overall rate is 20% while second trimester miscarriage are less accounting for 1 - 4% [9].

Aetiopathogenesis

The cause or causes of abortion or miscarriage are multifactorial. There are foetal factors which include abnormal foetal development due to chromosomal abnormalities such as auto-trisomies like trisomy 21, 18. There are structural foetal abnormalities like neural tube defect which account for 50 - 70% of miscarriages [10]. The maternal factor includes infections that could be viral such as cytomegalovirus, rubella, herpes and measles. The bacterial causes are syphilis and parasitic infestation like toxoplasmosis could be implicated as causes of abortion. Other maternal causes are; endocrine factors such as diabetes mellitus, luteal phase deficiency, thyrotoxicosis, systemic lupus erythromytosis and Wilson's diseases. Uterine abnormalities such as septate uterus, sub-mucous fibroid, intrauterine adhesion, retroverted and bicornuate uterus have been implicated as causes of miscarriage [5]. Drugs such as cytotoxic drugs, oxytocics, quinine, anaaesthestic gases and lead poisoning have been implicated as causes of abortion. Trauma to the uterus may cause detachment of the developing embryo and this may lead to abortion. Other causes of abortion include: amniocentesis, myomectomy and IUCD. Coitus has no direct effect on normal pregnancy but it is unwise in the case of a woman with history of recurrent abortion to have coitus shortly after cervical cerclage. Acute emotional disturbance such as fright or bereavement may be followed by abortion probably due to strong uterine contractions.

A miscarriage occurs 1 - 3 weeks after the death of the embryo or rudimentary analogue. The following changes occur: first is haemorrhage into the decidual basalis, necrosis, and inflammation, detachment of the conceptus due to its action as a foreign body and lastly expulsion of the product of conception. The amniotic sac and its content may be evacuated with the chorion and decidua or the embryo may be expelled with rupture of the amniotic sac and passage of the foetus alone or entire pregnancy [5]. There is hydropic degeneration of the placental villi histologically.

Management

Management of abortion depends on the type of abortion and would include history taking, examination, investigation, treatment, differential diagnosis, prognosis and prevention. The management options fall into medical, surgical and expectant or conservative. The

gestational age at which the diagnosis of miscarriage is made, availability of facility, equipment and patient choice are important in management of miscarriages. Symptoms such as pain and bleeding used to be taught that the presentation of one before the other helped differentiate between ectopic and intrauterine pregnancy, however it is now obvious that this is not the case. The location and nature of the pain is also a poor prognostic indicator. Urinary frequency or diarrhoea can be subtle signs of peritoneal bleeding associated with ectopic pregnancy. Past medical history such as poorly controlled diabetes is known to be associated with miscarriage and other chronic illness such as essential hypertension.

General examination to assess the general wellbeing of the patient is important. Attention should be given to the subtle sign of blood loss in addition to pulse and blood pressure, respiratory rate, pallor, reduced consciousness, and capillary return. Peritoneal distension may also result in bradycardia.

The abdominal examination to determine the fundal height should be done, this is obvious when the uterus is 12 weeks gestation and above, though this may be affected by the presence of uterine fibroids and multiple pregnancies. Evidence of other pelvic masses such as ovarian torsion and degenerating uterine fibroids may be present. There may be evidence of intra-abdominal bleeding and generalised tenderness.

Vaginal examination will reveal whether the cervix is open or if products of conception are identifiable at the cervical os. The tissue should be taken for histopathology report or diagnosis. Where there is a history of complete miscarriage, 45% of patient will show ultrasound evidence of retained products and up to 6% will have ectopic pregnancy [10].

Threatened abortion

The history is that of amenorrhoea, vaginal bleeding and abdominal pain which may be present or absent. The examination may reveal a closed cervical os and gravid uterus that may corresponds with gestational age of the pregnancy. Investigation includes packed cell volume which may be normal, pregnancy test that will be positive and ultrasound scan likely to reveal a viable foetus. The differential diagnosis are; ectopic pregnancy, molar gestation, cervical polyps, cervical erosion and cervical cancer. The treatment is bed rest, sedation to reduce anxiety if patient is anxious. Treat the possible cause or causes of the miscarriage such as urinary tract infection, malaria and other possible causes accordingly. Anti-D immunoglobulin should be given to all non-sensitized RhD-negative women with a threatened miscarriage about 12 weeks of pregnancy. The recommended dose of Anti-D immunoglobuline for miscarriage is 250 units before 20 weeks of gestation and 500 units after 20 weeks. A repeat scan is advocated after the cessation of bleeding to ascertain foetal viability before discharge. The patient is reassured and encouraged to register the pregnancy for antenatal care. Anti-D may be given if pregnancy is 12 weeks and above to prevent rhesus isoimmunisation.

Inevitable abortion

Inevitable abortion is considered when the vaginal bleeding becomes much with or without rupture of membranes, painful uterine contractions with progressive cervical dilatation. The examination of the patient may reveal evidence of shock due to amount of blood loss or vasovagal shock and dilated cervical os with protruding product of conception. The uterus might be bulky. The investigations are urgent packed cell volume estimation, grouping and cross-matching of blood for transfusion, serum urea, electrolytes and creatinine estimation and blood gas analysis. The differential diagnoses are: ectopic pregnancy, molar gestation, and cervical polyps. Treatment modality is that of resuscitation, evacuation of the product of conception under anaesthesia in the theatre. Rhogam in rhesus negative mothers, antibiotics prophylaxis, analgesics and counselling for family planning are advocated.

Complete abortion

Complete abortion or miscarriage means all the product of conception are expelled from the intrauterine cavity. The history is that of amenorrhoea, bleeding per vagina, expulsion of blood clots/mass. There is less or absent abdominal pain. The examination may reveal pallor depending on the amount of blood loss; uterine size may be less than gestational age and closed cervical os. Investigation usually includes pregnancy test which may be positive. Packed cell volume may be normal or low and an ultrasound scan may reveal empty uterus but care must be taken in a case where the clinical picture suggests complete miscarriage, there may be ultrasound evidence of retained products in 45% of patients [11-14]. Differential diagnosis includes ectopic pregnancy, cervical polyps and trophoblastic disease. The treatment is reassurance and antibiotics to prevent infection, counselling and support. The prognosis is 100% good.

Recurrent miscarriage

Recurrent abortion refers to three or more consecutive miscarriages before the age of viability [15]. Each successive abortion occurred at about the same time and in similar fashion. It should not be termed or assumed that there is common underlying cause. Despite extensive investigation of women with three or more miscarriages, the cause of recurrent pregnancy loss remains unknown in the majority of cases [16]. Repeated miscarriages can occur by chance. The commonest identifiable causes of recurrent miscarriage are; advanced maternal age, structural genetic factors such as foetal chromosomal abnormality, congenital uterine anomaly such as cervical weakness, uterine fibroids, polycystic ovarian syndrome and immunological factors. History is that of amenorrhoea and three or more miscarriages. The pathology depends on the cause of the abortion. For example, cervical incompetence as cause of miscarriages usually occurs in the mid trimester and most often painless. There is rupture of membranes and expulsion of product of conception. The clinical findings at examination include features of other types of abortion as outlined above. The investigations outside pregnancy includes HSG which normally reveal the uterine abnormalities, ultrasound scan guided amniocentesis may reveal chromosomal abnormalities and hormonal assay for leutal phase deficiency (SLD). The treatment is geared towards subsequent pregnancies by early booking, bed rest, restrict sexual intercourse, cervical cerclage, hormonal support, immunotherapy inform of steroid for SLE. Others include counselling and support. The prognosis is usually guarded as it can reoccur or patient may carry pregnancy to term and deliver. In the case of idiopathic recurrent miscarriage, Tender Loving Care is important as such women are anxious hence regular reassurance scans and psychological support, three-quarter of them may achieve a live birth in the subsequent pregnancy [16].

Incomplete miscarriage

Incomplete miscarriage can occur in any type of abortion that parts of the product of conception usually the embryo has been expelled but foetal parts usually the placenta is retained. The amount of bleeding varies from moderate to severe and accompanied by shock. Treatment is directed towards preventing further blood loss by controlling the bleeding, prevent further blood loss, prevent infection and evacuate the content of the uterus. The history is that of amenorrhoea, vaginal bleeding, and expulsion of clots or tissue and lower abdominal pain. Examination may reveal patient with features of shock, pallor, suprapubic tenderness and dilated cervical os. The uterus may be bulky. Investigations such as pregnancy test may be positive or negative, packed cell volume, serum urea, electrolytes and creatinine, group and cross match blood in case there may be need for blood transfusion. Endocervical swab for microscopy, culture and sensitivity and pelvic scan may confirm the retained product. The differential diagnosis includes anovulatory cycle bleeding, cervical polyps, ectopic pregnancy and cervical cancer. Treatment includes resuscitation; elevate foot of the bed if patient is in shock, evacuation of retained product under anaesthesia, Rhogam for rhesus negative mothers, broad spectrum antibiotics and antitetanus prophylaxis. Counselling and supports are vital in management of this patient. The prognosis of incomplete abortion is usually 100% good with early presentation, diagnosis and treatment.

Missed abortion

Missed abortion is that pregnancy in which the foetus is dead but the uterus makes no attempt to expel the product of conception. Pregnancy can be retained several weeks or months. The management could be expectant, surgical and medical. Up to 85% of miscarriages will resolve spontaneously within 3 weeks of diagnosis. The success rate partly depends on the length of delay in intervention. Patient satisfaction with expectant management depends on appropriate patient selection and counselling. Patient should be made aware of what to anticipate in terms of pain and bleeding. Gestation at which miscarriage is diagnosed, care needs to be taken where missed miscarriage is at later gestation (11 weeks and above). These patients are at risk of heavier bleeding compared with earlier gestation and should be warned of such and encouraged to consider surgical evacuation as first line of management. The history is that of amenorrhoea, reduction or absence of signs or symptoms of pregnancy. They may be history of spotting of blood occasionally. The fundal height may be less than the gestational age. Investigations include clotting profile, pregnancy test and obstetric scan which may confirm the diagnosis. The differential diagnoses are: endometrial tuberculosis and incomplete abortion. The medical management involve the use of uterotonic therapy alone or in conjunction with antihormone therapy to achieve evacuation of the uterine cavity. The aim of the treatment is evacuation of the dead foetus after cervical ripening with misoprostol or mifepristone and prophylactic antibiotics. Other factors to be considered include; facility availability, patient choice and cost of treatment may influence the mode of management. Over all the success rate of medical management is similar to that of expectant management [17]. The prognosis is usually good.

Septic abortion

Septic abortion is not a diagnosis on its own but a complication of any other forms of abortion. The infections commonly envisaged are endometritis but in severe cases parametritis or peritonitis may occur. The result of criminal attempt to procure an abortion using unsterile instruments through the cervical canal has led to the increase rate of septic abortion or using of concurtion to terminate pregnancy. The history is that of amenorrhoea, termination of pregnancy, fever, abdominal pain, and foul smelling vaginal discharge mostly blood stained. Examination of patient may reveal patient that is febrile, jaundiced, increase pulse rate, normal or low blood pressure, suprapubic or generalised abdominal tenderness with guarding. Vaginal examination may reveal vaginal discharge that is foul smelling, blood stained and cervical os may be closed or opened. They may be cervical excitation tenderness including the adnexial and bulky uterus. The investigations are; full blood count, ESR, endocervical swab for microscopy, culture and sensitivity, blood culture, serum urea, electrolytes and creatinine and blood gas analysis. The differential diagnoses are: ectopic pregnancy, ruptured ovarian cyst, acute appendicitis, salpingitis and endometritis. Resuscitation with intravenous fluids and intravenous potent broad spectrum antibiotics is the main stay of treatment to cover both anaerobic and aerobic organisms. The intravenous antibiotics must be given before and after evacuation. Gram positive anaerobes and aerobics organism may require aqueous penicillin G, Clindamycin 600mg 6 hourly or Ampicillin 2g 6 hourly or cephalosporin 2g 8 hourly. Gram negative anaerobes may require Metronidazole 500mg 8 hourly.

Tubal abortion

Majority of tubal abortion may go unnoticed or continue as abdominal pregnancy and it is managed accordingly.

Complications of abortion

The complications of abortion could be early or late. The early complications are: anaemia from haemorrhage, uterine perforation, post abortal syndrome which consist haematometrium, abdominal pain and tachycardia. Other complications of abortion are haemorrhage, failed abortion, cervical laceration, retained product of conception, water intoxication due to increase dose of oxytocin usage with electrolytes free fluid, disseminated intravascular coagulopathy, infections, thromboembolism, air embolism, uterine distension syndrome which consist of uterine distension, hypotension and abdominal pain are known complications of abortion.

Late complications of abortion are: rhesus isoimmunisation, menstrual irregularity, secondary infertility, ectopic pregnancy and cervical incompetence or weakness due to recurrent abortions, cervical dilatation and curettage (DIC).

Conclusion

In conclusion, miscarriage is a frequent outcome of pregnancy. Effective fertility control such as contraception usage and early abortion can prevent complications of abortion. Patient management depend on the type of abortion, facility availability, cost and choice of patient after appropriate counselling. Health education and counselling in special abortion clinic and early diagnosis is associated with fewer complications. Women empowerment and legalisation of abortion law may be considered. Early referral services and more research into methods of harm reduction in female reproductive health may go a long way to reduce complications associated with abortion. Family planning is equally important in reducing unwanted pregnancy.

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