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Abdominal Pregnancy: A Case Report

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ABSTRACT-- *Abdominal pregnancies account for 1.4 % of ectopic pregnancies and can often cause massive bleeding, with maternal mortality reaching 6%. A case of abdominal pregnancy occurred in a 32-year-old woman gravida 1, para 0, with twelve weeks four days of gestational age presented with lower abdominal colic pain. Obstetric ultrasonography revealed an empty uterus and fetal appearance on the extrauterine. The placenta is attached to the anterior region of the bladder, with an estimated fetal age of 12 weeks. Management for this patient was an emergency exploratory laparotomy surgery, right oophorectomy, and adhesiolysis through midline incisions with spinal anesthesia, and also the administration of methotrexate therapy post-operative. Intraoperatively the fetus was located intrabdominal and enveloped by the amniotic membrane; the placenta was attached to the omentum, anterior uterus and, right ovary. The importance of early detection and management of abdominal pregnancy may reduce the risk of bleeding complications and decrease fatality risk.*

Keywords-- *Ectopic pregnancy, Abdominal Pregnancy, exploration laparotomy*

I. INTRODUCTION

Abdominal pregnancy is a type of ectopic pregnancy in which the fetus grows in the abdominal cavity. (Agarwal, 2014) Trophoblast tissue may attach to the uterus wall, intestine, mesentery, liver, spleen, urinary bladder, and ligament, which can cause massive blood loss after attacking large blood vessels. (Agarwal, 2014; Radhakrishnan, 2015) Abdominal pregnancy's prevalences are 0,1% of all pregnancies and 1,4% of ectopic pregnancy with a 6% maternal mortality rate. (Radhakrishnan, 2015; Zhang *et al.*, 2017) These pregnancies can be undetected until advanced gestational age and often caused massive bleeding. (Agarwal, 2014; Radhakrishnan, 2015)

There is some studied risk factor of ectopic pregnancy etiology. The most common is a history of Pelvic Inflammatory Disease (PID), previous ectopic pregnancy, smoking, the use of contraceptive Intrauterine Devices (IUDs), history of previous fallopian tube surgery, history of abortus, In Vivo Fertilization (IVF) therapy, and curettage. (Cardoso *et al.*, 2016)

Abdominal pregnancy can be classified into primary and secondary abdominal pregnancy. Primary abdominal pregnancy is very rare and occurs when fertilized ovum initially implanted on several abdominal organs. Most of the abdominal pregnancy cases are secondary type in which ovum implantation initially happened on fallopian tube, ovary, or uterus and then escaped through the rupture into the abdominal cavity. (Agarwal, 2014; Coc *et al*.,2015)

Abdominal pregnancy symptoms are including abdominal pain or vaginal pain during pregnancy. Because the symptoms are not specific and happened in the area where ultrasound examination is unavailable, thus the

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diagnosis of abdominal pregnancy is often made during intraoperative. Compared to a developed country, in a developing country, abdominal pregnancy cases are slow to diagnose. It is due to inadequate antenatal coverage, low socioeconomic status in most patients, and lack of adequate medical resources. Abdominal pregnancy rarely develops into maturity, and when it develops, the fetus more often dies or has congenital defects. (Ge *et al.*, 2017)

Ultrasonography is the most commonly used diagnostic imaging method. Diagnosis depends on the examiner's experience, and with the use of general ultrasound during the third trimester, it is difficult to distinguish between intrauterine and extrauterine locations. However, most of the abdominal pregnancy diagnosis is often not confirmed until the surgery is done. Therefore, it is crucial to conduct an ultrasonography investigation in each pregnant woman with severe abdominal pain. (Zhang *et al.*, 2008)

Allibone GW et al. describe the main criteria for sonographic diagnosis of abdominal pregnancy, namely: 1) demonstration of a fetus in a gestational sac outside the uterus, or the depiction of an abdominal or pelvic mass identifiable as the uterus separate from the fetus, 2) failure to see a uterine wall between the fetus and urinary bladder, 3) recognition of a close approximation of the fetus to the maternal abdominal wall, 4) localization of the placenta outside the confines of the uterine cavity. (Ge *et al.*, 2017)

Recent concepts regarding the management of abdominal pregnancy support emergency active surgical intervention with the termination of pregnancy if diagnosed before 24 weeks of pregnancy. In patients who arrive after 24 weeks, the suitability of conservative management is debatable. It is necessary to assess individual cases and adopt the most precise method with the goals to limit fetomaternal morbidity and mortality. (Coc *et al*.,2015)

Presenting Concerns

A Female, 32 years old, primigravid with twelve weeks four days pregnant.

Clinical Findings

There was a history of lower abdominal pain since one month ago. The pain was colic, which starts and stops abruptly. There was a history of bleeding from the birth canal twice. There is no history of obstetric and surgical abnormalities.

The patient presented to the hospital with severe abdominal pain and without bleeding. At the examination, it was found that the general condition was stable with a pulse of 87 beats/min and blood pressure of 110/80 mmHg. Abdominal examination showed pain in the entire abdominal quadrants without distension, and on the vaginal examination, there was a palpable mass on the left adnexa.

Diagnostic Focus and Assessment

The patient previously has undergone obstetric ultrasonographic examination by obstetrician-gynecologist in Ternate Hospital and got diagnosed with extrauterine pregnancy.

An obstetric ultrasonographic examination was performed at Wahidin Sudirohusodo Hospital, which showed that the uterus cavity was empty, and there is a fetus in the extrauterine. Placenta attached to the anterior region of the urinary bladder, with an estimated fetal age of 12 weeks.

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Figure 1. Ultrasonographic findings showed empty uterus with fetus localized in extrauterine

Figure 2. MRI findings showed extrauterine pregnancy intraperitoneal in anterosuperior uterus and hematometra

Therapeutic Focus and Assesment

A provisional diagnosis of this patient was abdominal pregnancy, managed by conducting exploratory laparotomy surgery, right oophorectomy, and adhesiolysis through a midline incision with spinal anesthesia.

Intraoperatively, a fetus is located intraabdominal and enveloped by amniotic sac, placenta attached to the omentum, mesentery, anterior uterus, and right ovary. Adhesiolysis is performed, and then the right oophorectomy is performed. The placenta that implanted on the mesentery is left in-situ to prevent massive bleeding.



Figure 3. Intraoperative image during laparotomy and before adhesiolysis and oophorectomy are performed. The result of conception appears to inherent with the omentum.

Follow-up and outcomes

After surgery, the patient was treated for three days in the treatment room with an excellent general condition. Post-operative β-HCG was more than 1500 mIU/ml, and the patient was given one dose of methotrexate 50 mg intramuscular. One month after surgery, the patient has no complaints. It has been explained that if the patient still wants to get pregnant in the future, then in the next pregnancy, there is a possibility of recurring abdominal pregnancy.

II. DISCUSSION

Abdominal pregnancy is a rare case, with an incidence of 1 out of 402 pregnancies in developing countries dan 1 out of 10.000 pregnancies in developed countries. Abdominal pregnancy occurs either as a result of tubal abortion or ruptures (secondary abdominal pregnancy) or, as direct implantation to the peritoneum, with normal fallopian tube, normal ovary, and no fistula tuba (primary abdominal pregnancy). The maternal mortality rate associated with abdominal pregnancy has been reported in the range of 0,5% to 18%. Related morbidity including bleeding, infection, anemia, disseminated intravascular coagulation, pulmonary embolism, and gastrointestinal fistula. Abdominal pregnancy currently occurs mainly in developing countries, possibly due to a higher incidence of pelvic inflammatory disease (PID) with suboptimal treatment. (Agarwal, 2014; Bertrand *et al*,. 2009; Scheinfeld *et al.*, 2014)

Initial clinical findings in a woman with abdominal pregnancy often similar to ectopic pregnancy. Abdominal pain is the most common symptom. In this patient, lower abdominal pain presented as colic pain for one month, which suddenly get worse and lead to hospitalization of this patient. Another symptom is related to the site of placenta attachment; implantation to the intestine or the urinary bladder caused signs of obstruction or inflammation. Most of the abdominal pregnancy implanted in cavum Douglas, in the posterior aspect of the uterus and fundus. (Bertrand et al)

The diagnosis of abdominal pregnancy is not always easy. Fifty percent of diagnosis is wrong, and only 40% of abdominal pregnancy is diagnosed before the surgery. Advanced abdominal pregnancy has been found after failed labor induction. Imaging allows confirmation of the diagnosis and shows the detail of placental attachment and vascularization. The characteristics of abdominal pregnancy on ultrasonographic examination are empty uterus cavity, the presence of fetus outside the uterus, absence of uterus wall between urinary bladder and fetus, location of the extrauterine placenta, poor placental visualization, the appearance of pseudo-placenta Previa, oligohydramnios, part of the fetus adjacent to the mother's gastrointestinal tract, abnormal fetal presentation, and the absence of amniotic fluid between the fetus and the placenta. Ultrasonographic examination of this patient showed an empty uterine cavity and fetal appearance on the extrauterine. The placenta is attached to the anterior region of the urinary bladder, with an estimated fetal age of 12 weeks. (Gurjar, 2018)

Ultrasound with an expanded field of view gives better visualization compared to conventional real-time ultrasound. (8, 11)MRI is the choice of the examination for the cases with suspected abdominal pregnancy. The benefits include clear images in various fields and a clear description of the placenta and its vascularization. On MRI examination, this patient showed an intraperitoneal extrauterine pregnancy in the anterosuperior uterus and hematometra. (Bertrand *et al*,. 2009; Scheinfeld *et al.*, 2014, Dubey *et al.*, 2016)

The Cochrane systematic review concluded that methotrexate treatment had the highest success rate when plasma β-hCG levels were below 3.000 IU/mL. It was stated that the side effects of the double-dose methotrexate treatment disrupted the quality of life of the patient. Also, methotrexate treatment is more expensive than laparoscopic salpingotomy when initial plasma β-hCG levels are above 3.000 IU/L. Treatment with single-dose methotrexate has fewer side effects, but the success rate is less compared to multiple-dose regimens. (Sendy et al., 2015; Hajenius et al., 2017)

Surgical intervention for abdominal pregnancy included the preparation for the massive bleeding. (Tucker *et al.*, 2017) Laparotomy is performed as a treatment in cases with life-threatening maternal bleeding that may occur during placental separation. (Dubey *et al.*, 2016) During surgery, massive intra-abdominal bleeding due to placental separation can not be predicted; therefore, surgery must be performed when the diagnosis is confirmed, regardless of the gestational age. Massive bleeding from the placental implantation sites is often the most common cause of maternal death, and the decision to remove or leave the placenta in situ depends on the extent of placentation and the surgeon's skills. It is recommended to leave the placenta and monitor β-hCG levels. (Ge *et al.*, 2017) Minimally invasive surgery can be used in terminating abdominal pregnancy in the second trimester of pregnancy. The management of this patient is exploratory laparotomy surgery, right oophorectomy, and adhesiolysis through a midline incision with spinal anesthesia. During operation, the fetus is located intraabdominal and enveloped in the amniotic membrane; the placenta is attached to the omentum, mesentery, anterior uterus, and right ovary. Adhesiolysis is performed, and then the right oophorectomy is performed. The placenta, which implanted in the mesentery, is left in-situ to prevent massive bleeding. Post-operative β-hCG levels are more than 1500 mIU/ml, and the patient given a single-dose injection of methotrexate 50 mg intramuscular. (Alborzi *et al.*, 2013))

Placental mass takes years to be absorbed when left at the implantation site, while β-hCG levels take several months to decrease. In the initial post-operative period, surgical wound dehiscence may occur. Patient monitoring is required for early diagnosis of an inflammatory response associated with necrotic placenta, including advanced bleeding, intestinal or ureteral obstruction, fistulas involving the abdominal organ, abscess formation, and sepsis. Another option that can be done is to separate the placenta after identification and ligation of each placental blood vessels. However, difficulties can arise when the placenta implanted into one or more vital organs or large blood vessels, and there is no normal mechanism, in this case, contraction of the uterus, to prevent blood loss from the placental beds. Uncontrolled bleeding is the reason for maternal death, and 20 percent of the cases have been reported. (Ge *et al.*, 2017; Dubey *et al.*, 2016)

III. CONCLUSION

Abdominal pregnancy is a condition that has challenges in establishing diagnosis and management. Mortality and morbidity rates due to abdominal pregnancy are significant, thus, early diagnosis with the assistance of ultrasonography can contribute to effective conservative management. Early diagnosis using ultrasonography in the early stage of pregnancy before ruptures and immediate treatment, in this case, can prevent complications such as massive bleeding. Appropriate counseling of each individual regarding the risk of subsequent pregnancies and delivery method is indispensable.

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