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Laporan Kasus

SPEKTRUM PLASENTA AKRETA DENGAN KOMPLIKASI APENDISITIS AKUT PADA KEHAMILAN ATERM DENGAN TIGA RIWAYAT SEKSIO SESAREA SEBELUMNYA: LAPORAN KASUS

PLACENTA ACCRETA SPECTRUM COMPLICATED BY ACUTE APPENDICITIS IN A TERM PREGNANCY WITH THREE PREVIOUS CESAREAN DELIVERIES: A CASE REPORT

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A B S T R A K

Placenta accreta spectrum (PAS) ditandai dengan perlekatan atau invasi abnormal plasenta ke dalam miometrium dan berhubungan dengan morbiditas maternal yang signifikan. Kondisi ini merupakan salah satu penyebab utama perdarahan postpartum yang mengancam jiwa, terutama pada wanita dengan riwayat operasi sesar berulang. Seorang wanita berusia 32 tahun (G4P3A0) dengan riwayat tiga kali persalinan melalui operasi sesar dirujuk dengan dugaan PAS berdasarkan temuan ultrasonografi berupa implantasi plasenta abnormal. Pasien datang dengan keluhan nyeri hebat di perut bagian bawah disertai mual dan muntah. Pemeriksaan fisik menunjukkan kondisi hemodinamik stabil dengan suhu tubuh 38°C. Pemeriksaan laboratorium menunjukkan anemia sedang dan leukositosis disertai neutrofilia yang mengarah pada proses inflamasi. Pasien menjalani operasi sesar disertai appendektomi simultan. Temuan intraoperatif menunjukkan perlekatan plasenta abnormal yang mengarah pada PAS serta perubahan inflamasi pada apendiks yang mengarah pada appendisitis akut. Estimasi perdarahan intraoperatif sekitar 1200 mL sehingga diperlukan transfusi 3 unit packed red blood cells (PRC). Seorang bayi laki-laki sehat dengan berat lahir 3100 gram dilahirkan dengan skor Apgar 8 dan 10 pada menit pertama dan kelima. Perjalanan pascaoperasi berlangsung tanpa komplikasi, dan pasien dipulangkan dalam kondisi baik pada hari kelima pascaoperasi. PAS berhubungan erat dengan riwayat operasi sesar berulang akibat perlekatan dan invasi trofoblas abnormal pada area jaringan parut uterus. Keberadaan appendisitis akut yang terjadi bersamaan selama kehamilan merupakan kondisi yang jarang dan dapat mempersulit diagnosis akibat perubahan anatomi selama kehamilan. Identifikasi dini faktor risiko PAS dan patologi intraabdomen yang menyertai, disertai persiapan perioperatif yang adekuat serta tata laksana multidisiplin, sangat penting untuk meningkatkan luaran maternal dan neonatal.

Keywords

Placenta Accreta, Placenta Accreta Spectrum, Sectio Caesarea Recurrent, Post Partum Hemorrhage

A B S T R A C T

Placenta accreta spectrum (PAS) is characterized by abnormal placental adherence or invasion into the myometrium and is associated with significant maternal morbidity. It is one of the leading causes of life-threatening postpartum hemorrhage, particularly among women with a history of repeated cesarean deliveries. A 32-year-old woman (G4P3A0) with a history of three previous cesarean deliveries was referred with suspected PAS based on ultrasonographic findings of abnormal placental implantation. The patient presented with severe lower abdominal pain accompanied by nausea and vomiting. Physical examination revealed stable hemodynamic status with a temperature of 38°C. Laboratory investigations demonstrated moderate anemia and leukocytosis with neutrophilia, suggestive of an inflammatory process. The patient underwent cesarean section with simultaneous appendectomy. Intraoperative findings demonstrated abnormal placental adherence suggestive of PAS and inflammatory changes of the appendix suggestive of acute appendicitis. Estimated blood loss was approximately 1200 mL, requiring transfusion of 3

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units of packed red blood cells. A healthy male infant weighing 3100 g was delivered with Apgar scores of 8 and 10 at 1 and 5 minutes, respectively. The postoperative course was uneventful, and the patient was discharged in good condition on postoperative day five. PAS is strongly associated with repeated cesarean deliveries due to abnormal trophoblastic attachment and invasion at scarred uterine sites. Concurrent acute appendicitis during pregnancy is uncommon and may complicate diagnosis because of altered anatomical presentation. Early recognition of PAS risk factors and concurrent intra-abdominal pathologies, together with adequate perioperative preparation and multidisciplinary management, are essential to improve maternal and neonatal outcomes.

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INTRODUCTION

Placenta accreta spectrum (PAS) is an abnormality of placental implantation characterized by abnormal adherence or invasion of chorionic villi into the myometrium due to the absence or deficiency of decidua basalis formation. PAS is one of the leading causes of life-threatening postpartum hemorrhage and is associated with significant maternal morbidity and mortality worldwide.[1,2]

The global incidence of PAS has markedly increased over the past four decades, largely attributed to the increasing rates of cesarean section deliveries. Repeated uterine surgery results in myometrial scar formation, disrupting normal decidualization in subsequent pregnancies and predisposing patients to abnormal trophoblastic invasion.[3,4] Studies estimate that the incidence of PAS ranges from approximately 0.3% after one previous cesarean delivery to as high as 6.74% after five or more cesarean deliveries.[8]

Placenta accreta spectrum (PAS) may remain asymptomatic during pregnancy; however, advances in antenatal ultrasonography have improved early detection and perioperative planning. Management becomes more challenging when PAS coexists with other intra-abdominal pathologies such as acute appendicitis, particularly during pregnancy, where anatomical and physiological changes may alter clinical presentation and delay diagnosis.[5,9]

Early identification through antenatal screening, accurate diagnosis, and planned multidisciplinary management are essential to reduce maternal and neonatal complications. This case report presents a 32-year-old woman with suspected PAS and concurrent acute appendicitis in a term pregnancy with a history of three previous cesarean deliveries, highlighting the diagnostic and surgical challenges associated with these coexisting conditions.

CASE ILLUSTRATION

Patient Mrs. N, a 32-year-old woman, presented as a referral patient with suspected placenta accreta spectrum (PAS) based on a history of repeated cesarean sections and ultrasonographic findings suggestive of abnormal placental implantation (figure a). The main complaint was severe lower abdominal pain in the pubic symphysis region that had been intermittent for one day prior to admission. The pain did not improve with rest and worsened with movement, accompanied by nausea and vomiting.

Prior obstetric history revealed three previous term deliveries, all via cesarean section, with no history of abortion. There was no history of chronic illness such as hypertension, diabetes mellitus, or cardiac disease. No similar family history was reported. Physical examination revealed blood pressure of 110/70 mmHg, pulse rate of 98 beats/minute, respiratory rate of 20 breaths/minute, and body temperature of 38°C. General physical examination was within normal limits. Obstetric examination showed a term gravid uterus with detectable fetal heart rate.

Laboratory investigations revealed moderate anemia with hemoglobin of 9.4 g/dL, hematocrit of 27.9%, and erythrocyte count of 3.31 $\times 10^6/\mu L$. Leukocytosis was noted with a

leukocyte count of 12.73 $\times 10^3/\mu L$, neutrophilia with neutrophils of 77.7% and absolute neutrophil count (NEUT#) of 9.89 $\times 10^3/\mu L$, and relative lymphopenia with lymphocytes of 14.9%. The neutrophil-to-lymphocyte ratio (NLR) was elevated at 5.2. These laboratory findings were suggestive of moderate anemia accompanied by an active inflammatory process.

Based on clinical and laboratory findings, the working diagnosis was suspected placenta accreta spectrum in a term pregnancy with a history of three previous cesarean deliveries, with differential diagnoses including placenta previa, placental abruption, and uterine atony. The obstetric status was G4P3A0 with moderate anemia. Planned management included cesarean section with preparation for possible additional surgical intervention according to intraoperative findings, broad-spectrum antibiotics, blood transfusion preparation, and close monitoring of maternal and fetal status.

On January 12, 2026, the patient underwent cesarean section with simultaneous appendectomy. Intraoperatively, abnormal placental adherence suggestive of placenta accreta spectrum was identified without invasion into adjacent organs, including the urinary bladder (figure b). Placental separation was successfully achieved without significant hemorrhage or hemodynamic instability; therefore, hysterectomy was not required. In addition, the appendix appeared edematous and hyperemic with surrounding inflammatory changes suggestive of acute appendicitis, and appendectomy was subsequently performed.

The estimated intraoperative blood loss was approximately 1200 mL. Blood transfusion support included 3 units of packed red blood cells, while fresh frozen plasma and platelet transfusions were not required because coagulation status remained stable throughout the perioperative period.

Figure 1. Prenatal Ultrasonographic Findings Suggestive of Placenta Accreta Spectrum. Ultrasonographic Findings May Include Loss of The Retroplacental Clear Zone and Abnormal Placental Adherence.

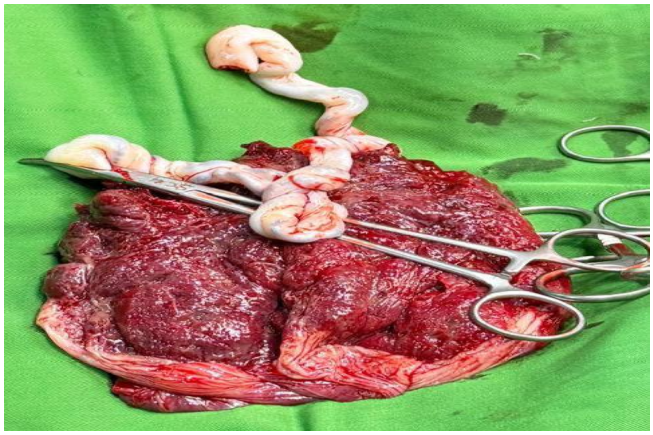

Figure 2. Intraoperative Specimen Following Cesarean Section in a Patient With Suspected Placenta Accreta Spectrum. The Diagnosis was Supported by Clinical History, Ultrasonographic Findings, and Intraoperative Assessment.

A live male infant weighing 3100 g was delivered with Apgar scores of 8 and 10 at 1 and 5 minutes, respectively. Neonatal intensive care unit admission was not required. Postoperatively, the patient was admitted to the intensive care unit for close monitoring for two days. No postoperative complications occurred during hospitalization. The patient demonstrated satisfactory clinical recovery and was discharged in good condition on postoperative day five.

DISCUSSION

Placenta accreta spectrum (PAS) is characterized by abnormal placental adherence or invasion into the myometrium and is associated with significant maternal morbidity. It is classified based on the depth of placental invasion into accreta, increta, and percreta.[1,5]

In this case, the presence of three previous cesarean sections represents a major risk factor for PAS due to repeated uterine scarring. Major risk factors include a history of cesarean section ≥2 times, placenta previa, prior uterine surgery (curettage, myomectomy), multiparity, maternal age ≥35 years, and prior endometritis.[2,4,8] Repeated cesarean deliveries are associated with uterine scar formation, which may disrupt normal decidualization and predispose to abnormal trophoblastic attachment or invasion in subsequent pregnancies. Defective decidua basalis formation at previous uterine scar sites may facilitate abnormal placental adherence and increase the risk of placenta accreta spectrum. This abnormal placental implantation may result in placental retention and severe obstetric hemorrhage during delivery, potentially leading to serious maternal complications such as hypovolemic shock and disseminated intravascular coagulation (DIC).[3,9,13]

Placenta accreta spectrum may be suspected antenatally through ultrasonographic findings such as placental lacunae, myometrial thinning, and abnormal placental vascularity, although definitive diagnosis may remain challenging in some cases. In this case, antenatal ultrasound played an important role in identifying abnormal placental implantation and guiding perioperative planning. Magnetic resonance imaging (MRI) may also be utilized, when available, to further assess the depth and extent of placental invasion.[2,6,14] In addition to PAS, this case was further complicated by the presence of acute appendicitis. The coexistence of these two conditions is rare and presents a significant diagnostic challenge, as pregnancy alters the typical clinical presentation of appendicitis.

In this case, intraoperative findings demonstrated inflammatory changes suggestive of acute appendicitis, further complicating clinical management. Acute appendicitis is generally caused by luminal obstruction and may rapidly progress to perforation if left untreated.[4,17] During pregnancy, the diagnosis of appendicitis becomes more challenging because uterine enlargement alters anatomical landmarks and may obscure classical clinical manifestations, potentially delaying diagnosis.[5,17]

Furthermore, the elevated neutrophil-lymphocyte ratio (NLR) observed in this patient is an established marker of systemic inflammatory response and has been reported as a useful predictor of infectious and inflammatory

complications in obstetric patients.[10,17] An NLR >5 has been associated with increased risk of maternal morbidity, including sepsis and surgical complications.

Cesarean hysterectomy remains the standard treatment for many PAS cases, particularly in patients with extensive placental invasion and severe hemorrhage risk. However, management should be individualized according to the extent of placental involvement, maternal hemodynamic status, and intraoperative findings. In this case, placental separation was successfully achieved without uncontrolled hemorrhage, and hysterectomy was not required. Simultaneous appendectomy was performed because inflammatory changes suggestive of acute appendicitis were identified intraoperatively. Adequate blood preparation and multidisciplinary perioperative management contributed to favorable maternal and neonatal outcomes.[1,6,18]

Early antenatal screening for PAS should be considered in women with risk factors such as placenta previa and previous cesarean deliveries. Patients with suspected PAS should be referred to tertiary care centers with multidisciplinary expertise and adequate blood bank support. Early planning and coordinated multidisciplinary management may substantially improve maternal and neonatal outcomes.[12,19,20]

CONCLUSIONS

Placenta accreta spectrum associated with repeated cesarean deliveries represents a serious obstetric condition with substantial risk of maternal morbidity and hemorrhagic complications. The coexistence of PAS and acute appendicitis during pregnancy may further complicate diagnosis and perioperative management. Early recognition of risk factors, antenatal identification, adequate blood preparation, and coordinated multidisciplinary management are essential to optimize maternal and neonatal outcomes in complex obstetric cases.

ETHICS APPROVAL AND CONSENT

Written informed consent was obtained from the patient for publication of this case report and accompanying clinical information and images. Patient anonymity has been preserved throughout the manuscript.

REFERENCE

1. Silver RM, Branch DW. Placenta accreta spectrum. *N Engl J Med.* 2018;378(16): 1529-1536.
2. American College of Obstetricians and Gynecologists. Placenta accreta spectrum. *Obstet Gynecol.* 2021;138(6):e31-e54.
3. Jauniaux ERM, Alfirevic Z, Bhide AG, et al. Placenta praevia and placenta accreta: diagnosis and management. *BJOG.* 2019;126(1):e1-e48.
4. Creanga AA, Bateman BT, Butwick AJ, et al. Morbidity associated with cesarean delivery in the United States: is placenta accreta an increasingly important contributor? *Am J Obstet Gynecol.* 2015;213(3):384.e1-384.e11.
5. Jauniaux ERM, Collins SL, Burton GJ. Placenta accreta spectrum: pathophysiology and evidence-based anatomy for prenatal ultrasound imaging. *Am J Obstet Gynecol.* 2018;218(1):75-87.
6. Fitzpatrick KE, Sellers S, Spark P, Kurinczuk JJ, Brocklehurst P, Knight M. Incidence and risk factors for placenta accreta/increta/percreta in the UK: a national case-control study. *PLoS One.* 2012;7(12):e52893.
7. Sentilhes L, Kayem G, Chandraharan E, et al. FIGO consensus guidelines on placenta accreta spectrum disorders: conservative management. *Int J Gynaecol Obstet.* 2018;140(3):291-298.

8. Marshall NE, Fu R, Guise JM. Impact of multiple cesarean deliveries on maternal morbidity: a systematic review. *Am J Obstet Gynecol.* 2011;205(3):262.e1-262.e8.
9. Cahill AG, Beigi R, Heine RP, Silver RM, Wax JR. Placenta accreta spectrum. *Am J Obstet Gynecol.* 2018;219(6):B2-B16.
10. Yücel B, Ustun B. Neutrophil-to-lymphocyte ratio, platelet-to-lymphocyte ratio, mean platelet volume, red cell distribution width and plateletcrit in preeclampsia. *Pregnancy Hypertens.* 2017;7:29-32.
11. Sela HY, Frenkel T, Salleh M, Milgrom Y, Einav S, Ginosar Y. The neutrophil-to-lymphocyte ratio and the outcome of major obstetric hemorrhage. *Int J Obstet Anesth.* 2021;47:102992.
12. Jauniaux E, Kingdom JC, Silver RM. A comparison of recent guidelines in the diagnosis and management of placenta accreta spectrum disorders. *Best Pract Res Clin Obstet Gynaecol.* 2021;72:102-116.
13. Einerson BD, Gilner JB, Zuckerwise LC. Placenta accreta spectrum. *Obstet Gynecol.* 2023;142(1):91-116.
14. Gilner JB, Deshmukh U. Evidence-based perioperative management of placenta accreta spectrum disorder. *Obstet Gynecol.* June 2025; 145(6):p 595-610
15. Einerson BD, Silver RM. Multidisciplinary teams in the management of placenta accreta spectrum disorders. *Curr Obstet Gynecol Rep.* 2019;8:59-67.
16. Shamshirsaz AA, Fox KA, Salmanian B, et al. Maternal morbidity in patients with morbidly adherent placenta treated with and without a standardized multidisciplinary approach. *Am J Obstet Gynecol.* 2015;212(2):218.e1-218.e9.
17. Kilpatrick CC, Monga M. Acute abdomen in pregnancy. *Clin Obstet Gynecol.* 2019;62(1):112-129.
18. Warrick CM, Markley JC, Farber MK, Balki M. Placenta accreta spectrum disorders: knowledge gaps in anesthesia care. *Anesth Analg.* 2022;135(1):191-197.
19. Allen L, Jauniaux E, Hobson S, et al. FIGO consensus guidelines on placenta accreta spectrum disorders: nonconservative surgical management. *Int J Gynaecol Obstet.* 2018;140(3):281-290.
20. Jauniaux E, Kingdom JC, Silver RM. Guidelines on placenta accreta spectrum disorders: a systematic review. *JAMA Netw Open.* 2025;8(7):e2521909.