Recurrent Pregnancy Loss with Hypertensive Complication, Obesity and Suspected APS: A Case Based Approach to Antenatal Care Challenges

Husna Bulkis Dasopang[1], Mulyanusa Amarullah Ritonga[1], Amillia Siddiq[1]

[1]Department of Obstetrics and Gynecology, Faculty of Medicine, Padjadjaran University – Dr. Hasan Sadikin Hospital, Bandung, Indonesia

Email correspondence : husnabulkis@gmail.com

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Abstract

Recurrent miscarriage, defined as the loss of two or more consecutive pregnancies, is a multifactorial condition associated with genetic, hormonal, anatomical, autoimmune, and maternal age–related factors. In Indonesia, data remain limited; however, at Dr. Kariadi Semarang Hospital, 18.7% of recurrent miscarriage cases between 2015 and 2017 were reported as idiopathic. We report a case of a 23-year-old woman, G7P0A6, at 33–34 weeks' gestation, presenting with elevated blood pressure and a history of chronic hypertension since 2016 with poor medication adherence. Ultrasonography revealed symmetrical fetal growth restriction (FGR) with an estimated fetal weight of 1500–1800 grams, and an obstetric history notable for six first-trimester miscarriages, suggestive of antiphospholipid syndrome (APS). Physical examination showed a blood pressure of 160/110 mmHg and obesity (BMI 32.9 kg/m²) without other features of severe preeclampsia; fetal monitoring and Doppler studies were normal. The patient was diagnosed with chronic hypertension exacerbated by preeclampsia, symmetrical fetal, suspected APS, recurrent miscarriage, and obesity. Management included conservative hospitalization, administration of magnesium sulfate, corticosteroids, and antihypertensive therapy, with cesarean delivery planned after 34 weeks once fetal lung maturation was achieved. This case highlights the challenges of managing high-risk pregnancies complicated by APS, FGR, and hypertensive disorders, emphasizing the importance of adequate antenatal care, multidisciplinary coordination, and appropriate timing of delivery to optimize maternal and fetal outcomes.

Keywords**: **Antenatal Care, Poor Obstetric, Recurrent Pregnancy Loss, Fetal Growth Restriction; Preganancy Termination.

INTRODUCTION

Recurrent Pregnancy Loss (RPL) represents a multifaceted reproductive health issue with profound psychological consequences for affected women and their families (Practice Committee of the American Society for Reproductive Medicine, 2020). Globally, RPL affects approximately 1–2% of women of reproductive age (WHO, 2023). In high-income countries such as the United States and the United Kingdom, the incidence ranges from 1.5% to 2%. In contrast, rates in low- and middle-income countries may reach 3–5%, largely due to delayed diagnosis and restricted access to comprehensive healthcare services. Pregnancy-related complications, including hypertension and metabolic disorders such as obesity, account for over 28% of maternal mortality cases(Ministry of Health of Indonesia, 2023).

Beyond Antiphospholipid Syndrome (APS), hypertension and obesity are increasingly recognized as significant contributors to miscarriage and obstetric complications. Hypertensive

disorders during pregnancy, particularly preeclampsia, remain among the leading causes of maternal morbidity and mortality worldwide, with a global prevalence estimated at 8–10% (WHO, 2023). In Indonesia, preeclampsia and eclampsia account for approximately 23.2% of maternal deaths. Concurrently, the prevalence of obesity among women of reproductive age has escalated markedly, from 28.5% in 2018 to 36.2% in 2023 (Kemenkes RI, 2023). Obesity exacerbates systemic inflammation, insulin resistance, and endothelial dysfunction, all of which synergistically heighten the severity of hypertension and elevate the risk of recurrent pregnancy loss(Lourenço & Guedes-martins, 2025).

The convergence of recurrent pregnancy loss (RPL), obesity, hypertension, and suspected antiphospholipid syndrome (APS) presents a particularly complex clinical challenge. Physiologically, these conditions interact through intricate inflammatory, immunological, and hemostatic mechanisms, resulting in compromised placental perfusion and an elevated risk of pregnancy loss. Evidence from multiple studies indicates that combination therapy involving low-dose aspirin and low-molecular-weight heparin can improve pregnancy outcomes, with success rates reaching 70–80% among patients diagnosed with APS (Herlambang, 2016).

Recurrent miscarriage is defined as the occurrence of two or more consecutive pregnancy losses (Eshre et al., 2018). Although comprehensive national data on recurrent miscarriage in Indonesia remain limited, a study by Alfansury et al. (2018), reported that 18.7% of all miscarriage cases at Dr. Kariadi Semarang Hospital between 2015 and 2017 were classified as recurrent, with all cases deemed idiopathic (100%). Recurrent miscarriage is a multifactorial condition. Key contributing factors include genetic abnormalities in couples (2–5%), hormonal imbalances, uterine structural anomalies (12.6%), and antiphospholipid syndrome (15%)(Cavalcante et al., 2018; Aliyeva et al., 2024).

Epidemiological factors such as maternal age and a history of prior miscarriages are known to increase the risk of recurrent pregnancy loss. The likelihood of miscarriage rises significantly with advancing maternal age: 25% for women over 35 years, 51% for those over 40, and up to 93% for women aged 45 and above. Couples in which the female partner is aged 35 or older and the male partner is aged 40 or older face the highest risk of miscarriage compared to younger age groups. A history of previous miscarriages further elevates the risk in subsequent pregnancies, with the probability increasing cumulatively with each additional loss. Although the true prevalence of miscarriage is believed to be higher than reported, the absence of mandatory reporting mechanisms contributes to substantial underestimation. Recurrent miscarriage affects approximately 1–2% of couples, suggesting that it is not a

random event but rather a condition with identifiable underlying causes(Eshre et al., 2018).

In this context, antenatal care plays a pivotal role in the early detection, risk stratification, and holistic management of pregnant women presenting with overlapping conditions such as recurrent pregnancy loss (RPL), obesity, hypertension, and suspected antiphospholipid syndrome (APS). However, evidence-based clinical guidelines addressing these complex comorbidities remain scarce, particularly in resource-limited settings where laboratory infrastructure and multidisciplinary expertise are constrained. A case-based approach is essential for personalizing anticoagulant therapy, blood pressure regulation, and weight management according to individual patient profiles.

Experiencing recurrent miscarriage is undeniably distressing for couples, often accompanied by heightened anxiety regarding the prognosis of future pregnancies. Identifying the underlying causes of recurrent miscarriage is therefore critical to improving clinical outcomes and offering hope to affected families. This case study explores the appropriateness of diagnosing recurrent miscarriage and evaluates the antenatal care strategies provided to individuals with a documented history of pregnancy loss. The discussion aims to contribute to antenatal care education by highlighting best practices for managing patients with recurrent miscarriage.

METHODS

This study employed a single-case design combined with a narrative literature review to explore the diagnostic and management challenges associated with recurrent pregnancy loss (RPL) in the context of coexisting hypertension, obesity, and suspected antiphospholipid syndrome (APS). The case was identified through a retrospective review of medical records from patients receiving obstetric care at Dr. Hasan Sadikin General Hospital (RSHS) in Bandung, a tertiary referral center and teaching hospital located in West Java. The case study was conducted in May 2023. Case selection adhered to established clinical criteria for RPL, including a history of two or more miscarriages prior to 20 weeks' gestation, hypertensive complications during the current pregnancy, obesity defined as a body mass index (BMI) ≥30 kg/m², and clinical suspicion of APS based on symptomatology and relevant laboratory findings.

Patient data were comprehensively collected through a retrospective review of medical records, encompassing demographic characteristics, medical and obstetric history, presenting complaints and clinical manifestations, physical examination findings, laboratory and imaging results, and therapeutic interventions administered during pregnancy. Additionally, information on pregnancy outcomes and postpartum follow-up was documented to provide a

holistic overview of the patient's clinical trajectory. The collected data were analyzed descriptively, outlining the chronological sequence of events, diagnostic findings, treatment strategies, and the patient's clinical response to the interventions provided.

The ethical considerations of this study were guided by the principles outlined by the Committee on Publication Ethics (COPE) and the CARE Guidelines for clinical case reporting. As the study involved a single patient and did not include any research interventions, formal ethics committee approval was not required. However, written informed consent was obtained from the patient, with assurances of full confidentiality and anonymity.

To contextualize the case within current scientific discourse, a narrative literature review was conducted using the following keywords: "antenatal care," "recurrent pregnancy loss," "hypertensive disorders in pregnancy," "antiphospholipid syndrome," "maternal obesity," and "fetal growth restriction." Data analysis was performed narratively, integrating the patient's clinical findings with contemporary evidence from the literature. This report adheres to the CARE Case Report framework, encompassing background, case presentation, diagnosis, intervention, outcomes, and discussion. The authors declare no conflicts of interest in the preparation of this manuscript.

RESULTS

A 23-year-old woman, gravida 7 para 0 abortus 6, at 33–34 weeks of gestation, presented to the antenatal clinic for routine prenatal evaluation. She was referred from RS Hermina Pasteur with a diagnosis of fetal growth restriction (FGR). The patient reported a history of hypertension dating back to 2016, for which she had been prescribed amlodipine 5 mg once daily; however, she acknowledged inconsistent adherence to the medication regimen. Her blood pressure had remained elevated for the past three months, averaging approximately 150/— mmHg.

At presentation, the patient denied uterine contractions, vaginal discharge, or bloody show, and confirmed ongoing perception of fetal movements. She exhibited no signs of severe preeclampsia, such as headache, visual disturbances, or epigastric pain. Additionally, she denied any history of other chronic illnesses, including asthma, cardiovascular disease, or diabetes mellitus. The patient's obstetric history revealed six prior pregnancies, all culminating in complete miscarriages between 7 and 9 weeks of gestation. Several of these losses necessitated curettage procedures, while others occurred spontaneously. In light of this recurrent pregnancy loss, an underlying diagnosis of antiphospholipid syndrome (APS) was suspected. The patient reported no history of contraceptive use. Her current pregnancy represents her seventh gestation. On physical examination, the patient was alert and in good

general condition. Her vital signs were as follows: blood pressure 160/110 mmHg, pulse rate 80 beats per minute, respiratory rate 20 breaths per minute, and body temperature 36.5°C. Her body mass index (BMI) was 32.9 kg/m², consistent with obesity. No pallor, jaundice, or peripheral edema was observed. Cardiopulmonary examination revealed no abnormalities.

Obstetric assessment showed a fundal height of 25 cm and an abdominal circumference of 116 cm. The fetus was in cephalic presentation, with the fetal back positioned on the maternal right side. No uterine contractions were noted. The fetal heart rate ranged from 144 to 148 beats per minute, and cardiotocography (CTG) findings were reassuring (Category I).

Ultrasound examination revealed a live singleton intrauterine fetus in cephalic presentation, consistent with a gestational age of 33–34 weeks. The estimated fetal weight was 1,532 grams, corresponding to the 8th percentile, consistent with symmetrical fetal growth restriction. Amniotic fluid index (AFI) was 7 cm, indicating borderline oligohydramnios. The placenta was located posteriorly with a clear zone present. Doppler velocimetry showed umbilical artery PI of 1.29 and middle cerebral artery PI of 2.35, both within acceptable limits, with normal ductus venosus flow.

Laboratory investigations demonstrated a hemoglobin level of 13.0 g/dL, hematocrit 37.7%, and normal platelet count. Liver and renal function tests were within normal ranges (SGOT 11 U/L, SGPT 9 U/L, ureum 17 mg/dL, creatinine 0.68 mg/dL). Urinalysis showed 2+ proteinuria and 2+ glucose, with 3+ erythrocytes and 2+ leukocyte esterase. Serum albumin was slightly decreased at 3.4 g/dL. Fasting blood glucose was normal at 98 mg/dL, while 2-hour postprandial glucose was elevated at 163 mg/dL. Screening tests for hepatitis B and HIV were nonreactive. Based on clinical findings, laboratory results, and obstetric history, the working diagnosis was gravida 7 para 0 abortus 6 at 33–34 weeks of gestation with chronic hypertension superimposed by preeclampsia, symmetrical fetal growth restriction, suspected antiphospholipid syndrome, recurrent pregnancy loss, and obesity.

The patient was managed conservatively with inpatient monitoring. A loading dose of 4 grams magnesium sulfate was administered intravenously over 15–20 minutes, followed by a maintenance infusion of 10 grams in 450 mL Ringer Lactate at 20–30 drops per minute for seizure prophylaxis. Dexamethasone 6 mg intramuscularly twice daily was given for fetal lung maturation. Blood pressure control was achieved with nifedipine 10 mg orally, repeated every 30 minutes as needed until mean arterial pressure decreased by 20%, followed by a maintenance dose of 10 mg three times daily, and methyldopa 500 mg orally three times daily. The patient's general condition, vital signs, uterine contractions, and fetal heart rate were closely monitored.

The management plan involved completing corticosteroid administration and preparing for pregnancy termination via cesarean section at 34 weeks of gestation, contingent upon maternal stabilization. The patient and her family received thorough counseling regarding the diagnosis, proposed treatment strategy, and associated risks, including potential complications of preeclampsia and fetal compromise. The primary objectives of management were to stabilize the maternal condition, prevent the onset of eclampsia, optimize fetal outcomes by prolonging gestation until 34 weeks following pulmonary maturation, and mitigate the risk of intrauterine fetal demise.

DISCUSSION

Antenatal Care (ANC) is a service provided by health professionals to pregnant women to monitor and provide health interventions for mothers and children during pregnancy. The ANC component includes risk identification, prevention and management of diseases in pregnancy, as well as health education and promotion. Good implementation of ANC has been proven to reduce maternal and child morbidity and mortality. The right ANC can identify pregnancy complications early so that it can refer and provide management to patients early.[14]

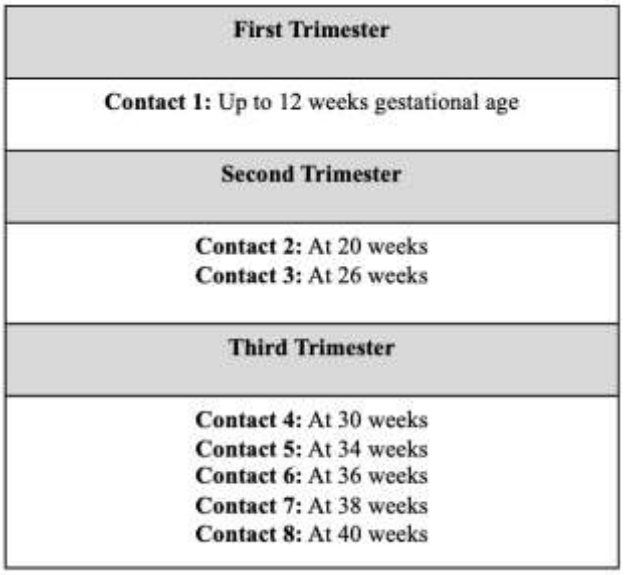

Figure 1. ANC model according to WHO (WHO, 2024)

The latest ANC guidelines issued by the *World Health Organization* (WHO) in 2022 recommend ANC consisting of a minimum of 8 visits during pregnancy. Figure 3 shows the ANC schedule by WHO. The first ANC visit was carried out until 12 weeks of gestation. Second visit at 20 weeks of age. The third visit was at 26 weeks of gestation. The fourth visit was at 30 weeks gestation. Fifth visit at 34 weeks of age. The sixth visit was at 36 weeks gestation. The seventh and eighth visits were at 38 weeks and 40 weeks. The ANC's recommendations by

WHO aim to improve health services for pregnant women (WHO, 2024).

Table 1. shows the WHO recommendations regarding the examination of ANC

No	Types of Inspections	Visit Schedule (Week-)							
		12	20	26	30	34	36	38	40
1	Anaemia screening	X		X			X		
2	Examination of asymptomatic bacteriuria	X		X		X			
3	Blood pressure check	X	X	X	X	X	X	X	X
4	Blood sugar	X	X	X	X	X	X	X	X
5	Cigarette use	X	X	X	X	X	X	X	X
6	Weight gain measurement	X	X	X	X	X	X	X	X
7	HIV and syphilis	X							
8	TB Screening	X							
9	Calculation of fetal motion per day	Recommended in research							
10	Examination of the height of the uterine fundus	X	X	X	X	X	X	X	X
11	Cardiotocographs antenatal	Not recommended regularly							
12	USG	X	X						
13	USG doppler	Not recommended regularly							

The 2020 maternal and child health book (KIA) recommends that the quantity of ANC visits be six times during pregnancy and at least twice of them are examined by a doctor in the 1st and 3rd trimester. Figure 5 shows the ANC contact schedule according to the KIA book. The six visits were carried out twice in the first trimester (up to 12 weeks of gestation), once in the second trimester (pregnancy above 12 weeks to 24 weeks) and three times in the third trimester (pregnancy above 24 weeks to 40 weeks) (Kemenkes, 2024).

ANC KIA 2020 Visit
First Trimester
Contact 1,2 : up to 12 weeks gestation
Second Trimester
Contact 3: Pregnancy above 12-24 weeks
Third Trimester
Contact 4,5,6: Pregnancy above 24-40 weeks

Figure 2. ANC Contact Schedule according to the 2020 KIA Book

Fetal growth restriction can be categorized according to its onset, specifically early or late onset, which indicates the gestational age at which growth retardation is identified. Early-onset congenital heart disease (before 32 weeks of gestation) represents a more severe phenotype, correlated with considerable impairment in placental perfusion that induces chronic fetal hypoxia, leading to future cardiovascular adaptations in utero. Fetuses experiencing early-onset placental insufficiency are at an increased risk of premature birth, deteriorating with time, and face a heightened risk of morbidity or fatality. In this instance, it is plausible that FGR has manifested at an early outset, inferred from the patient's gestational age of 33-34 weeks of

pregnancy as determined by ultrasound. Despite being identified solely at 33-34 weeks of gestation, it is plausible that FGR may have manifested prior to 33 weeks, suggesting the occurrence of early-onset FGR. The table illustrates the distinction between early-onset and late-onset FGR. Figure 4. illustrates the distinction between early-onset and late-onset FGR (Gallego et al., 2019).

		Severe early-onset IUGR	Moderate late-onset IUGR
IUGR %		20-30%	70-80%
Prevalence		1-2% (low)	3-5% (high)
Problem		Management	Diagnosis
Placental disease	Intensity	Severe	Moderate
	UA Doppler	Altered	Normal
	Preeclampsia association	High	Low
Hypoxia		++	+/-
Cardiovascular adaptation		Systemic	Central
Fetal Maturity		Immature fetus	Mature fetus
Hypoxia tolerance		High	Low
Natural history of fetal deterioration		Present	Absent (or fast evolution)
Morbi-mortality		High	Low (but common stillbirth cause). Adverse long-term outcomes

Figure 3. The Distinction Between Early Onset and Late Onset FGR

The marked disparity between early-onset and late-onset congenital heart disease underscores the role of placental function as a critical limiting factor in fetal development at specific gestational stages. The deterioration associated with early-onset fetal growth restriction (FGR) is a key determinant of adverse outcomes, highlighting the importance of timely identification during pregnancy, particularly through antenatal care. Currently, no effective antenatal treatment exists for FGR; therefore, delivery remains the only viable option in cases of severe FGR, often resulting in preterm birth. The timing of placental insufficiency (early versus late onset), gestational age, and estimated fetal weight are among the primary predictors of neonatal outcomes. Consequently, antenatal care should emphasize monitoring maternal weight gain, assessing fetal growth and development, and routinely measuring uterine fundal height (Parker et al., 2014).

In this case, the fetus exhibited symmetrical growth restriction. Symmetrical fetal growth restriction (FGR) typically arises from intrinsic factors—such as genetic or chromosomal abnormalities—or extrinsic influences including teratogenic exposure, prenatal infections, and acute maternal malnutrition. These disruptions generally occur early in

gestation. Symmetrical FGR is characterized by proportional reductions in fetal weight and length, with head circumference often below the normative range (microcephaly). The placenta is usually of normal size, and congenital anomalies are frequently associated with this variant. Amniotic fluid volume tends to remain within normal limits unless a congenital anomaly is present, which may result in oligohydramnios or polyhydramnios. Among fetal biometric parameters, abdominal circumference is particularly effective and highly sensitive in detecting both symmetrical and asymmetrical forms of FGR. In symmetrical cases, abdominal circumference and other biometric measurements are consistently reduced relative to gestational norms (Monier et al., 2017).

According to the World Health Organization (WHO) recommendations for antenatal care (ANC), blood pressure measurement is a routine procedure conducted at every prenatal visit. Similarly, assessment of uterine fundal height is a standard component of antenatal examinations, serving as a key indicator for the early detection of preeclampsia and fetal growth abnormalities.

Timely identification of such complications can be facilitated through comprehensive anamnesis, physical examination, and adjunct diagnostic testing. A detailed medical history may reveal underlying risk factors, while physical examination can uncover abnormalities in uterine size and contour. Ultrasound imaging provides valuable corroborative evidence, including the presence of notching, elevated pulsatility index in the uterine arteries, and absent or reversed end-diastolic flow in the umbilical arteries. When discrepancies in fundal height are observed, Doppler ultrasonography is recommended as part of routine surveillance to assess placental and fetal vascular function (WHO, 2024).

In this case, the patient reported attending six antenatal care visits—five at a local Health Center and one with a specialist in obstetrics and gynecology (SpOG). Blood pressure elevation was noted again at eight months of gestation, with a recorded measurement of 160/110 mmHg during evaluation at the Obstetric Outpatient Clinic of Dr. Hasan Sadikin General Hospital (RSHS). The patient received antenatal care twice before 12 weeks of gestation, resumed visits at 22 weeks, but did not continue follow-up until the specialist consultation at RSHS.

Although the patient met the minimum standards for prenatal care quality as defined by the attending physician, the overall frequency of visits was suboptimal. This inconsistency in antenatal care, particularly the prolonged gap in follow-up, may contribute to impaired fetal growth and delayed detection of preeclampsia, underscoring the importance of adherence to established antenatal care guidelines. Accordingly, patient education in this case should emphasize the critical importance of consistent prenatal care and appropriate gestational weight

gain. Given the patient's unfavourable obstetric history and the socioeconomic burden associated with child-rearing, antenatal monitoring should be conducted more frequently than the standard six-visit guideline recommended for low-risk pregnancies. The patient's elevated risk of preeclampsia is compounded by pre-existing chronic hypertension, necessitating vigilant surveillance and early intervention.

In addition, targeted nutritional counselling is essential due to the high prevalence of obesity-related complications. Maternal obesity is recognized as a significant high-risk obstetric condition, associated with increased maternal and fetal morbidity and mortality. It contributes to a range of adverse outcomes, including gestational diabetes, hypertensive disorders, postpartum hemorrhage, failed induction, thromboembolic events, congenital anomalies, shoulder dystocia, and fetal macrosomia. Effective management of obesity in pregnancy requires a multidisciplinary approach, integrating obstetric care, nutritional guidance, and specialist input to optimize maternal and neonatal outcomes (Pellonperä et al., 2019).

Early identification of maternal obesity can be effectively achieved through body mass index (BMI) assessment during the initial antenatal care visit(McAuliffe et al., 2020). At this stage, a structured approach to dietary and physical activity planning should be introduced, tailored to the patient's needs and implemented in collaboration with a qualified nutritionist. This proactive strategy supports the prevention of obesity-related complications and promotes healthier pregnancy outcomes.

Maternal educational attainment and improved socioeconomic conditions are known to positively influence pregnancy outcomes. Mothers with higher levels of education are generally better equipped to understand the necessary preparations and health-related actions required throughout gestation (Raatikainen et al., 2006).

Educational interventions, such as the administration of twenty-two key instructional points, should be tailored to the patient's level of understanding, as educational background significantly affects the efficacy of health education.

It is essential to assess the patient's comprehension of pregnancy-related complications to prevent feelings of guilt and to sustain her motivation for exclusive breastfeeding and adherence to recommended neonatal care practices. Such efforts are critical in promoting infant weight gain and ensuring adequate nutritional support during the neonatal period.

In women diagnosed with antiphospholipid syndrome (APS) and a history of three or more miscarriages, current guidelines recommend initiating low-dose aspirin (75–100 mg/day) prior to conception, in combination with prophylactic heparin, either unfractionated or low molecular weight, starting from the confirmation of pregnancy and continuing until delivery.

Aspirin monotherapy is not considered sufficient for the prevention of recurrent miscarriage in this context.

Additionally, elevated blood glucose levels may contribute to recurrent pregnancy loss. In this case, the patient's GD2PP (glucose two hours postprandial) result exceeded the standard threshold of 163 mg/dL, despite no prior history of diabetes mellitus. This finding warrants referral to an internal medicine specialist for further evaluation and management of glycemic status. Blood glucose levels should be reassessed postpartum to determine whether the elevation reflects gestational hyperglycemia or an underlying metabolic condition.

Given the patient's history of six miscarriages and current age of 36 years, it is essential to provide anticipatory guidance regarding future pregnancies. This includes counseling on risk factors, optimizing preconception health, and reinforcing the importance of multidisciplinary care to improve maternal and fetal outcomes.

CONCLUSIONS

Pregnancy termination in this case was performed at 34 weeks of gestation following the completion of fetal lung maturation therapy. The decision to proceed with cesarean section was deemed appropriate, considering the high-risk nature of the pregnancy and the patient's history of recurrent miscarriage. The suboptimal antenatal care received underscores the critical need for ongoing education regarding the importance of regular prenatal visits, gestational weight management, and early detection of maternal-fetal complications.

Given the clinical suspicion of antiphospholipid syndrome (APS), further laboratory evaluation is warranted to confirm the diagnosis and guide future management. Accurate identification of APS is essential to prevent recurrence in subsequent pregnancies and to ensure timely initiation of prophylactic therapy.

Physicians and obstetric care teams must remain vigilant in identifying risk factors for recurrent miscarriage through comprehensive preconception counseling and adherence to evidence-based antenatal care guidelines. Early screening for preeclampsia, ideally conducted during the first trimester, is essential to mitigate adverse maternal and fetal outcomes. Health education should be carefully tailored to the patient's level of understanding to enhance compliance, promote informed decision-making, and reduce maternal morbidity and mortality.

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