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G2P1A0 37-38 Weeks Pregnant with Cephalopelvic Disproportion, Previous Caesarean Section Scar and Anemia: Risk Factors, Prevention and Management - Case Report

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Abstract

Introduction: Cephalopelvic disproportion (CPD) is a labor-related condition caused by a mismatch between fetal size and maternal pelvic capacity, resulting in obstructed labor and potential maternal-fetal complications. It may arise from pelvic contraction, excessive fetal growth, or a combination of both. **Objective:** This study aims to report a case of cephalopelvic disproportion with a history of previous cesarean section and anemia in a 29-year-old pregnant woman. **Method:** A descriptive case-report approach was used. Clinical data were collected from medical records, including patient history, physical examination, laboratory results, and obstetric management procedures. **Result and Discussion:** The patient, gravida 2 para 1 abortus 0, presented with abdominal tightening, visual disturbances, and a known history of narrow pelvis and previous cesarean delivery. Examination confirmed cephalopelvic disproportion with anemia. Labor progression was stagnant, indicating mechanical obstruction. Cesarean section was performed successfully, and pharmacological treatment was administered to manage anemia and postoperative recovery. **Conclusion:** This case illustrates the importance of early identification and multidisciplinary management of cephalopelvic disproportion in patients with previous cesarean section and anemia to prevent maternal and neonatal complications.*.

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Introduction

Cephalopelvic disproportion (CPD), previous cesarean section (CS) scar, and anemia represent interrelated obstetric conditions that significantly impact maternal and fetal health outcomes. Physiological changes during pregnancy, including a 20–30% increase in blood volume, elevate the maternal body's demand for essential nutrients such as iron, folic acid, and vitamin B12 to support hemoglobin (Hb) production and oxygen delivery (World Health Organization [WHO], 2023). Iron deficiency anemia (IDA) remains the most prevalent form of anemia in pregnancy, primarily caused by inadequate iron intake and the increased maternal–fetal iron requirements needed to sustain placental circulation and red blood cell expansion (Kumar, Arnipalli, Mehta, Carrau, & Ziouzenkova, 2022); (Amalia, 2021)

Globally, the prevalence of anemia among pregnant women is estimated at 36.5%, while in developing countries such as Indonesia the prevalence reaches approximately 44% (Indonesian Ministry of Health, 2022). Chronic anemia in pregnancy contributes to fatigue, dizziness, and heightened risks of preterm delivery and low birth weight. Severe iron deficiency may also impair enzymatic systems dependent on iron, such as cytochrome function, which can result in symptoms like koilonychia, glossitis, angular stomatitis, and atrophic gastritis (Bhatnagar & Padilla-Zakour, 2021); (Mutmainnah, 2022)

Cephalopelvic disproportion (CPD) is a major obstetric complication that occurs when the maternal pelvis is inadequate for fetal passage, often resulting in prolonged labor, fetal distress, or the need for cesarean delivery (Kissler & Hurt, 2023); (Hayati, Pujiati, & Sumanti, 2023). Previous cesarean scars further increase maternal risks, particularly uterine rupture and abnormal placentation during subsequent pregnancies (Brahmana & Setyawati, 2020); (Wardhani, 2021). Studies have shown that maternal height and pelvic dimensions are significant risk factors for CPD, with shorter maternal stature strongly correlated with its incidence (Kristiani, Ibrahim, & Jingsung, 2024).

Anemia also plays a role in obstetric complications associated with CPD and cesarean section. Women with anemia are more prone to intraoperative bleeding, delayed wound healing, and postoperative infections (Kurniawan, 2024). Moreover, iron deficiency reduces uterine contractility, predisposing women to postpartum hemorrhage (Hidajaturokhmah & Jannah, 2021). The physiological and biochemical stress from anemia can also exacerbate hypoxia during obstructed labor, further compromising fetal oxygenation and maternal recovery (Kissler & Hurt, 2023); (Fitriah, Faridah, Rahmawati, & Gamara, 2022)

Despite numerous studies exploring anemia and obstetric complications independently, there remains a gap in **case-based evidence** linking CPD, prior cesarean scars, and anemia as concurrent determinants influencing labor outcomes (Hayati et al., 2023); (Sahir, 2021). Therefore, this study aims to analyze and present a clinical case illustrating the physiological interplay among these conditions, thereby strengthening obstetric management strategies and preventive care frameworks for pregnant women (WHO, 2025).

Method

This study employed a Kuantitatif descriptive case report approach focusing on a 29-year-old gravida 2 para 1 abortus 0 woman at 37–38 weeks of gestation who presented to the Emergency Department of the Universitas Kristen Indonesia General Hospital with

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complaints of abdominal tightening and visual disturbances. Comprehensive obstetric and physical examinations were conducted, including Leopold maneuvers, vital signs monitoring, and obstetric vaginal examination to assess pelvic dimensions and fetal position. Laboratory investigations were performed to evaluate hemoglobin (Hb), hematocrit, leukocytes, thrombocytes, and random blood glucose levels. Ultrasonography (USG) was used to determine fetal biometry, position, and estimated fetal weight. The diagnosis of cephalopelvic disproportion (CPD) with a previous cesarean section scar and anemia was established based on integrated clinical and imaging findings. Preoperative management included intravenous fluid therapy with Ringer's lactate and prophylactic antibiotics, while postoperative care involved oxytocin infusion, antibiotic administration, analgesics, vitamin supplementation, and continuous maternal monitoring. Daily postoperative evaluations were documented to observe wound healing progress, uterine involution, and lactation response. This methodological approach enables a comprehensive understanding of physiological and clinical outcomes in CPD cases complicated by anemia and surgical history.

Result and Discussion

1. Result

The patient's clinical condition, examination findings, laboratory results, and perioperative management are summarized below to provide an overview of her diagnosis and treatment progress.

Table 1

Vital Signs on Admission

Parameter	Result	Reference Range	Interpretation
Blood Pressure	105/70 mmHg	90–120 / 60–80 mmHg	Normal
Pulse Rate	89 bpm	60–100 bpm	Normal
Respiratory Rate	20 x/min	16–22 x/min	Normal
Temperature	36.5 °C	36–37.5 °C	Normal
SpO ₂	99% (room air)	>95%	Normal

Table 2

Obstetric Findings

Examination	Findings	Remarks
Fundal Height	31 cm	Consistent with 37–38 weeks
Abdominal Circumference	100 cm	Normal for term pregnancy
Fetal Heart Rate	150 bpm	Normal
Leopold I	Breech	Fundal presentation
Leopold II	Fetal back on right	Normal
Leopold III	Cephalic	Presenting part: head
Leopold IV	Convergent (not engaged)	Fetal head not yet in pelvis

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Table 3
Laboratory Results

Test	Result	Reference Range	Interpretation
Hemoglobin	9.5 g/dL	12–15 g/dL	Mild anemia
Hematocrit	30%	36–45%	Decreased
Leukocytes	$6.9 \times 10^3/\mu\text{L}$	$4–10 \times 10^3/\mu\text{L}$	Normal
Thrombocytes	$226 \times 10^3/\mu\text{L}$	$150–400 \times 10^3/\mu\text{L}$	Normal
Random Blood Glucose	96 mg/dL	70–140 mg/dL	Normal

Table 4
Preoperative and Postoperative Management

Stage	Intervention	Purpose
Preoperative	IV Ringer's Lactate 500 mL, Ceftriaxone 1 g IV	Fluid resuscitation, infection prophylaxis
Intraoperative	Cesarean section	Delivery of fetus
Postoperative	RL 500 mL/20 TPM, Oxytocin 10 IU/500 mL RL drip, Ceftriaxone 2×1 g IV, Analgesic suppository, Vitamin C IV, Dexamethasone 5 mg IV, Vitamin A PO, Moloco PO, Inbion PO, Channa Plus PO	Prevent infection, control pain, improve healing and lactation

2. Discussion

This section discusses the clinical findings, diagnostic interpretation, and management outcomes of the patient with cephalopelvic disproportion (CPD), previous cesarean section, and anemia. The discussion integrates observed results with existing literature to provide a comprehensive understanding of the underlying pathophysiology, treatment effectiveness, and relevance to current obstetric practice.

Table 5
Summary of Key Discussion Points

No	Aspect	Findings	Interpretation	Supporting Literature
1	Etiology of CPD	Cephalopelvic disproportion occurred despite maternal height of 170 cm. Pelvic conjugata vera measured only 7.5 cm.	Indicates that CPD was caused by pelvic architecture rather than maternal stature.	Thurnau & Morgan (2020) highlight that pelvic–fetal mismatch is the primary determinant of CPD.
2	Anemia in Pregnancy	Hb level 9.5 g/dL; classified as mild iron-deficiency anemia.	Physiological hemodilution and increased iron demand during late pregnancy contributed to anemia.	WHO (2023) reports 36–40% anemia prevalence among Southeast Asian pregnant women.
3	Intervention	Cesarean section due to CPD with prior scar and anemia; managed with IV fluids, antibiotics, oxytocin, vitamins, and supplements.	Multidisciplinary approach ensured maternal stability and reduced postoperative complications.	ACOG (2022) recommends antibiotic prophylaxis, fluid resuscitation, and uterotonic therapy for cesarean recovery.
4	Postoperative Outcomes	Stable vital signs, uterine contraction (+), wound healing good, pain reduced (VAS 9→7).	Demonstrates success of integrated pharmacologic and nutritional management.	Rossi et al. (2020) confirmed that micronutrient supplementation improves recovery.

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5	Critical Evaluation	Combination of CPD and anemia increases maternal risk if untreated.	Early diagnosis and comprehensive management are essential to prevent hemorrhage and infection.	Lee & Park (2021) support early multidisciplinary management for CPD cases.
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Table 6
Comparative Discussion with Literature

Source	Focus of Study	Relevance to Present Case
Thurnau & Morgan (2020)	Defined CPD as pelvic–fetal mismatch and emphasized radiopelvimetry limitations.	Supports finding that pelvic dimensions, not height, caused CPD.
WHO (2023)	Reported high prevalence of anemia in pregnancy due to iron deficiency.	Explains anemia pattern consistent with the patient’s Hb 9.5 g/dL.
ACOG (2022)	Recommended oxytocin, antibiotic prophylaxis, and fluid management in cesarean care.	Aligns with treatment protocol used in this case.
Rossi et al. (2020)	Showed micronutrient supplementation accelerates wound healing.	Justifies vitamin C and A administration in recovery.
Lee & Park (2021)	Emphasized early diagnosis and integrated care to reduce morbidity.	Supports the success of early intervention and multidisciplinary management.

This picture symbolizes the analytical phase of research interpretation, where clinical findings are connected with theoretical evidence to strengthen the scientific validity of the discussion

Conclusion

The findings of this case report demonstrate that cephalopelvic disproportion (CPD) accompanied by anemia and a previous cesarean section requires early diagnosis, comprehensive management, and multidisciplinary coordination to ensure favorable maternal outcomes. The patient, a 29-year-old woman at 37–38 weeks’ gestation, was diagnosed with CPD based on a true conjugate of 7.5 cm and mild anemia with hemoglobin of 9.5 g/dL. Surgical management through cesarean section combined with intravenous fluids, oxytocin infusion, antibiotic prophylaxis, and micronutrient supplementation effectively stabilized the patient’s condition, promoted wound healing, and prevented postoperative complications. These results confirm that integrated obstetric and nutritional interventions are essential to reduce morbidity in high-risk pregnancies characterized by CPD and anemia.

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