Fetal Macrosomia with Suboptimal Antenatal Care: A Case Report

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Abstract.

Background: Fetal macrosomia is associated with increased maternal and neonatal morbidity. Early detection relies on adequate Antenatal Care (ANC), including appropriate metabolic screening and serial fetal growth assessment. Suboptimal ANC may delay the recognition of maternal risk factors and fetal overgrowth, particularly in high-risk pregnancies. Case presentation: We reported a case of a 46-year-old Indonesian multiparous woman with obesity who was referred from the Community Health Centre (CHC) to a secondary hospital due to post-term pregnancy, suspected fetal macrosomia, and advanced maternal age. Despite multiple ANC visits, random blood glucose testing was not documented during Integrated Antenatal Care at the CHC, the primary healthcare level. Progressive excessive maternal weight gain and marked increases in fundal height were observed during the second and third trimesters without further metabolic evaluation. An elective caesarean section was performed at 40^{+4} weeks of gestation, delivering a male neonate weighing 5,295 g. Post-operative evaluation revealed maternal prediabetic status, while the neonate required monitoring due to macrosomia but remained clinically stable. Conclusion: This case highlights the consequences of suboptimal antenatal screening and surveillance in high-risk pregnancies. Failure to perform a timely metabolic assessment and respond to clinical indicators of excessive fetal growth may contribute to the delayed diagnosis of fetal macrosomia. Strengthening the quality and completeness of integrated antenatal care, particularly at the primary healthcare level, is essential to improve early detection and prevent adverse maternal dan neonatal outcomes.
Keyword: *Fetal macrosomia; adequate Antenatal Care and A Case Report.*

I. INTRODUCTION

Fetal macrosomia refers to excessive fetal growth and is commonly defined using an absolute birth weight rather than gestational age. It is distinct from large for gestational age (LGA), which describes a birth weight above the 90th percentile for gestational age. Although no universally accepted definition exists, birth weight thresholds of 4,000 g and 4,500 g are frequently used, with the risk of adverse maternal and neonatal outcomes increasing as fetal weight rises [1]. Macrosomia is associated with complication with complications such as labour dystocia, shoulder dystocia, birth trauma, and increased caesarean delivery rates. However, current evidence indicates that suspected fetal macrosomia alone is not an indication for induction of labour, and delivery planning should involve individualised counselling based on estimated fetal weight, maternal risk factors, and clinical context [2,3]. This case highlights the challenges of detecting fetal macrosomia in the setting of suboptimal antenatal screening and multiple maternal risk factors, underscoring the importance of comprehensive antenatal care in preventing delayed diagnosis and adverse outcomes.

Case Report

A 46-year-old Indonesian G3P2A0 woman was referred from the Community Health Centre (CHC) in Bantul, Special Region of Yogyakarta, on January 5th, 2026, to the Universitas Islam Indonesia (UII) hospital. The patient presented to UII Hospital on January 14, 2026, at 40^{+6} weeks of gestational age. The CHC referred the patient due to a term pregnancy without spontaneous onset of labour, suspected fetal macrosomia, and advanced maternal age.

On arrival at UII hospital, the mother's body weight was 107.3 kg, and her body height was 157 cm. Blood pressure was normal at 116/81 mmHg, heart rate 85 beats per minute, and respiratory rate 20 beats per minute. The ultrasound examination showed the fetal in an oblique position, with a normal heart rate and adequate amniotic fluid; it estimated the fetal weight at 4,950 grams, and the fetal's head had not entered the upper pelvic inlet. The laboratory investigation results are shown in Table 1. The working diagnosis was G3P1A0 post-term pregnancy, advanced age, obesity grade 3, and macrosomia.

Table 1. Laboratory Examination Results

No.	Examination	Laboratory Result	Unit
1.	PTT		
	PTT	9.6	Seconds
	PTT Control	11.9	Seconds
2.	APTT		
	APTT	19.9	Seconds
	APTT Control	24.4	Seconds
3.	Routine Blood		
	WBC	5.80	Thousands/mm3
	RBC	3.79	Millions/uL
	HGB	11.6	gr/dL
	HCT	34.0	%
	MCV	89.7	fL
	MCH	30.6	Pg
	MCHC	34.1	g/dL
	PLT	296	Thousands/mm3
	LYM%	17.6	%
	MXD#	5.9	%
	NEUT#	76.5	%
	LYM#	1.0	10^3 / uL
	MXD#	0.3	10^3 / uL
	NEUT#	4.5	10^3 / uL
	RDW-SD	50.8	fL
	RDW-CV	15.1	%
	PDW	10.6	fL
	MPV	8.6	fL
	P-LCR	18.8	%
	PCT	0.26	%
4.	Random Blood Sugar (POCT)	113	mg/dL

An elective caesarean section was performed at 40^{+6} weeks of gestation. A male neonate was delivered weighing 5,295 grams, with a length of 53 cm, and a head circumference of 38 cm. The APGAR scores were 7 at 1 min and 9 at 5 min. On admission to the neonatal unit for monitoring, the neonate was in good general condition, with adequate muscle tone and a strong cry. Vital signs were stable: heart rate 130 beats per minute, respiratory rate 46 breaths per minute, body temperature 36.8 °C, and oxygen saturation 97% on room air. Prophylactic intramuscular vitamin K (1 mg) was administered, along with ophthalmic prophylaxis, hepatitis B vaccination, and screening for congenital hypothyroidism and critical congenital heart disease. Random blood glucose measurement was performed, with a result of 93 g/dL.

Further obstetric history revealed that this was the patient's third pregnancy. Her first child was delivered spontaneously by a midwife at a primary healthcare facility, with a birth weight of 3,200 grams. The second child was delivered spontaneously by an obstetrician at a private hospital, with a birth weight of 3,800 grams.

During the current pregnancy, the mother had 9 ANC visits, but only 6 of those visits had their results well-documented. Her first antenatal care (ANC) contact was on August 5th, 2025, at 18 weeks of gestation, conducted by the obstetrician at a private hospital. The mother's body weight was 70 kg at first contact and had normal blood pressure at 112/71 mmHg. The second ANC contact was

on August 8th, 2025, at an Independent Midwifery Practice. Her second contact was at 18 weeks of gestation, with a body weight of 80 kg, maternal mid-upper arm circumference (MUAC) was 32.5 cm, blood pressure of 103/72, a fundal height of 14 cm, and a fetal heart rate of 143 bpm. The Independent Midwifery Practice referred the patient to CHC for integrated ANC.

Integrated ANC was conducted on August 9th, 2025, in CHC by a general practitioner, a dentist, midwives, and a psychologist. Medical history on the current pregnancy showed that the mother had no previous illnesses, including hypertension, cardiovascular diseases, thyroid disease, or any allergy, autoimmune disease, diabetes, asthma, tuberculosis, hepatitis B virus, mental health issues, or sexually transmitted diseases. The family medical history checklist and pre-pregnancy body mass index evaluation were not recorded in the pregnancy assessment form. The mother did not use any contraceptive method before the current pregnancy. General physical examination by the physician revealed no abnormalities in the conjunctiva, sclera, skin, neck, oral cavity, thorax, abdomen, and extremities. Unfortunately, blood pressure examination results and weight measurements were not well documented in the maternal health book during integrated ANC. Laboratory investigations revealed a haemoglobin level of 11.7 g/dL, blood type B, Rh-positive, and non-reactive results for HIV, syphilis, and hepatitis B. No documentation of random blood glucose testing was found, although this test is routinely included in the basic laboratory screening at CHC. The integrated antenatal care assessment concluded a diagnosis of G3P2A0 at 18 weeks of gestation, categorised as a high risk due to advanced maternal age, with a recommendation for continued ANC at the primary healthcare facility with intensive observation.

On September 18th, 2025, at 22 weeks of gestation, during the fourth ANC contact at the Independent Midwifery Practice, the mother's body weight increased by 6 kg in 1 month, with blood pressure at 102/80 mmHg. Fundal height became 28 cm, and fetal heart rate was normal at 145 bpm.

On November 26th, 2025, at 33 weeks of gestation, the mother had ANC in CHC. Physical examination revealed a body weight of 97 kg, normal blood pressure of 107/72 mmHg, fundal height of 38 cm, and a fetal heart rate of 132 bpm.

On January 5th, 2026, at 40 weeks of gestation, the mother had another ANC visit at the same CHC, with a physical examination revealing a body weight of 100,5 kg, normal blood pressure of 124/77 mmHg, fundal height of 46 cm, and a fetal heart rate of 147 bpm. After receiving antenatal care in CHC, the mother was referred to UII hospital to get further treatment by the obstetrician due to a term pregnancy without spontaneous onset of labour, suspected fetal macrosomia, and advanced maternal age. In the UII hospital, the obstetrician recommends an elective caesarean section.

II. DISCUSSION

This case highlights the challenge of early identification of fetal macrosomia in the presence of multiple maternal risk factors, including obesity, multiparity, advanced maternal age, and raises the possibility of undiagnosed gestational diabetes mellitus (GDM). In the current pregnancy, no documentation of random blood glucose testing was found during integrated antenatal care visits at the community health centre, despite excessive maternal weight gain and increasing fundal height.

Maternal obesity is a well-established risk factor for fetal macrosomia, with studies reporting a 4-12-fold increased risk compared with women of normal body mass index [4]. In addition, untreated pre-gestational diabetes or GDM leads to maternal hyperglycaemia, which results in increased transplacental glucose transfer. This process induces fetal hyperglycaemia and compensatory hyperinsulinemia, promoting increased fetal adiposity and excessive intrauterine growth [5,6].

Physiological insulin resistance typically develops during the second and third trimester due to rising levels of placental hormones, including cortisol, human placental lactogen, and prolactin. This rising during the second and third trimesters as an adaptive metabolic response to pregnancy. In

healthy pregnancies, this psychological insulin resistance is compensated by increased pancreatic insulin secretion; however, in women with underlying metabolic risk factors, this compensatory mechanism may be inadequate, resulting in maternal hyperglycaemia. The combination of maternal hyperglycaemia and fetal hyperinsulinemia represents a key pathway in the development of fetal macrosomia [7].

In this case, the mother exhibited several recognised risk factors for fetal macrosomia, including obesity, multiparity, and a history of delivering a large-for-gestational-age infant. These factors have been shown to increase the risk of recurrent macrosomia in subsequent pregnancies by up to 5-10 times. Unfortunately, the absence of diabetes screening during the current pregnancy limited the ability to determine whether this psychological insulin resistance progressed to a pathological state, such as gestational dysglycaemia.[3,8,9].

Although antenatal detection of fetal macrosomia is limited by the accuracy of ultrasonographic fetal weight estimation, serial fundal height measurements remain an important screening tool in primary care settings for high-risk pregnancy surveillance. A rapid increase in fundal height, as observed in this case, may warrant further evaluation, including reassessment of fetal growth and metabolic screening [10].

Integrated antenatal care at the Community Health Centre is part of the national maternal health program and is designed to provide comprehensive first-trimester assessment, including laboratory screening for infectious and non-infectious diseases [11]. During the third antenatal visit through integrated ANC in CHC, the mother did not receive adequate assessment of her risk factors besides her advanced age. The risks of excessive body weight and fundal height gain were not addressed by healthcare workers at CHC.

Despite the suboptimal antenatal screening, both maternal and neonatal outcomes in this case were relatively favourable. The mother underwent an elective caesarean section without reported intraoperative or postoperative complications. Despite multiple maternal risk factors, the neonate did not develop early signs of hypoglycaemia and maintained normal blood glucose levels. The absence of neonatal hypoglycaemia in this case does not exclude the presence of maternal dysglycaemia during pregnancy, particularly in the context of suboptimal antenatal metabolic screening. Favourable short-term neonatal outcomes in this case should not be interpreted as evidence of long-term risk for the neonates.

However, the absence of adverse short-term outcomes should not obscure the potential risk associated with delayed recognition of fetal macrosomia and maternal metabolic abnormalities. Elective caesarean delivery in this case likely mitigated the risk of intrapartum complications, particularly in the context of extreme birth weight and unfavourable fetal position. Earlier identification of excessive fetal growth and maternal dysglycaemia could have allowed timely referral, closer surveillance, and more comprehensive peripartum planning, potentially reducing maternal and neonatal risks.

III. CONCLUSION

This case illustrates the critical role of comprehensive and high-quality antenatal care in the early identification of fetal macrosomia, particularly among pregnant women with multiple risk factors such as advanced maternal age, obesity, multiparity, and a history of large infants. Although integrated ANC programs are designed to provide holistic assessment, incomplete documentation and omission of routine metabolic screening may result in missed opportunities for early intervention. Progressive increases in maternal weight and fundal height should prompt further evaluation, including blood glucose assessment, and closer fetal growth surveillance. Optimising the quality of antenatal care at the primary healthcare level is essential to reduce diagnostic delays and improve maternal and neonatal outcomes in high-risk pregnancies.

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