

Case Report



FETAL GROWTH RESTRICTION: AYURVEDA TREATMENT FOR OPTIMIZING FETAL GROWTH – A CASE REPORT

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ABSTRACT :

Background: Fetal growth restriction (FGR) is a major complication in pregnancy that causes increased risk of perinatal morbidity and mortality. In Ayurveda, FGR is described as *Garbhashosha* (fetal growth restriction) or *Vatabhipanna Garbha* (fetus affected by vitiated *Vata Dosha*), characterized by *Akukshi Poorana* (suboptimal abdominal enlargement) and *Manda Garbha Spandana* (reduced fetal movement), often caused by vitiation in *Matruja Rasa Dhatu* (maternal plasma) and *Vata Dosha*. **Clinical Findings:** A 27-year-old primigravida came for routine ANC on 06 March 2024. She had no active complaints and reported normal perception of fetal movements. On examination, she showed mild pallor and a fundal height smaller than expected for her gestational age, suggesting possible FGR. Ultrasonography confirmed the FGR. The patient received *Shatavaryadi Ksheera Basti*, *Matra Basti* with *Jeevantyadi Ghrita* and *Shamanoushadhi* for *Matruja Rasa Dhatu Poshana* and *Vata Shamana* to support fetal growth. **Outcomes:** Marked improvements were observed in estimated fetal weight, fetal biometry and Doppler parameters. **Conclusion:** The patient was diagnosed with FGR at 31 weeks 4 days of gestation and was treated with *Shatavaryadi Ksheerabasti*, *Matra Basti* with *Jeevantyadi Ghrita* for 5 days from 32 weeks 2 days to 33 Weeks of gestation, *Dhatri loha*, *Laghumalini vasant rasa*, *Jeevantyadi ghrita*, and *Shatavaryadi Ksheerapaka* for 1 month 8 Days from 31 Weeks 4 days to 36 weeks 6 days. At 37 weeks of gestation a follow-up was done, where 70.7% improvement in estimated fetal weight, 24.8% improvement in abdominal circumference, and Normal Doppler parameters. This case study supports the relevance of Ayurveda principles in managing maternal and fetal health during pregnancy.

KEYWORDS: Fetal Growth Restriction, *Garbhashosha*, *Ayurveda*, *Ksheera Basti*, *Matra Basti*, *Rasa Dhatu*, *Vata Dosha*, *Garbha Poshana*, Case Report

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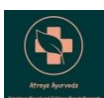
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1. INTRODUCTION

Fetal Growth Restriction (FGR) is a common pregnancy complication that worldwide is leading cause of perinatal morbidity and mortality with a prevalence of around 7.7%. FGR is defined as the failure of the fetus to reach its genetically predetermined growth potential due to a pathological factor.[1] It is characterized by an estimated fetal weight (EFW) or abdominal circumference (AC) that is less than 10th percentile for gestational age. [2] FGR is caused by placental insufficiency, maternal health conditions, fetal genetic and structural abnormalities. Modern Obstetric management for FGR includes monitoring fetal well-being through ultrasound imaging, supporting maternal health, and timely delivery. These measures help avoid complications but do not actively improve intrauterine growth, often necessitating preterm delivery. According to Ayurveda, *Garbhavridhhi* (Fetal Growth) is mainly influenced by the *Matruja Rasa Dhatu* (Maternal nourishment) and *Vata Dosha*. [3] Deficiency in *Matruja Rasa Dhatu* and an imbalance in *Vata Dosha*, it leads to *Garbhashosha* (Fetal Growth Restriction). *Garbhashosha* or *Vatabhipanna Garbha* (Fetus affected by vitiated *Vata Dosha*) is a condition marked by *Akukshi Poorana* (Symphysis-Fundal-Height less than expected for gestational age) and *Manda Garbha Spandana* (Reduced fetal movement). [4] *Brihmaniya Ghana Siddha Ksheeraprayoga* is explained as the first line of treatment for *Garbhashosha*. [5] This case report discusses the role of Ayurveda treatment in managing FGR with importance of *Shodhana* and *Shamana Chikitsa*.

Patient Information:

A 27-year-old primigravida (G1P0) came for routine ANC at 31 weeks 4 days of gestation on 06 March 2024. She reported no active complaints and had normal perception of fetal movements. Her LMP was on 28 July 2023, and her EDD was 04 May 2024. She had no past medical or surgical history and no known allergies. She had regular menstrual cycles before pregnancy. No known family history of genetic disorders or pregnancy complications. No history of smoking, alcohol or any recreational drug use. Her antenatal course was uneventful. All routine investigations, including laboratory tests and ultrasounds were normal.

2. CLINICAL FINDINGS:

The patient was in fair general condition. Her height was 5'1", and her weight was 63kg (Pre pregnancy weight – 54 kg). On general examination, mild pallor was noted. Vital signs were stable with a BP of 120/80mmHg and Pulse rate of 84 bpm. The abdomen appeared smaller than expected for gestational age on inspection. On palpation, uterus was corresponding to 28 weeks, with a symphysis-fundal height of 28cm (3-4 cm smaller than expected for the gestational age). On Auscultation, fetal heart rate was 146bpm and was regular.

Table 1: Timeline of the study

Date	Gestational age	Event
03/10/2023	9 weeks 3 days	Confirmation of Intrauterine Pregnancy by Ultrasonography
15/11/2023	15 weeks 4 days	NT Scan
19/12/2023	20 weeks 3 days	Anomaly scan

06/03/2024	31 weeks 4 days	Diagnosis of FGR
06/03/2024 – 10/03/2024	31 weeks 4 days – 32 weeks 1 day	<i>Shamanoushadhis</i>
11/03/2024 – 15/03/2024	32 weeks 2 days – 33 weeks	<i>Ksheera Basti</i> , <i>Matra Basti</i> , and <i>Shamanoushadhis</i>
16/03/2024 – 11/04/2024	33 weeks 1 day – 36 weeks 5 days	<i>Shamanoushadhis</i>
12/04/2024	36 weeks 6 days	Follow up
14/04/2024	37 weeks 1 day	Delivery through Emergency LSCS

Diagnostic Assessment:

The diagnosis of FGR was considered based on clinical findings and to confirm the diagnosis and assess fetal well-being, the following investigations were done.

- Ultrasonography (06 March 2024) – Revealed FGR with an EFW of 1079 gm (+/- 158 gm), with normal AFI of 13cms.
- Doppler Study (06 March 2024) – Showed normal umbilical and middle cerebral artery flow, ruling out severe placental insufficiency.
- Maternal Hemoglobin levels (06 March 2024) – 12.4 gm%.

Intervention And Timeline:

The patient was initially started on oral medication. During 32 weeks of gestation, *Basti* was added to the treatment protocol along with oral medications. After the completion of *Basti* course, oral medications were continued for one month (Table 2).

Table 2: Treatment Protocol

06/03/2024 – 10/03/2024	<i>Dhatri Loha</i> 2BD <i>Laghumalini Vasant Rasa</i> 1 TID
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	<i>Jeevantyadi Ghrita</i> 3Tsf BD <i>Shatavaryadi Ksheerapaka</i> 50ml BD	
11/03/2024	<i>Matra Basti</i> with <i>Jeevantyadi Ghrita</i> (30ml)	<i>Dhatri Loha</i> 2BD <i>Laghumalini</i> <i>Vasant Rasa</i> 1 TID
12/03/2024	<i>Shatavaryadi</i> <i>Ksheera Basti</i> (400ml)	<i>Jeevantyadi Ghrita</i> 3 Tsf BD <i>Shatavaryadi</i> <i>Ksheerapaka</i> 50ml B D
13/03/2024	<i>Shatavaryadi</i> <i>Ksheera Basti</i> (400ml) <i>Matra Basti</i> with <i>Jeevantyadi ghrita</i> (30ml)	
14/03/2024	<i>Shatavaryadi</i> <i>Ksheera Basti</i> (400ml)	
15/03/2024	<i>Matra Basti</i> with <i>Jeevantyadi Ghrita</i> (30ml)	
16/03/2024 – 11/04/2024	<i>Dhatri Loha</i> 2BD <i>Laghumalini Vasant Rasa</i> 1 TID <i>Jeevantyadi Ghrita</i> 3Tsf BD <i>Shatavaryadi Ksheerapaka</i> 50ml BD	

Table 3: Contents of *Shatavaryadi Ksheera Basti*

	Ingredients	Quantity
<i>Madhu</i>	<i>Madhu</i>	20 ml
<i>Saindhava</i> <i>Lavana</i>	<i>Saindhava Lavana</i>	5 gm
<i>Sneha</i>	<i>Jeevantyadi Ghrita</i>	30 ml
<i>Kalka</i>	<i>Shatavari + Bala +</i> <i>Yastimadhu +Arjuna Kalka</i>	30 gm
<i>Kashaya</i>	<i>Shatavaryadi Ksheerapaka</i>	400ml

Follow Up and Outcome:

A follow-up evaluation was done one month after initiation of treatment, i.e. from 06 March 2024 to 12 April 2024. The assessment included clinical findings, maternal hemoglobin levels, ultrasonographic measurements and Doppler study. The results showed marked improvement in these parameters and the details are presented in the tables below.

Table 4: Results

Symphysis-fundal height						
Parameter	BT		AT			
SFH	28 cm		33 cm			
Maternal Hb levels						
Parameter	BT		AT			
Hb	12.4	gm %	13.3 gm %			
Ultrasonography						
Parameter	BT		AT			
BPD	7.4cm		8.1cm			
HC	26.5cm		29.7cm			
AC	22.1cm		27.6cm			
FL	5.2cm		6.0cm			
EFW	1079	+/- 158 gm	1842 +/- 269 gm			
AFI	13cm		12cm			
Doppler Study						
Parameter	S/D Ratio		Pulsatility Index		Resistivity Index	
	BT	AT	BT	AT	BT	AT
Umbilical artery	2.6	2.8	1.3	1.4	0.6	0.6
Right uterine artery	2.3	2.4	1.2	1.3	0.5	0.5
Left uterine artery	2.6	2.6	1.4	1.5	0.5	0.6

Middle cerebral artery	2.5	2.7	1.0	1.1	0.6	0.6
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The patient was diagnosed with pre-eclampsia at 37 weeks and 1 day of pregnancy and underwent emergency LSCS on 14 April 2024. A male baby of birth weight 1942 grams was delivered, APGAR score was 7, 8 and 9 at 1minute, 5 minutes and 10 minutes, respectively. No complications such as respiratory distress or hypoglycemia were observed in the neonatal period.

3. DISCUSSION:

In *Ayurveda*, *Garbhavridhhi* (fetal growth) is influenced by *Matruja Rasa Dhatu* and *Vata Dosha*. *Matruja Rasa Dhatu* is the main source of fetal nourishment, when it is vitiated, it results in inadequate fetal nourishment. *Vata dosha* regulates the transfer of nutrients from the mother to the fetus through the *Matruja Rasavaha nadi* and *Garbhanabhi nadi* (umbilical cord).[6] When it is vitiated, nutrient transport to fetus is compromised leading to *Garbhashosha*.

The treatment followed *Brihmana Chikitsa* (replenishing therapy), for *Rasa Prasadana* (cleansing of plasma) to enhance the quality and availability of *Rasa Dhatu* and *Vata Shamana* and *Anulomana* for proper nutrient transfer. Hence, *Shatavaryadi Ksheera Basti* and *Matra Basti* with *Jeevantyadi Ghrita* were planned. *Ksheera Basti*, a type of *Niruha Basti*, acts as *Brihmana*. *Madhu* and *Sneha* were used in lower dose considering the vulnerability of the patient during pregnancy. The components of *Shatavaryadi Ksheera Basti*, show *Jeevaniya* (nourishing), *Brihmaniya*, *Rasayana*, *Balya*

(strength promoting), *Dhatuwardhaka* (tissue replenishing) properties, nourishing *Rasa* and *Rakta Dhatu* thereby helping in *Grabhaposhana* (fetal nourishment) and *Garbhavridhhi*. *Matra Basti* helps for *Vata Shamana*, *Vatanulomana*, and *Dhatuposhana*. *Shatavari* (*Asparagus racemosus*) with its Antioxidant property helps to reduce oxidative stress by scavenging reactive oxygen species (ROS), protects placental function, and supports fetal growth by improving nutrient and oxygen supply to the fetus. Its Anti-inflammatory properties help to lower pro-inflammatory cytokines levels, which reduce uterine inflammation and enhance uteroplacental blood flow. Adaptogenic and immunomodulatory properties help regulate maternal stress and immunological function, promoting a favourable environment for fetal growth.[7] *Arjuna* (*Terminalia arjuna*) is *Hridhya* and *Shonita Prasadaka* (blood purifier). Its cardiogenic properties[8] enhance maternal cardiac output, improving uteroplacental blood flow and nutrient-oxygen transfer to the fetus.

Dhatrilauha acts on *Rasavaha* and *Raktavaha Srotasa* and improves the quality of *Rasa* and *Rakta Dhatu*. [9] Its components such as *Dhatril* (*Emblia officinalis*) and *Amruta* (*Tinospora cordifolia*) are rich sources of Vitamin C, they enhance iron absorption. The hepatoprotective action of *Dhatril* [10] and *Amruta* [11] supports liver function, promoting iron metabolism and detoxification pathways. *Lauha Bhasma* helps treat iron deficiency and improve metabolic functions through its *Deepana* and *Pachana* properties.[12]

Jeevantiyadi Ghrita acts as *Deepaka*, *Pachaka*, *Srotoshodhaka*, and *Rasayana*, promoting *dhatuposhana*. [13] Its bioactive compounds, like glycyrrhiza, flavonoids, and phenolics, offer anti-oxidant and Immunomodulatory activities to support fetal nourishment.[14]

Laghmalini Vasant Rasa, *Kharaliya Rasayana*, with key components including *Yashada Bhasma*, *Nistusha maricha* helps in the *Garbhaposhana*. [15]

4. CONCLUSION:

The patient was diagnosed with FGR during routine ANC visit at 31 weeks 4 days of gestation based on clinical and ultrasound findings. The treatment was planned to nourish *Matruja Rasa Dhatu* and balance *Vata dosha* through *Shodhana*, i.e., *Shatavaryadi Ksheerabasti*, *Matra Basti* with *Jeevantiyadi Ghrita* for 5 days from 32 weeks 2 days to 33 Weeks of gestation, *Shamanoushadhis - Dhatri loha*, *Laghmalini vasant rasa*, *Jeevantiyadi ghrita*, and *Pathya- Shatavaryadi Ksheerapaka* for 1 month 8 Days from 31 Weeks 4 days to 36 weeks 6 days. At 37 weeks of gestation a follow-up was done, where 70.7% improvement in estimated fetal weight, 24.8% improvement in abdominal circumference, and Normal Doppler parameters were seen. No any adverse events were occurred during treatment period. At 37 weeks 1 Day of gestation patient developed preeclampsia and delivered a male baby of birth weight 1942 grams through emergency LSCS on 14 April 2024. APGAR score was 7, 8 and 9 at 1minute, 5 minutes and 10 minutes, respectively. No complications such as respiratory distress or hypoglycemia were observed in the neonatal period.

This case study supports the relevance of Ayurveda principles in managing maternal and fetal health during pregnancy.

Declaration of Patient Consent – The authors confirm that they have acquired a patient consent form, in which the patient or caregiver has granted permission for the publication of the case, including accompanying images and other clinical details, in the journal. The patient or caregiver acknowledges that their name and initials will not be disclosed, and sincere attempts will be undertaken to safeguard their identity. However, complete anonymity cannot be assured.

Patient perspective:

The patient was initially anxious after being diagnosed with FGR, worried about the potential risk to her baby. As treatment progressed and fetal growth improved. Following the delivery, she expressed relief and satisfaction with the outcome, particularly the healthy condition of her baby.

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