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Case Report

A case report to manage raised uterine artery P.I. associated IUGR with ayurveda intervention

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ABSTRACT

IUGR is defined as a rate of fetal growth that is less than normal for the expected growth potential of a specific infant. This is a case report of IUGR associated with raised uterine artery Pulsatility index (P.I.) with no other abnormalities. In present case holistic approach of Ayurveda with proper garbhini paricharya (antenatal care) and management principle of garbhakshaya (growth restriction) was acquired. The obstetric scan revealed decreased abdominal circumference and falling growth parameters with raised mean P.I. with high resistant flow in uterine artery. Ayurvedic intervention Ksheerbasti (enema of milk infused drugs) with Medhya drug (drugs which are beneficial for brain functioning) and diet with brinhan(anabolic nature) and garbhaposhak (beneficial for the fetus) actions were given. The outcome was evaluated as P.I. becomes normal and significant improvement in other growth parameters of fetus like AC, EFBW.

Keywords: Ayurveda, Garbhakshaya, Ksheerbasti, Pulsatility index, Uterine artery

INTRODUCTION

During pregnancy a female undergoes various anatomical and physiological modifications for development and accommodation of the growing foetus. These changes start soon after conception and affect every system in the body. There is marked spiralling of the arteries supplying uterus reaching maximum at 20 weeks gestation. Doppler velocimetry has shown uterine artery diameter becomes double and blood flow increased by eightfold by 20 weeks of pregnancy. These vascular changes are more pronounced at the placental site.[1]

Intrauterine growth restriction (IUGR) defined as a condition where estimated foetal weight is below the 10th percentile for gestational age based on ultrasound. IUGR is a major cause of perinatal morbidity and mortality, and is of high clinical relevance since it represents up to 10% of all pregnancies.[2,3] Previous studies also established that an adverse uterine microenvironment provide base for foetal origin of adult diseases. Experimental studies develop several IUGR models to understand the biological processes linked to foetal growth retardation, most of them being rat or mouse models and nutritional models. Among them bilateral uterine ligation was frequently used.

During pregnancy, placenta supplies maternal substrates to the foetus and can adapt to the maternal environment with changes in substrate delivery to the foetus, it thus plays an important role in foetal programming in utero and placental weight also related to birth weight and foetal growth.[4] Placenta is notably very vulnerable to a decreased blood supply. Ayurveda concepts divide foetal nutrition stages into two as before placental development and after placental development. During Post fertilisation and implantation period to placenta formation it occurs mainly through upasneha (simple perfusion) and upasweda (through circulatory channels) manner. After development of placenta, it occurs through umbilical cord which transfers the essence of ahararasa from mother to foetus.

Ayurveda mentioned Ksheera Basti and Medhya drugs as classical treatment in management of garbhakshaya (IUGR), where required nutrients are provided through milk-infused medicated enema and brinhan dravya (anabolic properties).[5]

Here we report a case of 26-year-old primigravida, whose third-trimester ultrasound of 33 weeks showed high resistance flow in umbilical artery and estimated birth weight was below 3 percentiles. After therapeutic intervention for 15 days obstetric doppler scan revealed normal doppler indices and growth parameters.

CASE REPORT

Patient information

A 26-year-old pregnant woman, primi gravida (G1) with gestational age of 22 weeks 3 days came to the OPD of the Prasuti tantra department of Sir Sunderlal hospital BHU, Varanasi. On history taking, Her LMP was 21.12.2023. She had irregular menstrual cycles with 45 to 60 days interval and 5 days of moderate bleeding. Family history showed the mother had diabetes. She was on irregular follow-ups during antenatal period.

Her obstetric second level scan revealed a single live intra uterine gestation with no obvious congenital defects and normal Doppler parameters. Her antenatal period was apparently uneventful with low haemoglobin levels. On growth scan of 33 weeks 2 days there was high resistant flow in uterine artery with raised mean P.I and low Abdominal girth of foetus as compared with other parameters and birth weight below 3 percentile for the GA.

Clinical findings

Abdominal examination showed no significant disparity in fundal height and gestational age. Other investigations are mentioned in Table 1.

Diagnosis

On growth scan of 33 weeks 2 days there was high resistant flow in uterine artery with raised mean P.I and low abdominal girth of foetus as compared with other parameters and birth weight below 13 percentile for the mentioned GA. Foetal activities and cardiac activities were good. Patient planned for admission and Ksheerbasti administration for 15 days.

Therapeutic intervention

Oral medications

Ksheerpaka (oral preparation infused with milk) of combination (Shatavari, Ashwagandha, Yashtimadhu, Amla) 30 ml twice daily for 15 days. Vidaryadi ghrita 10 ml twice a day with luke warm water. Regular iron and calcium supplement of ANC.

Table 1: Lab investigations during antenatal check-ups.

Date	Investigations	Value
30.05.2024	Haemoglobin	8.95 g/dl
	Platelets	126/cu
	WBCs	9.34
	SGOT	48
	SGPT	59
	ALP	190
	FBS	87 mg/dl
	Urine RM	WNL
	TSH	1.37
	Viral markers	Negative
	HIV	Negative
	Blood group	O positive
15.08.2024	Haemoglobin	9.92
	Platelets	134
	WBCs	11.5
	Urea	14
	Creatinine	0.52
	Calcium	8.4 mg/dl
	SGPT	70
	SGOT	64
	ALP	422
	Urine RM	WNL

Table 2: Colour doppler indices of ultrasound findings.

Parameters	Before treatment Date:12.08.2024	After treatment Date:30.08.2024
Gestational age	33 weeks 2 days	35 weeks 1 day
BPD	81.6 mm	89.6 mm
AC	273 mm	281 mm
Uterine artery P.I. (Right)	0.98	0.88
Uterine artery P.I. (Left)	3.06	0.65
Mean P.I.	2.02	0.76
EFBW	1903 gm	2247 gm
Remarks	High resistance flow in left uterine artery P.I. with increased mean uterine artery P.I.	Normal doppler parameters

Therapy

Ksheer Basti (240 ml) once daily for 15 days.

Procedure of preparing Ksheer Basti

Fine powder of Shatavari (Asparagus racemosus), Ashwagandha (*Withania somnifera*), Gokshura (*Tribulus terrestris*), Yashtimadhu (*Glycyrrhiza glabra*),

Vidarikanda (*Pueraria tuberosa*) and Bala (*Sida cordifolia*) in equal quantity of 5 g each (total 30 g) is boiled with 8 parts of milk Ksheera (240 ml) and 8 parts of water (240 ml) until only milk part remains.

The above procedure was carried out under Mandagni. Thus obtained Ksheerapaka was filtered and used for the basti procedure.

Outcome

On subjective evaluation

Patient gets relieved on pain and tightness in abdomen and perceives normal foetal movement.

On objective evaluation

Patient ultrasound reports showed significant improvement in foetal growth parameters (BPD, AC, EFBW) and normal uterine artery P.I.

DISCUSSION

Yashtimadhu (*Gycyrrhiza glabra*) has Rasayan (rejuvenating), Balya (nutritive), Garbhaposhak (improve foetal growth), Jeevaniya (improve vitality), Vatahara (pacifies vata) and antioxidant properties.[6] Shatavari (*Asparagus racemosus*) also has Rasayan, Balya, Snighdha (unctuous), Jeevaniya properties and Vidarikanda (*Pueraria tuberosa*) has Madhur Rasa (sweet in taste) vipak and Vatashamaka property.[7] Yashtimadhu and Gokshura both are having vasodilatation property, reduces hypertension, increases foetal blood flow. Ksheera (milk) is having Balya property so useful in foetal growth. Yashtimadhu-Gokshura ksheerapaka acts as Mutrala (increased urination), Kledahara (removes oedema), Rasayana (rejuvenating) and Dhatuvardhana (improves supportive structural component quality), Thus have definite action on foetal growth-related disorders. So, it can improve amniotic fluid volume, foetal growth, relieves oliguria and oedema.[8]

Ksheerbasti can be given in pregnant women after completion of 28th weeks of gestation. It is safe with no side effects, Pratyagam kala (reversal time) is observed more than 4-6 hours. Bruhaniya gana siddha Ksheerbasti and Ksheerpaka drug formulation having dominance of snigdha, sheeta, guru guna, sheeta virya and madhur rasa, madhur vipak, Pruthvi-Aap Mahabhutadhikya, vata shaman, anulomana, bruhaniya & garbhavruddhikar properties. Combination of Ksheerpaka and Ksheerbasti given more beneficial results. Treatment modality helped in proper Rsadhatu formation, Rasadhatu quality improvement, results in Prakrut (Normal) Garbhaposhkansh nirmiti and Garbhavriddhi in IUGR Ksheer is acts as Rasayana, Vrishya, balya, jivaniya, stanyakara and shramahara properties. Medicated ksheer introduced by anal route having more systemic and local effects like great absorptive capacity.

CONCLUSION

IUGR is a challenging pathology, faced by obstetrician in day today life. Although various management procedures and drugs have been invented to treat this condition satisfactorily, till now no successful drug or treatment procedure has been established in modern medical science. Ayurveda, has detailed information about fetal growth disorders, thousands of years back and also their treatment modalities. But none is available in practice. Hence it is presently our era to select, research and establish the most suitable drug or procedure as per our classics, thus recovering the huge potential which is hidden in our great science. In this case, there was decreased growth in the foetus due to high resistance flow in uterine artery with raised mean P.I. leading to improper nourishment. Ayurvedic interventions mentioned in classics shows promising miraculous results in present case by correcting IUGR and other growth parameters ensuring healthy pregnancy outcome.

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