ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Case Study

MANAGEMENT OF INTRA-UTERINE GROWTH RESTRICTION BY AYURVEDIC REGIME: A CASE REPORT

Bihani Sanjyal[1]*, B. Pushpalatha[2], K. Bharathi[3]

*[1]PG Scholar, [2]Associate Professor, [3]Professor & HOD, Dept. of Prasutitantra and Stree Roga, National Institute of Ayurveda, Jaipur, Rajasthan, India.

Article info

Article History:

Received: 23-08-2022

Revised: 11-09-2022

Accepted: 30-09-2022

KEYWORDS:

Ksheerbasti, Garbhakshaya, Intrauterine growth restriction, *Meningomyelocele*.

ABSTRACT

Maternal nutrition and congenital malformation are considered as very important factors for intra uterine growth restriction. Present case deals with these two factors in parallel way. A 32 years young lady second gravida, G2P0A1, housewife, residence of Jaipur, came to NIA OPD with complaint of amenorrhea since a month. According to patient her last menstrual period was on 3/3/20. Her antenatal care was continued in NIA OPD. First fetal wellbeing scan reveals mild ventriculomegaly so she was advised for second level scan and quadruple marker but due to low socioeconomic condition patient was not able to do second level anomaly scan and she continued her pregnancy on her own risk. After 7 months she came to us with the complaints of decreased fetal movements. Fundal height corresponding to period of gestation and fetal heart sound was present which was regular. A color doppler was advised which shows normal fetoplacental and uteroplacental circulation, fetal weight was normal according to period of gestation. On the eighth month the fundal height was found decreased along with maternal weight decreased by 1kg. She was suspected for IUGR and planned for *Ksheerbasti*. After four episodes *Ksheer basti* on the 36 weeks of gestation, mother had significant weight gain of 2 kg along with increase in fundal height. USG was done which reveals Single live intra uterine pregnancy of 33 weeks 2 days with lumbar spina bifida with meningomyelocele, CHIARI-II brain malformation, EFW– 2282gm. She delivered a live female child of 2300gm through normal vaginal delivery at maternity hospital. Child was having severe form of myelomeningocele with brain malformation.

INTRODUCTION

Mother's womb is the best source of all kinds of nutrition for child. Intra uterine growth restriction is one of the very sensitive and challenging problems all the obstetricians. The babies whose birth weight is below the 10th percentile of the average for the gestational age[1] are considered as Intra Uterine Growth Restriction (IUGR). IUGR is usually due to maternal, fetal, or placental factors[2]. Small for gestational age (SGA) fetuses or newborns are those smaller in size than normal for their gestational age, most commonly defined as a weight below the 10th percentile for the gestational age.

Access this article online	
Quick Response Code	
	https://doi.org/10.47070/ijapr.v10iSuppl2.2483

Traditionally, the causes for "pathological" growth restriction are subdivided into fetal, placental and maternal. Genetic and chromosomal disorders, fetal malformation, infection (e.g. rubella or cytomegalovirus), and toxic substances (e.g. alcohol, cocaine, or smoking) can contribute to FGR[3]. It comprises about one-third of low-birth-weight baby. The condition is diagnosed clinically by palpation, fundal height, liquor volume and fetal mass is assessed. Symphysis fundal height is also reliable method to diagnosis the growth restriction, if it lags 3cm or more[1]. Ancient science Ayurveda has very impactful results in case of such condition in previous studies. This case report also shows the effect of Ayurvedic regime for the management of the condition. IUGR is very close to *Garbhakhsaya, Garbhasosha, Vata vipanna Garbha* according to Ayurveda classics. Probable *Samprapti* of *Garbhaskshaya* is given in following diagram.

Nidan sevana (exposed to the causative factor)

⬇

Rasa kshaya

⬇

Vata prakopa

⬇

Dhatukshaya

⬇

Garbhakshaya

Symptoms of the *Garbhakshaya /Garbhasosha* according Ayurveda classics state as; due to lack of proper nourishment there is continuous discharge of liquid/bleeding from vagina that causes *Garbhasosh*[4]. Another reference from Sushruta says which means due to vitiation of *Vayu*, fetus dried up, does not fill properly to the mother's abdomen and quivers very slowly[5]. Again, Charaka says, if *vata* gets vitiated in *Garbhasaya, Garbha* gets dried up[6]. The *Nidana* or causes for this condition is explained by Acharya Charaka as intake of *Ruksha, Ushna, Tikshna* dominant diet are prone to vitiate *Vata* and hence leading fetus to not achieve growth[7]. Clinical features of this condition is stated by Acharya Sushruta which includes two main features mainly absence of quickening and decrease in fundal height[8].

Case Presentation

A 32-year young lady second gravida, G2P0A1, housewife, residence of Jaipur, came to NIA OPD with complaint of amenorrhea since a month. According to patient her last menstrual period was on 3/3/2021. According to the patient she had uneventful previous menstrual cycle of 28-30 days, which lasts for three days, regular and normal flow. Obstetric history includes past history of spontaneous abortion of 2.5 months pregnancy 12 years back for which dilation and curettage was done. Present pregnancy is natural conception. She had no relevant past medical and surgical history. She is non-vegetarian, non-alcoholic, having good appetite and sleep, bowel is clear, and her micturition is also normal. Along with all these she had good sort of personal hygiene manners. Husband had addiction to alcohol and betel chewing. She is well immunized as per national immunization schedule. No obvious allergic history. Couple were not using any type of contraception. Married since 15 years, broke first marriage after 14 years of married life, first year of second marriage.

General and Systemic Examination: On examination general condition of patient was stable, vital signs were in normal limit, pallor was absent, edema was absent with no any systemic disorder. Weight was 65kg and height 152cm and BMI 28.

Progress of Present Pregnancy

Her last menstrual period was on LMP: 3/3/2021 using Negele formula Estimated Date of Delivery (EDD) is found to be on 10/12/2021, therefore, her period of gestation is 4 weeks and 3 days. Thus, she is advised for routine ANC investigations and ultrasonography for fetal wellbeing after 8 weeks. Treatment advised in first visit was as *Shatavari churna* and *Godanti Bhasma* with milk, Tablet Leptaden. She had her second ANC visit on July 6, 2021, the period of amenorrhea was 4 months, associated complaint was back pain in lying position, period of gestation was 17 weeks 6 days. On examination blood pressure 110/70mmHg, pulse rate 76/min and weight 65kgs. Pallor was mild, oedema absent. Ultrasonography (USG) on 29/6/2021 shows Single Live Intrauterine Fetus of 17 weeks 2 days +/- 8 days, Specific – mild ventriculomegaly, Presentation – unstable, Placenta – fundal grade 1, Amniotic fluid – adequate Fetal Heart Sound (FHS) present, regular, 155b/min. She had already done routine blood and urine investigation; reports were found normal. Patient is advised for Level 2 anomaly scan to rule out any congenital malformation which was not done by patient party. Blood test for Serology and liver function test advised. Treatment includes *Shatatvari churna* and *Shastikodana* (variety of rice) with *Dadhi*.

Patient was seen third time on her period of amenorrhea 7 months on 16/09/2021. She came with complaints of decreased fetal movement. Period of gestation was 27 weeks 3 days, blood pressure-110/70mmHg, pulse rate- 96/minute and temperature- 98.2°F. Abdominal examination shows fundal height of 26 weeks, FHS present. Patient was advised for color Doppler USG for Fetal Wellbeing (FWB). This time patient willing to do and submit report next day USG on: 17/09/2021 which shows single live intrauterine fetus of 28 weeks and 5 days, breech presentation, fetal heart sound present, regular, rate 144/min, Amniotic Fluid Index– adequate, 155mm Placenta-ant, I grade, Estimate Fetal Weight (EFW) - 1356grams, Crown Rump Length (CRL)- 51 millimeters, Internal OS– closed, right uterine artery, fetal Middle Cerebral Artery, umbilical artery blood flow pattern normal, with no evidence of uteroplacental umbilical fetal flow compromise, fetal aorta and Ductus Venosus shows normal flow pattern.

Forth visit was on eight month of amenorrhea, period of gestation 33 weeks 2 days along with associated complaints of white discharge and itching in vagina. On examination fundal height was not corresponding to period of amenorrhea, fetal heart sound was usual, present. Patient was suspected for IUGR and patient was counseled accordingly. Treatment plan *Ksheerbasti* once in a week for the management of IUGR.

Vaginal swab was taken. Vaginal swab shows candid albicans.

Pallor was mild. Investigations shows raised alkaline phosphatase 163.2u/l Hemoglobin- 8.9g/dl. So, *Punarnava mandura*, Liv.52 was given.

Her fifth visit was on nine months amenorrhea, 16/11/2021, period of gestation 36 weeks and 6 days. Vital signs were normal, Weight 66kg. On examination fundal height was 34 weeks, FHS present, cephalic presentation. USG done on 15/11/2021 reveals single live intra uterine pregnancy of 33 weeks 2 days with lumbar spina bifida with meningomyelocele, CHIARI-II brain malformation, polyhydramnios with IUGR, EFW-2282gm, AFI- increased- 17.4cm. This patient was referred higher center for further management.

Date	POG	Weight	BP	Fundal height	Presentation	FHS	Fetal movements
06/07/21	18 weeks	65 kg	110/70	18 weeks			
16/09/2021	27 weeks	65kg	110/70	26 weeks	-	+	+
22/10/2021	33 weeks	64kg	120/80	28-30 weeks	Cephalic	+	+
16/11/2021	37 weeks	66kg	110/80	34 weeks	Cephalic	+	+

Ultrasound Scan Findings

Date	Findings	EFW
29/6/2021	Single Live Intrauterine Fetus of 17 weeks 2 days +/- 8 days, Specific– mild ventriculomegaly, Presentation– unstable, Placenta– fundal grade 1, Amniotic fluid– Adequate FHS present, regular, 155b/min.	-
17/09/2021	Single Live Intrauterine Fetus of 28 weeks and 5 days, breech presentation, fetal heart sound present, regular, rate 144/min, AFI– adequate, 155mm, Placenta-ant, I grade, Cl-51mm, IOS– closed, right uterine artery, fetal MCA, umbilical artery blood flow pattern normal, with no evidence of uteroplacental umbilical fetal flow compromise, fetal aorta and DV shows normal flow pattern.	1356gm
15/11/2021	Single Live Intra Uterine pregnancy of 33 weeks 2 days with lumbar spina bifida with meningomyelocele, CHIARI-II brain malformation, polyhydramnios with IUGR, EFW-2282gm, AFI- increased -17.4cm	2282gm

Ayurvedic Management

Chikista Sutra (Treatment Protocol)

According to Acharya Sushruta use of *Ksheer basti* indicated in case of *Garbhakhsaya*[8]. He also supports use of *Bhrimhaniya* (anabolic) drugs, milk[5]. Acharya Charaka suggests use of *Jeevaniya* (vitaliser), *Brimhaniya*, *Madhur*, *Vata hara* drug for the nourishment of fetus[7].

Treatment Given To Patient

Ksheer basti planned and administered once in a week. Drugs used in *Ksheer basti* are tabulated below.

Ksheer Basti

Ingredients	Proportion
Gokshura churna	3gm
Vidarikandha	3gm
Bala churna	3gm
Putrajivak	3gm
Milk	15 parts – 300ml
Water	15 parts – 300ml

Ksheer Paak was prepared according to Yadavji Trikamji Ksheerpaak Kalpana[9].

Procedure of *Ksheer Basti*

All the required ingredients are taken and coarse power was made and boiled with 15 parts of water thereafter. Then 15 parts of milk is added cooked in slow and uniform heat till only milk parts remains. The final product is then filtered and kept to cool down. *Basti* was prepared as per classics adding *Madhu, Saindhava*, and *Sneha*. It is administered through rectal route in *Nyubjaabastha* with constant speed without shaking hand. *Basti* was given in early morning empty stomach. *Ksheer basti* was administered once in a week.

Oral Medication Used

Name	Dose	Frequency	Route of administration	*Anupana*
Phala ghrit	1 tea spoon	Twice daily	Oral	Milk
Leptaden	2 Tablet	Twice daily	Oral	Water
Shatavari churna	3gm	Twice daily	Oral	Milk
Punarnava mandura	500mg	Twice daily	Oral	Honey
Shalishastik	150 gm	Once in a day	Oral	*Dadhi*

Drugs used in *Ksheer basti*

Name	Latin name	*Rasa*	*Guna*	*Veerya*	*Vipak*	*Karma*
Gokshura	*Tribulus terrestris* Linn.	*Madhura*	*Guru, Snigdha*	*Sheeta*	*Madhura*	*Mutral, Vrishya, Vata nut, Brumhana*[10]
Vidari (Tuberous Root)	*Pueraria tuberosa* DC.	*Madhura*	*Guru, Snigdha*	*Sheeta*	*Madhura*	*Shukral, Balya, Mutrala, Pittahara, Rasayana, Svarya, Vata hara, Varnya, Stanyada, Jeevaniyaa, Brumhaniyaa*[11]
Bala	*Sida cordifolia* Linn[12]	*Madhura*	*Snigdha*	*Sheeta*	*Madhur*	*Jeevaniya, Brumhana, Balya, Medhya, Rasayana, Prajasthapana, Shothaghna*[13]
Putrajivak	*Putranjiva roxburghii* Wall, *Drypetes roxburghii* (Wall.) Hurusawa.	*Madhur*	*Guru, Picchhill*	*Madhur*	*Sheeta*	*Prabhav garbhakar, Prajasthapan, Mutral, Sothhara, Trishnashamak, Anuloman*

Probable Mode of Action of *Ksheer Basti*

Ksheer Paak

⬇

Rasadhatu

⬇

Fetal nourishment with constructive metabolism

- *Ksheer basti* by its *Brimhan*, *Balya* and *Pustidayak* property increases fetal weight.
- Anabolic, nourishing and strengthening and rejuvenating effect.
- *Basti* has *Vata nulomana* effect so it normalizes the *Vata*, relieving back ache, pain abdomen etc.
- *Basti* removes morbid wastes present in intestine and relieves constipation and boost absorption of *Ksheer paak* ingredients.
- Maximum absorption of drug– under the influence of lactose in the distal small intestine via paracellular route.[14]
- Rectal mucosa had wide area for the absorption of the drug administered as well as it directly goes to the circulation without interference of gastric enzymes.
- Because of constant environment and low enzymatic activity in rectum in contrast to other section of the gastrointestinal tract, it favors drugs absorption. As well as drugs can bypass the liver and directly absorbed in systemic circulation, as a result it can provide significant level for various drugs[15].

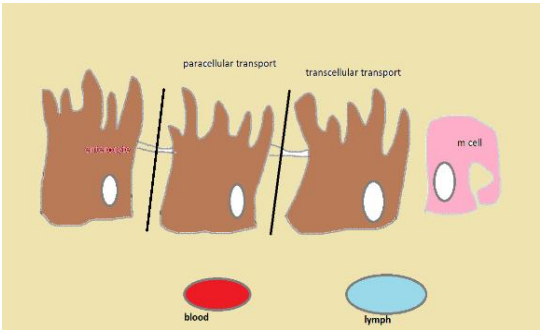

Figure: mechanism of drug absorption in rectal mucosa

- *Ksheer basti* come under *Pancha prashritik basti* which is specially designed for *Garbhini* and quantity is 40 *Tola* which is approximately.
  - *Pancha Prashritik Basti*
  - Amount is 40 *Tola*
  - Specially designed for *Garbhini* (Cha.chi 8/4)
- Fetal nourishment is mainly through placenta. Drugs having lipid contents are readily absorbed through placenta by passive diffusion as it is lipophilic in nature thus directly help in correcting growth restriction[16].

RESULT AND DISCUSSION

This case is unique and carry good message for the practitioners although result was not promising. *Ksheer basti* was given to the patient every four weeks and USG was done to assess fetal growth. As a result, fetal weight increased up to 2282gm despite the fact that fetus was having severe form of congenital anomalies i.e., spina bifida myelomeningocele. *Ksheer basti* is found equally effective in the fetus having congenital abnormalities. Patient was referred to higher center after confirming diagnosis and there she delivered alive female child of 2.3kg on 24/11/2021 through normal vaginal delivery. Child was born with myelomeningocele with Arnold Chiari 2 brain malformation. Further studied should be done to rule out causes of *Bijadusthi* and early care in this kind of cases.

REFERENCES

1. Dutta D. Low Birth Weight Baby. In: Hiralal Konar, ed. DC Dutta's Textbook of Obstetrics. 9th ed. Jaypee Brothers Medical Publishers; 2019: 431-437.
2. Valsamakis G, Kanaka-Gantenbein C, MALAMITSI-Puchner A, Mastorakos G. Causes of Intrauterine Growth Restriction and the Postnatal Development of the Metabolic Syndrome. Ann N Y Acad Sci. 2006; 1092(1): 138-147. doi: https://doi.org/ 10.1196/annals.1365.012
3. Schlaudecker EP, Munoz FM, Bardají A, et al. Small for gestational age: Case definition & guidelines for data collection, analysis, and presentation of maternal immunisation safety data. Vaccine. 2017; 35 (48 Pt A): 6518-6528. doi:10.1016/ j.vaccine. 2017.01.040
4. Charaka A. Sharirsthan. In: Charak Samhita with Vidyotani Vyakhya Bharat. 19th Editi. Chaukhamba Academy, Varanasi; page no.478, chapter 2, verse 15.
5. Priyavrat S. Sharirsthana. In: Priyavrat S, ed. Priyavrat Sharma Commentary of Nibandha samgrah of Dalhana on Sushruta Samhita of Sushruta. 1st edition. Choukhambha orientalis, Varanasi; 2000: pp162, chapter 10/57.
6. Charaka A. Chikitsaasthana. In: Dr. Brahmaananda Tripathi, ed. Charaka Samhita. 2021st ed. Chaukhamba Surbharathi Prakashan, Varanasi; 2021: page no. 955, verse 28/95.
7. Charaka A. Sharirsthana. In: Tripathi DB, ed. Charaka Samhita. 2021st ed. Chaukhamba Surbharathi Prakashan, Varanasi; 2021: page no.947-948, verse 8/26-27.
8. Priyavrat S. Sutra sthana. In: Priyavrat S, ed. Priyavrat Sharma Commentary of Nibandha samgrah of Dalhana on Sushruta Samhita of Sushruta. 1st edition. Choukhambha orientalis, Varanasi; 2000: pp162, chapter 15/12.
9. Acharya YT. Ksheer Paak Kalpana. In: Dravya Guna Vignana. 2nd Edition. Satyabhamabaipanduranga Nirnayasagaramudrana Yantralaya; 1947: 33-34.
10. Health MOF, Welfare F. Gokâura (Fruit). In The Ayurvedic Pharmacopoeia of India, Part I, Vol- I. Vol I. Ministry for Health and Family Welfare Department of AYUSH; 2010: page no.38.
11. India Govt, Ayush Mohafwdo. Vidari. In: The Ayurvedic Pharmacopoeia of India. Vol 2. Government of India Ministry of Health And Family Welfare Department of AYUSH; 2015: 173. doi:10.4103/1658-6816.150579
12. Single FOF. The Ayurvedic Formulary of India Pdf – Part 'B' Formulary of Single. Ayurvedic Formul India. Part B.
13. Bhavaprakash-Purvakhanda-Mishraprakran Guduchyadi varga 4-45.
14. K. S, Dei L. Role of Shatavaryadi Ksheerapaka Basti in Garbha Kshaya - Case Series. J Ayurveda Integr Med Sci. 2017;2(05). doi:10.21760/jaims.v2i05. 10280
15. Hua S. Physiological and Pharmaceutical Considerations for Rectal Drug Formulations. Front Pharmacol. 2019; 10: 1196. doi:10.3389/ fphar. 2019.01196
16. Reddy PS, Beena MD. International Journal of Ayurveda Ayurvedic Approach. 2020; 8(5): 49-56.

Cite this article as:
Bihani Sanjyal, B. Pushpalatha, K. Bharathi. Management of Intra-Uterine Growth Restriction by Ayurvedic Regime: A Case Report. International Journal of Ayurveda and Pharma Research. 2022;10(Suppl 2):55-59.
https://doi.org/10.47070/ijapr.v10iSuppl2.2483
Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**
Dr. Bihani Sanjyal
PG Scholar,
Dept. of Prasutitantra and Stree Roga,
National Institute of Ayurveda, Jaipur.
Email: sanjyalbihani@gmail.com