SB Kulkarni - Study of Masanumasik Garbhavruddhi in 4th, 5th and 6th month in association with developmental changes in Second Trimester.

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STUDY OF MASANUMASIK GARBHAVRUDDHI IN 4th, 5th AND 6th MONTH IN ASSOCIATION WITH DEVELOPMENTAL CHANGES IN SECOND TRIMESTER.

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ABSTRACT
Ayurveda can be defined as a system which helps to maintain health by keeping Mind, Body and Soul in perfect equilibrium in nature. Basic elements of the body i.e. Panchmahabhutas along with Shukra and Shonita result in formation of Garbha. Aacharya Charaka and Aacharya Sushruta has described Masanumasik Garbhavruddhi right from conception up to delivery in detail. Development of Dhatu in specific month, development of Mana - buddhi (mind) also been highlighted by Ayurveda during fetal development. Modern science mentioned complete developmental period of 9 months of fetus in uterus considered as gestational period. Modern science classified it in 3 groups i.e. Trimesters. It also includes various parameters such as per abdomen examination, USG, fetal heart sound etc. for assessment of fetal growth. Baby are the future of Nation and hence it is necessary to keep mother healthy during her ANC period to avoid further complications. Present study was aimed at to study the Masanumasik Garbhavruddhi in 4th, 5th and 6th month in association with developmental changes in second trimester. It was Prospective, Cross-sectional, Observational study. Study of Masanumasik Garbhavruddhi in association with developmental changes in second trimester was done on the basis of observation of signs and symptoms of Garbhi.3 At the end significant association (Chi square test, P<0.05) was found between Ayurvedic developmental changes and Modern developmental changes. Masanumasik changes described in Samhitas are found exactly same in the pregnant females.

Keywords: Masanumasik Garbhavruddhi, Chaturth Mas, Panchama Mas, Shasht Mas, Second Trimester.

1. INTRODUCTION
Ayurveda can be defined as a system which helps to maintain health by keeping Mind, Body and Soul in perfect equilibrium in nature. Sushruta has provided this definition and which is now narrated the same by WHO also. The aim of Ayurveda is to eliminate disease and maintain proper homeostasis.1 The entire Chikitsa siddhant of Ayurveda depend on basic principles such as Panchbhautik Siddhant, Loka- Purushasamanya Siddhant, Nidanpanchaka etc. These basic principles of Ayurveda are related with Shrushti utpatti.2 Ayurveda accepted Shrushti utpatti factors according to Sankhya darshana and stated that elements whatever found in nature, comprises Sharir Tanmatras. Mahabhusas are the elements found in both. Knowledge of Sharira start with the knowledge of Garbhotpatti. Basic elements of the body i.e. Panchmahabhutas along with Shukra and Shonita result in formation of Garbha.3 Aacharya Charaka and Aacharya Sushruta has given extreme importance to Soul (Aatma) in the phenomenon of Garbhotpatti - Chaturvidha bhava (four basic elements) and Shadbhava samudaya (6 elements) take part in formation of fetus. After the formation of Garbha in the kukshi (uterus) the factors like Panchmahabhutas,4 Aahar Ras5 etc. responsible

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for gradual development of fetus. Aacharya Charaka and Aacharya Sushruta has described Masanumask Garbhavruddhi right from conception up to delivery in detail. Development of Dhatus in specific month, development of Mana - buddhi (mind) also been highlighted by Ayurveda during fetal development.

As per Sushruta, Sarva anga-prayanga (extremities) get prominent and Chetana (presence of life / consciousness) is expressed (abhivyakti). It means Hriday i.e. Heart is formed in fetus in fourth month of pregnancy. Charaka has described that, in fifth month development of muscles and blood (Mansa-Shonita upachaya) in fetus is most noticeable as compared other months. Further he has guided that, Bala (immunity / strength) and Varna (color and complexion) is specially developed in fetus during sixth month of pregnancy. Dhatus like Mansa, Shonita, physical characters like Bala, Varna, synthesized specially during the period according to Ayurveda.

Modern science mentioned different life processes including reproduction which is essential for generation of new offsprings. Merging of genetic material from sperm and secondary oocyte in single nucleus is fertilization. The complete developmental period of 9 months of fetus in uterus considered as gestational period. Modern science classified it in 3 groups i.e. Trimesters. According to modern science, 13 to 28 weeks of pregnancy considered as second trimester. The antenatal care includes different parameters in different trimesters which are suggestive of fetal growth. It also includes various parameters such as per abdomen examination, USG, fetal heart sound etc. for assessment of fetal growth.

Why the topic

Women is the god gift to human community as she is the only way to continue the human community. Baby are the future of Nation and it is necessary to have healthy and non-diseased fetus. The health status of fetus and baby again depends upon health status of woman (mother). Infant mortality is still an issue to concern seriously in the developing countries like India. Hence it is necessary to keep mother healthy during her ANC period to avoid further complications and to decrease the infant mortality rate. The previous works revealed with the study of Masanumask garbhavruddhi with respect to 8th month and panchbhautik role in garbhotpatti. In present study, developmental changes in second trimester were under consideration. An effort was made to study Masanumask Garbhavruddhi according to Ayurveda and modern science in detail. By applying parameters of second trimester according to antenatal care the changes in fetus according to Ayurveda was co-related. The co-relation was done in the pregnant women of second trimester during ANC check-up.

2. MATERIALS AND METHODS

2.1. Statement of Problem

Is there association between developmental changes in 4th, 5th and 6th month of Garbhavruddhi and second trimester parameters?

2.2. Hypothesis

Null Hypothesis (H₀)

There is no significant association in between Masanumask Garbhavruddhi and developmental changes in second trimester.

Alternate Hypothesis (H₁)

There is a significant association in between Masanumask Garbhavruddhi and developmental changes in second trimester.

2.3. Aim and Objectives

- To study the Masanumask Garbhavruddhi in 4th, 5th and 6th month in association with developmental changes in second trimester.
- To study Garbhautpatti and masanumask vruddhi in detail according to Ayurveda.
- To study events in month wise development of fetus in detail according to modern science.
- To study second trimester developmental parameters and to find out its association with Garbhavruddhi kram in Ayurveda.

2.4. Study Design

Present study was Prospective, Cross-sectional, Observational study. Study of Masanumask Garbhavruddhi in association with develop-
mental changes in second trimester was done on the basis of observation of signs and symptoms of Garbhini specially in second trimester. Ethical clearance for the study was granted by IEC of PMT’s Ayurveda College, Shevgaon, Dist. Ahmednagar, Maharashtra. By simple random sampling method, 50 pregnant females of second trimester were selected from hospital OPD of PMT’s Shri Eknath Ayurveda Rugnalaya, Shevgaon. During ANC checkup, parameters such as quickening, progressive enlargement of lower abdomen, presence of fetal heart sound etc. were observed by general ANC checkup. Also, the developmental changes according to Ayurveda were noted. Diagnostic tools such as USG, Blood investigations will be used, wherever necessary. Finally, data was analyzed statistically.

2.5. Area of Sampling
Observational study of the Garbhini was carried out in OPD of Stree-rog Prasutitantra Dept. of PMT’s Shri Eknath Ayurveda Rugnalaya, Shevgaon.

2.6. Selection Criteria

2.6.1. Inclusion Criteria
- Garbhini (pregnant women) of second trimester 4th, 5th and 6th month according to Ayurveda were included in study.
- The second trimester pregnant women of primigravida or multigravida were included in study.
- Patients willing and ready to give written consent were selected.

2.6.2. Exclusion Criteria
- The pregnant women up to 1st, 2nd and 3rd month were excluded from the study.
- The pregnant women beyond 6th month were excluded.
- Complicated pregnancies.
- Pregnant women having history of other major illness.
- Patients not willing to participation in the study were excluded.

2.7. Research Tool
Specially designed Case Record Form (CRF) for assessment of signs and symptoms of Garbhini in second trimester was the main research tool for the study.

2.8. Observational Study

2.8.1. Modern parameters
In selected patients following certain modern parameters regarding 2nd trimester, were observed and compared with previous follow-up findings wherever necessary. The modern parameters under observation are mentioned in Table No. 1.

2.8.2. Ayurveda parameters
Ayurveda parameters were divided into three categories viz. Chaturtha Mas, Pancham Mas, Shashtha Mas. Details are described in Table No. 2.

2.8.3. Assessment of parameters
Parameters of were assessed on the basis of gradations. Gradations are shown in Table No. 3 and Table No. 4.

3. RESULTS AND DISCUSSION

50 pregnant females of 2nd trimester, were included and interrogated in this study. One-time follow-up data was collected and noted in the CRF which was specially designed for this purpose. After collection and classification of the data the observations found are being discussed here.

3.1. Epidemiological Observation
Out of 50 pregnant females 15 were having fourth month, 18 were having fifth month and 17 were having sixth month of pregnancy (Figure No. 1). All three months of 2nd trimester, were covered during the study. 32 females were Hindu, 15 females were Muslim and 3 females were of other religion (Figure No. 3). As most of population in periphery was Hindu, most incidence of Hindu females was observed and it was by chance only. 10 females were doing mild work, 33 females were doing moderate work and 7 females were doing hard work (Figure No. 4). It suggests that patients were selected randomly and pregnant females of almost all occupations and work type were selected which is essential to reduce bias. Out of 50, 22 females were Primigravida while 28 females were Multigravida (Figure No. 2).
Study was carried out in in different gravidity patients so that we would get fair idea in all dimensions.

3.2. Observed parameters

3.2.1. As per Ayurveda

As per Sushruta, Hriday utpatti and Dauhruda are typical peculiarities of 4th month. Likewise, as per Charaka, Mansa-Shonita upachaya is found in 5th month and Bala-Varna upachaya is found in 6th month. Ayurveda parameters in Masanumasik Garbhavruddhi narrated by different Acharyas are found in practically in day today practice. At the end of study, we have found following observations.

Chaturtha Mas:
Out of 15 patients, Hriday utpatti was present in 14 patients while Dauhruda was present in 11 patients (Figure No. 5).

Panchama Mas:
Out of 18 patients, Hriday utpatti was present in 18 patients, Dauhruda was present in 16 patients, Mansa upachaya was present in 15 patients and Shonita upachaya was present in 14 patients (Figure No. 6).

Shashtha Mas:
Out of 17 patients, Hriday utpatti was present in 17 patients, Dauhruda was present in 17 patients, Mansa upachaya was present in 16 patients, Shonita upachaya was present in 15 patients, Bala upachaya was present in 12 patients and Varna upachaya was present in 13 patients (Figure No. 9).

3.2.2. As per Modern

Modern science is evidence-based medicine and to find out modern parameters in pregnant females was a lot easier than to find out Ayurvedic parameters. We have categorized these parameters month wise. At the end of study, we have found following observations.

4th Month:
Out of 15 patients, Weight gain was present in 15 patients, FHS were present in 14 patients, Longings was present in 14 patients, Breast changes were present in 8 patients and Abdominal growth was present in 14 patients (Figure No. 7).

5th Month:
Out of 18 patients, Weight gain was present in 17 patients, FHS were present in 18 patients, Longings was present in 14 patients, Breast changes were present in 17 patients, Quickening were present in 16 patients and Abdominal growth was present in 17 patients (Figure No. 8).

6th Month:
Out of 17 patients, Weight gain was present in 17 patients, FHS were present in 17 patients, Longings was present in 16 patients, Breast changes were present in 17 patients, Quickening were present in 15 patients, Abdominal growth was present in 17 patients, Linea Niagra was present in 16 patients, Striae was present in 15 patients, Fundal height was present in 14 patients and Palpation of fetal parts was present in 17 patients (Figure No. 10).

As per the month wise collected data after comparison between Ayurveda and Modern parameters, it was found that there are almost all findings are similar month wise.

3.3. Statistical analysis

All collected data were undergone to statistical analysis by Chi square test at significance level of 5%. It has shown significant results to the data of all three months. Ayurveda parameters were compared and correlated with modern parameters. Statistical analysis result was as –

- 4th month: Chi square = 13.201, P = 0.00028, Result: Significant.
- 5th month: Chi square = 16.742, P = 0.00021, Result: Significant.
- 6th month: Chi square = 12.456, P < 0.00041, Result: Significant.

Hence finally, it was concluded that there is a significant association in between Masanumasik Garbhavruddhi and developmental changes in second trimester.

3.4. Limitations

Study was carried out in our hospital which has
having maximum flow from rural area. Only 50 pregnant females were observed. Further study is recommended in large number of sample size drawn from large population.

4. CONCLUSION

- Ayurvedic Masanumasik Garbhavruddhi concept is scientific concept and based on experience and observations of ancient Acharyas.
- Masanumasik changes described in Samhitas are found exactly same in the pregnant females.
- There is a significant association in between Masanumasik Garbhavruddhi and developmental changes in second trimester.

5. REFERENCES

11. Ibidem 10, Trimesters. p. 64

6. TABLES AND FIGURES

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameter</th>
<th>Sr. No.</th>
<th>Parameter</th>
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<tr>
<td>1</td>
<td>Weight gain</td>
<td>7</td>
<td>Ballotment</td>
</tr>
<tr>
<td>2</td>
<td>FHS</td>
<td>8</td>
<td>Quickening</td>
</tr>
<tr>
<td>3</td>
<td>Longings</td>
<td>9</td>
<td>Progressive enlargement of lower abdomen</td>
</tr>
<tr>
<td>4</td>
<td>Breast changes</td>
<td>10</td>
<td>Fundal height</td>
</tr>
<tr>
<td>5</td>
<td>Linea niagra</td>
<td>11</td>
<td>Palpation of fetal parts</td>
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Table No. 1. Modern Parameters

<table>
<thead>
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<th>Sr. No.</th>
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<th>Parameters</th>
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<tbody>
<tr>
<td>1</td>
<td>Chaturtha (4th month)</td>
<td>Hriday Utpatti, Dauhruda</td>
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<tr>
<td>2</td>
<td>Pancham (5th month)</td>
<td>Mansa upachaya, Shonit upachaya</td>
</tr>
<tr>
<td>3</td>
<td>Shashtha (6th month)</td>
<td>Bala upachaya, Varna upachaya</td>
</tr>
</tbody>
</table>

Table No. 2. Ayurveda Parameters
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- Weight gain - 0: Absent; 1: Present.
- FHS - 0: Absent; 1: Present.
- Longings - 0: Absent; 1: Present.
- Breast changes - 0: Absent; 1: Present.
- Linea Niagra - 0: Absent; 1: Present.
- Striae - 0: Absent; 1: Present.
- Ballotment - 0: Absent; 1: Present.
- Quickening - 0: Absent; 1: Present.
- Progressive enlargement of lower abdomen - 0: Absent; 1: Present.
- Fundal Height - 0: Absent; 1: Present.
- Palpation of fetal parts - 0: Absent; 1: Present.

Table No. 3. Gradations of Modern parameters

- Hriday Utpatti - 0: Absent; 1: Present.
- Dauhrud - 0: Absent; 1: Present.
- Mansa Upachaya - 0: Absent; 1: Present.
- Shonita Upachaya - 0: Absent; 1: Present.
- Bala Upachaya - 0: Absent; 1: Present.
- Varna Upachaya - 0: Absent; 1: Present.

Table No. 4. Gradations of Ayurveda parameters

Figure No. 1. Gestational age

Figure No. 2. Gravidity
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Figure No. 3. Religion

Figure No. 4. Work Type

Figure No. 5. Charurth Masa

Figure No. 6. Panchama Masa

Figure No. 7. 4th Month

Figure No. 8. 5th Month
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