

## A CRITICAL STUDY OF NIDAN OF APASMARA IN PAEDIATRIC AGE GROUP

<sup>1</sup> Jagtap Amit Rajaram <sup>2</sup> Dandekar Amruta Satish

<sup>1</sup>Associate Professor, Department of Kaumarbhritya, Shree Saptashringi Ayurved Mahavidyalaya, Nasik, Maharashtra, India

<sup>2</sup>Associate Professor, Department of Swasthavritta, Dhanvantari Ayurved Mahavidyalaya, Udgir, Latur, Maharashtra, India

### ABSTRACT

In all branches of *Ayurveda*, *Balroga* or *Kaumarbhritya* is one branch where scholars and Researchers have great scope of research, it is due to the lack of proper study of the subject through *Ayurvedic* perspective. *Kashyap Samhita*, which is a prime source of knowledge regarding *Kaumarbhritya* is not available in its complete form; which adds to the lacunae of the subject. *Apasmara* (Epilepsy) has been described in great details in many *Samhitas*. But the description revolves around an adult human being. Especially, *Nidan* (Etiological factors) is described keeping adult as the nucleus of the discussion. The need is to focus on *Adibalapravrutta Vyadhi* and *Janmabalapravrutta Vyadhi*; in case of paediatric age group. *Matruja* and *Pitruja* factors in *Adibalapravrutta Vyadhi*; and *Rasakruta* and *Dauhridapacharkruta Vyadhi* belonging to *Janmabalapravrutta Vyadhi* are very important areas, apart from some other factors to look forward for the *nidan* in paediatric age group, for the ailment like *Apasmara*.

**Keywords:** *Apasmara*, Paediatric age group, *Nidan*

### INTRODUCTION

*Apasmara* is in existence in the Indian society and worldwide from ancient times. References of this notorious disease are found in *Vedic* Literature. In *Vedas*, it is told that the disease *Apasmara* is nothing but a disease attributed to the attack by the female *Graha Jambha*, as Mentioned in *Rugveda*, *Yajurveda* and *Atharvaveda*. *Apasmara* has been recorded in the *Samhitas* Like *Charak Samhita*<sup>1</sup>, *Sushruta Samhita*<sup>2</sup>; etc. Most of the diseases of the children come under *Graharoga*. However, *Acharya Charak* and many other *Acharyas* describe *Apasmara* as

a distinct clinical entity and deal with *Graharogas* separately. *Charaka* traces the origin of the disease to *Daksha Yajanya*. It is considered as one of the eight *Adyotthana* diseases (Firstly engendered disease) at the time of *Daksha Yajanya*. *Acharya Charak* explains that when the *Yajnya* of *Dakshaprajapati* was destroyed; all the living beings became panic and started running haywire for their lives. During this commotion some of them touched unhygienic objects and creatures. During this act; those who were contaminated; suffered from *Apasmara*<sup>3</sup>. The incidence and prevalence

of *Apasmara* (Epilepsy) varies in different countries<sup>4-7</sup>. India is home to nearly 10 million people suffering from *Apasmara* (Epilepsy) [Prevalence of about 1%]<sup>8</sup>. The incidence is lower in urban part of India (0.6%) and is higher in rural part of India (1.9%)<sup>9-10</sup>. The data mentioned itself underlines the importance of *Nidan* of *Apasmara* in paediatric age group [ Etiological background]. So, the causative factors are identified and preventive measures are taken to minimize the incidence of this dreaded disease.

**MATERIALS AND METHODS:** The *Charaka Samhita*, *Sushruta Samhita*, *Ash-tanga Hridaya*, *Kashyap Samhita*, *Madhavidanam* were scrutinized for relevant references regarding concept of *Nidan* of *Apasmara*. Critical and conceptual analysis was done for the proper understanding.

**AIMS AND OBJECTIVES:** To determine the *Nidan* of *Apasmara* in paediatric age Group.

**IMPORTANCE OF NIDAN:**

**NIDAN OF APASMARA MENTIONED IN FEW SAMHITAS**

**TABLE - I**

<b>MADHAV NIDAN</b> <sup>11</sup>	<b>ASHTANG HRIDAYA</b> <sup>12</sup>	<b>CHARAK SAMHITA</b> <sup>13</sup>	<b>SUSHRUTA SAMHITA</b> <sup>14</sup>
<i>Viruddha Bhojana</i> (In-compatible food)	<i>Chinta</i> (Worry/Anxiety)	<i>Chinta</i> (Worry/Anxiety)	<i>Indriya Mithya Yoga-Atiyoga-Heena Yoga</i> (Excessive/Improper use of Sensory organs)
<i>Dushta Bhojana</i> (Harmful Food)	<i>Bhaya</i> (Fear)	<i>Kama</i> (Passion)	<i>Kayik-Vachik-Manasika-Mithya yoga –Atiyoga-Hinayoga</i> (Excessive/Improper behavioural-Mental-Verbal activities)
<i>Apavitra Bhojan</i> (Impure Food)	<i>Shoka</i> (Grief)	<i>Bhaya</i> (Fear)	<i>Viruddha Aahara</i> (incompatible food)
<i>Devata, Guru, Brahmin Apamana</i> (Insult of God, elderly people and the revered people)	<i>Ahita Annapana</i> (Unwholesome, harmful Food)	<i>Krodha</i> (Anger)	<i>Malina Aahara</i> (Impure, dirty food)
	<i>Vikruta Bhojana</i> (Dirty Food)	<i>Shoka</i> (Grief)	<i>Rajahswala Stree Sambhoga</i> (coitus during men-

In *Ayurvedic* classics, every disorder is described according to *Nidan* panchak; which comprises of *Nidan* [Etiological Factors], *Purvarupa* [Prodromal Signs], *Rupa* [Signs and Symptoms], *Upashaya* [Ammelioration] and *Samprapti* [Pathogenesis]. *Nidan Panchak* has been described to help physicians to understand the disease and to treat it successfully. Out of all the five components of *Nidan Panchak*; *Nidan* is of immense importance. In every disease, the pathology begins with *Nidan*. If physician is very well versed with the *Nidan* of a particular disease he can plan his line of treatment accordingly. Thorough knowledge of causative factors not only helps in treating the disease but also helps in preventing it. The whole process of manifestation of disease begins with *Nidan*. *Nidan Parivarjana* is therefore regarded as the best form of treatment by *Acharyas*. This discussion should highlight the importance of understanding *Nidan* of *Apasmara* in Paediatric age group.

			struation)
	<i>Asatmya An- napana</i> (Incom- patible Food)	<i>Udvega</i> (Excite- ment/Agitation)	
	<i>Malina An- napana</i> (Impure Food)	<i>Ahita Bhojana</i> (Un- wholesome, harmful Food)	
	<i>Vishamanna</i> (Improper or ir- regular practice of dietetics.	<i>Apavitra Bhojana</i> (Unhygienic Food)	
	<i>Pujya Vyakti Apamana</i> (Disre- spect/insult of the revered and elder people)		
	<i>Vishama cheshta</i> (Hideous body movements)		

After going through the various *Nidan* mentioned in few *samhitas*, it becomes clear that during the description; *acharyas* have kept a full grown man as a center of their attention. There are so many aetiological factors in the list, which don't suit the paediatric age group. For example, having an intercourse with a menstruating female causes *Apasmara*. Also a child having *Apasmara* in early age of life or since birth cannot become culprit due to insult to God and elderly people as well as because of profound grief,

anger, passion etc. In early life mother's milk forms the major portion of infant's diet. So, impure, dirty, incompatible food etc. doesn't suit this age group. For this reason to understand the *Nidan* in paediatric age group, focus must be towards Antenatal, natal and post natal periods.

**TYPE OF VYADHI:** While describing *Vyadhi*, *Acharya Sushruta* has mentioned seven types.<sup>15</sup> These seven types are again divided into two types each.

#### TYPES OF VYADHI ACCORDING TO ACHRYA SUSHRUTA

TABLE II

<i>Adibalapravruttha Vyadhi</i>	<i>Matruja</i>
	<i>Pittruja</i>
<i>Janmabalapravruttha Vyadhi</i>	<i>Rasakruta</i>
	<i>Dauhridapacharkruta</i>
<i>Doshabalapravruttha Vyadhi</i>	<i>Amashaya Samuttha</i>
	<i>Pakwashaya Samuttha</i>
<i>Sanghatabalapravruttha Vyadhi</i>	<i>Shastrakruta</i>
	<i>Vyalakruta</i>
<i>Kalabalapravruttha Vyadhi</i>	<i>Vikruta Rutujanya</i>
	<i>Avikruta Rutujanya</i>
<i>Daivbalapravruttha Vyadhi</i>	<i>Vidyut Ashanikruta</i>

	<i>Pishachchakruta</i>
<i>Swabhavabalapravrutta Vyadhi</i>	<i>Kalakruta</i>
	<i>Akalakruta</i>

Out of all the above mentioned types; *Adibalapravrutta* and *Janmabalapravrutta* are the two types which are related to this topic.

#### **ADIBALAPRAVRUTTA VYADHI**

These type of disorders are of two types, i.e., *Matruja* ( Maternal) and *Pitruja* (Paternal), which are derived from the manifestation of *Shukara* and *Shonita*.<sup>16</sup> Since, *Shukra* and *Shonita* are the basic factors for the production of *Garbha*, any abnormality in them leads to the formation of *Adibalapravrutta Vyadhi*. *Shukra Dosha* occurs because of the derangement of *Tri dosha*. While explaining the deformities that may arise in the *Garbha* due to such *Dushta Shukara*, *Acharya Charak* clearly states as, male having *Dushta Shukra* become impotent and his life span reduces. Since, his *Shukra* is *dushta* his children are liable to many disorders.<sup>17</sup> In case of *Apasmara*, where family history is very important, cause like this must be ruled out. So, vitiation of *Shukra* due to *Tridosha* is one of the root causes of *Apasmara*. The *Dushta Shonita* too is not regarded fit for conception. *Shukara* and *Shonita* are the integral components of the *Garbha*. Thus any abnormality in them is reflected in the *Garbha*. If *Shukra* is *Dushta*, the representative of the *Pitruja Organ* in it gets vitiated producing organic or pathological abnormality in that *Pitruja Organ* of *Garbha*. This phenomenon is also applied to *Shonita*. So, if the *Shonita* is vitiated the *Matruja* organ formed in the *Garbha* anatomically and/or pathologically gets hampered.<sup>18</sup> This explains, how *Apasmara* passes from one

generation to next generation. If one of the parents have *Apasmara*; their *Shukra* or *Shonita* or both gets vitiated, which produces *Apasmara* in the offspring. According to new research on chromosomes. Very interesting results are found. There are 400 different chromosomal imbalances described with seizures or EEG abnormalities. Out of these, eight chromosomal disorders have a high association with epilepsy; like Wolf-Hirschhorns (4p-) Syndrome, Miller-Dieker Syndrome;etc.<sup>19</sup>

Such, researches further underlines the importance of *Adibalapravrutta Vyadhi*.

#### **JANMABALAPRAVRUTTA VYADHI:**

The another important *nidan* is the *Janmabalapravrutta Vyadhi*. This whole section of diseases is because of the dietic, behavioural changes and mental state of mother. Since, the *Garbha* is totally dependent upon it's mother; any adverse change in Mothers mental or physical state affects the child causing ailments.<sup>20</sup> They are of two types *Rasakruta* and *Dauhrid-apacharkruta*.

#### **RASAKRUTA VYADHI**

*Acharya Sushruta* has mentioned four essential components for the conception.<sup>21</sup> They are *Rutu*, *Kshetra*, *Ambu* and *Beeja*. Out of these four factors, *Ambu* stands for *Aahara rasa* of mother. So, any vitiation in *Ambu* will be definitely reflected on *Garbha*. When the foetus is in womb, it is totally dependent upon it's mother for the supply of food, oxygen and all the requirements for it's survival and growth. *Rasa* is the first and principle dhatu in the body to be formed

from *Aahararasa*. All the remaining *Dhatus* are formed by a chain wise nourishment method, originating from *Rasadhatu*.<sup>22</sup> Acharya *Vagbhata* has given clear instruction that, if one *dhatu* is vitiated, it would affect the next *dhatu* by adversely increasing or decreasing its quality.<sup>23</sup> This clearly means, if *Rasadhatu* is vitiated, the whole chain emerging from it will be affected, precipitating many disorders. The basic function of *Rasa dhatu* is *Preenana*.<sup>24</sup> It means giving nourishment to *Manas*. This is very vital, as *Manas* is the ruler of all ten *indriyas*. When *Rasadhatu* is in adequate quantity and having optimum quality, *Manas* and *indriyas* are properly nourished. According to Acharya *Charaka*, when mother's *Aahara Rasa* is vitiated, the *Manas* of *Garbha* doesn't get adequate nourishment. Due to this, derangement of *Satva*, *Raja* and *Tama* occurs in *Manas*; resulting in many *Manas* ailments.<sup>25</sup> So, the extract of this discussion is that, if mother's *Aahara rasa* is vitiated due to improper dietetic habits, vitiated *Rasadhatu* is formed in *Garbha*. This vitiated *Rasa* forms improper subsequent *dhatu*, resulting in many physical disorders. Vitiated *Rasadhatu* does not nourish *Manas* and *Indriyas* adequately; giving rise to many mental disabilities. As *Apasmara* involves both physical as well as mental factors, etiological background like vitiated *Rasadhatu* carries importance.

**DAUHRIDA APACHARKRUTA VYADHI:** Before going to the topic, it is necessary to understand the meaning of *Dauhrida*. This, literally means two hearts. Acharya *Charak* states that *Garbha* starts doing its activities in the third month of foetal life. As all the *Indriyas* are situated in

*Hridaya*, it starts functioning in third month.<sup>26</sup> All the demand of *Garbha* and its emotional status is always expressed via mother's *Hridaya*. Our *Acharyas* have given immense importance to this phase of pregnancy. Acharya *Sushruta* says, if mother's demands are not fulfilled she would deliver a baby suffering from many ailments like *Jadata* (Mental Retardation), Dwarfism etc. He further explains, pregnant female at this phase of pregnancy should take great care as to fulfill her cravings. Every wish of *garbha* is expressed via one of the *Indriyas* of mother's body. If mother's any wish is not satisfied, the *Indriya* through which it is expressed remains unsatisfied. This reflects as a derangement in *Garbha's* corresponding *indriya*.<sup>27</sup> This derangement in *Indriya* may precipitate in the child as *Apasmara*. So, the above discussion suggests that this phase is very crucial for the proper growth of *Garbha* as well as for the mother.

## OTHER IMPORTANT NIDAN OF APASMAR IN PAEDIATRIC AGE GROUP

### GARBHOPAGHATAKAR BHAVA

Acharya *Charak* clearly states that if a pregnant female has quarrelsome nature and she always tends to involve in physical conflicts; she may deliver a child suffering from *Apasmara*.<sup>28</sup> Quarrels induces stress in pregnant female. Stress as a potential or actual threat imposes different changes in the human behavior, which are achieved through the modulation of neuronal function involved in different aspects of hormonal and neural responses.<sup>29</sup> Exposure to stress during pregnancy may be sufficient to induce permanent alterations in emotionality, cognition, neuroendocrine response and be-

havior.<sup>30</sup> Physical assaults on the abdomen of a pregnant female may result in intrauterine hemorrhage or some serious injury to child's vital organs. Any wound on mother's body may catch infection which may pose a threat to the child. Such trauma or infection may cause seizure in child due to various complications. In this way, this *Garbhopaghatakar bhava* is closely related to the incidence of Apasmara in children.

**VIVAHA VARJITA KULA:** Our *Acharyas* have laid down some vital rule regarding marriage. *Swa gotra* marriages are strictly banned. Likewise, *Dasha Kula*, i.e., Ten families are prohibited to get married. *Acharyas* have included families having history of *Shwitra*, *Kushtha*, *Apasmara* etc; in the list of banned families. This clearly indicates that our *Acharyas* were aware of the genetic predisposition of Apasmara.

**VIVAHA YOGYA AYU:** *Acharya Sushruta* instructs that, the ideal age of marriage for female is sixteen years.<sup>31</sup> According to new researches, the rate of premature delivery in 11 to 15 years old mother is higher than that for 16 to 19 year old mothers of comparable socio economical status.<sup>30</sup> Maternal age under 18 years is risk factor for complications in both mother and neonates, and even more so in mother aged younger than 15 year.<sup>32</sup> After going through different opinions it can be summarized that, an ideal age for a female to have her first pregnancy is between 16 to 20 years. The risk of congenital anomalies increases for maternal age under 16 years. The child may be exposed to the danger of contracting *Apasmara* in such cases.

**RAJAHSVALA NIYAMA PALANA:** *Acharyas* have given some instructions

about behavior of a female during menstruation. Female should not have sexual contact, not to do tiresome, heavy work, not to dig the soil; etc.<sup>33</sup> The basic principal behind these instructions is to maintain the equilibrium of *Tridosha* of *Sharir* and *Manas*. If any female knowingly or unknowingly does not follow the guidelines, her child would be liable to many congenital anomalies; like insanity, Skin disease, leukoderma; etc.<sup>34</sup>

**BRAHMACHARYA PALANA:** *Acharya Sushruta* has mentioned a very important point about intercourse during menstruation. He explains that, if coitus happens on the third day of menstruation and female gets pregnant, the child would have congenital anomalies and would have short life span.<sup>35</sup> Such congenital anomalies can directly or indirectly lead to the formation of *Apasmara*.

**VIKRUTA SAMBHOG ASANA:** *Acharya Charak* clearly instructs every couple not to have intercourse in any unnatural position; as this can affect mother's birth canal, her uterus, father's *Shukra*; which in turn deposits many abnormalities in *Garbha*.<sup>36</sup> Any of these abnormalities may reflect as *Apasmara* in child.

## DISCUSSION

*Apasmara* in paediatric age group is found in many cases. In nearly all classical books of *Ayurveda*; *Apasmara* is elaborately studied, through its etiological background, pathogenesis, treatment, signs and symptoms, etc. In all the *Samhitas*, every discussion revolves around grown up human and not about a minor. Especially when *Nidan* is studied, it is observed that some causative factors will never suit paediatric age group. When different references from different

sources were critically studied, a whole new concept of *Nidan* of *Apasmara* in paediatric age group emerged. A lot of attention must be given to Antenatal and natal period. *Janmabala pravrutta vyadhi* and *Adibalapravrutta vyadhi* holds the key for *Nidan* in this age group. *Shuddha Shukra*, *Shuddha Aartava*, *Aahara*, *Vihara* of female desirable for conception and after conception are very important factors in view of *Apasmara*. *Manas Swasthya*, *Indriya Tarpnan* and *Sharir swasthya* are of prime importance in delivering healthy newborn.

### CONCLUSION

Form above all discussion, conclusive points can be drawn and presented as follows:

*Nidan* of *Apasmara* in paediatric age group is,

1. *Adibalapravrutta Vyadhi*
2. *Janmabalapravrutta Vyadhi*
3. *Garbhopaghatakar bhava*
4. *Vivaha Varjita Kula*
5. *Vivaha Yogya Ayu*
6. *Rajahsvala Niyama Palana*
7. *Brahmacharya Palana*
8. *Vikruta Sambhog Asana*

### REFERENCES

1. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part II (Chikitsasthan 10/3).
2. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part II (Uttaratantra 61/3).
3. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part I (Nidanasthana 8/11).

4. Shorvan SD, Farmer PJ. Epilepsy in developing countries: a review of epidemiological, socio cultural and treatment aspects. *Epilepsia* 1988; 29 (Suppl I): 536-54.
5. Jilek – All L, Jilek W, Miller JR. Clinical and genetic aspects of seizure disorders prevalent in isolated African population. *Epilepsia* 1979; 20: 613-22.
6. Chiofalo N, Kirschbaum A, Fuentes A. Cordero M. Masesen J. Prevalence of Epilepsia in Melipilla, Chile *Epilepsia* 1979; 20: 261-6.
7. Rwiza HT, Kilinzo GP Haule J, et, al. Prevalence and incidence of epilepsy in Ulanga, a rural Tanzanian district : a community based study. *Epilepsia* 1992; 33: 1051-6
8. Sridharan R, Murthy BN. Prevalence and pattern of Epilepsy in India. *Epilepsia*. 1999; 40(5): 631-8.
9. Leonardi M, Ustun TB. The Global burden of Epilepsy. *Epilepsia*. 2002;43(suppl 6):21-5.
10. Pahi K, de Boer K. Epilepsy and rights. In: World Health Organization. Atlas : Epilepsy care in the world 2005, illustrated edition. Geneva, Switzerland : WHO Publication; 2005. PP. 72-3.
11. Madhavnidanam edited by Prof. Yadunandana Upadhyaya, Chaukhamba Sanskrit Sansthan, Varanasi, 26<sup>th</sup> edition, Purvardha (Apasmara nidanam)
12. Astanga Hrudaya commentary by Dr. Gopal Krushna Gadre, Shri Gajanan Book Depot, Mumbai, 7<sup>th</sup> edition (Uttaratantra 7/1-2).
13. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba

- Bharati Academy, 22<sup>nd</sup> edition Part II (Chikitsasthan 10/5)
14. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part II (Uttaratantra 61/4-6).
  15. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sutrasthan 24/5).
  16. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sutrasthan 24/6).
  17. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition, Part I (Sutrasthan 20/18-19).
  18. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part I (Sutrasthan 3/17).
  19. Singh R, Gardner RJ, Crossland KM, Scheffer IE, Berkovic SF. Chromosomal abnormalities and Epilepsy a review for clinicians and gene hunters, *Epilepsia* 2002 Feb; 43(2): 127-40.
  20. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sutrasthan 26/6).
  21. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sharirasthan 2/35).
  22. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part II (Chikitsasthan 15/16).
  23. Astanga Hrudaya commentary by Dr. Gopal Krushna Gadre Shri Gajanan Book Depot, Mumbai, 7<sup>th</sup> edition (Sutrasthan 11/4).
  24. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part I (Sharirasthan 2/29).
  25. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part I (Sharirasthan 4/15).
  26. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sharirasthan 3/23-25).
  27. Charak Samhita of Agnivesha by Vd. Sataynarayan Shastri – Chaukhamba Bharati Academy, 22<sup>nd</sup> edition Part I (Sharirasthan 8/21).
  28. Joels M, Baram TZ. The neuro – Symphony of stress. *Nat Rev Neurosci.* 2009; 10 – 459 [Pub Med]
  29. Edwards HE, Dortok D, Tam J, Won D, Burnham WM. Prenatal Stress alters seizure thresholds and the development of kindled seizures in infants and adult rats. *Horm Behav.* 2002; 42: 437-447 [Pub Med]
  30. Satin AJ, Leveno KJ, Sherman ML, et. Al. Maternal youth and pregnancy outcomes: Middle school versus high school age group compared with women beyond the teen years. *Am J obstet Gynecol.* 1994; 171: 184 – 187.
  31. Naiyereh Najati, Morteza Gojazaden. Maternal and neonatal complications in Mothers aged under 18 years. *Patient Prefer Adherence.* 2010; 4: 219-222.



32. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sharirsthana 2/25).
33. Bhavaprakash Nighantu, edited by Vishwanath Dwivedi Shastri, Motilal Banarasdas, second edition, Purvakhanda ( Garbhaprakarana 3 – 5).
34. Sushruta Samhita, edited by Dr. Ambikadatta Shastri, Chaukhamba Sanskrit Samsthan, Varanasi 7<sup>th</sup> edition, Part I (Sharirsthana 2/31).
35. Charak Samhita of Agnivesha by Vd. Satyanarayan Shastri – Chaukhamba

Bharati Academy, 22<sup>nd</sup> edition Part I (Sharirsthana 8/6).

---

### **CORRESPONDING AUTHOR**

**Dr. Amit Rajaram Jagtap**

B/2,301 Saket Complex,  
Kisan Koli Marg, Majiwade, Thane (w),  
Maharashtra, India

Email: dirghayurved@rediffmail.com

---

*Source of support: Nil*  
*Conflict of interest: None Declared*