CONCEPT OF OVULATION IN AYURVEDA

Review article

Kamini Dhiman*

1. Reader, Deptt of PTSR, R.G.Govt. P. G. Ayu. College, Paprola, Kangra, H. P.

Abstract
Ovulation is the release of a mature egg (ovum) from the ovarian follicle. In each menstrual cycle, several ovarian follicles begin to mature and develop under the influence of pituitary hormones. Ayurveda also gives emphasis up on ovulation and considers ovum as one of the essential factor of conception. Aims and objectives- 1) To search and find out the references in relation to Ovulation in Ayurveda. 2) To understand the concept of Ovulation in Ayurveda. Methods:- Ancient Ayurvedic classics were consulted and compiled references out of them for said subject to elaborate as well as to understand the process of Ovulation in Ayurveda. Important observations:- Scattered references are available in Ayurvedic texts regarding ovum and ovulation. Results:- In Ayurvedic texts Ovulation process is elaborated nicely It can be concluded that Vayu(air), Karma(deeds) and Swabhava(nature) are responsible for folliculogenesis as well as ovulation according to the Ayurvedic approach.

Key words: Ovulation, Ovum, Beeja, Artavavaha srotas Conception, Ritukala.

Introduction:
Ovulation(1) is the phase of a female's menstrual cycle in which a mature egg is released from the ovarian follicles into the oviduct and is available to be fertilized.. The process of ovulation is controlled by Hypothalmic pituitary Ovarian Axis as per the modern medicine. In Ayurveda it is mentioned that which gives birth to another object by removing its covering or secrecy is called Beeja(Seed). Beeja(Seed) has capability to produce another thing.(2,3). While describing essential factors for conception, it is quoted that Beeja is one of the four essential factors of conception contributed by mother and father. However no any clear description is found at one place/text in this regard is available and very little literary work has been carried out of this subject hence with following aims and objectives this effort has been carried out to understand Ovulation in Ayurveda.

Aims and objectives-
1) To search and find out the references in relation to Ovulation in Ayurveda.
2) To understand the concept of Ovulation in Ayurveda.

Materials And Methods:
The Literary material related to ovulation has been collected from Several Ayurvedic texts Charaka samhita, Susruta samhita, Ashtang Sangraham, Ashtanga Hridayam,Kashyapa Samhita and critically reviewed.

Discussion:
In classics, different terms are used to denote the ovum/Beeja such as, Asrika, Shonita, Artava, Raja, Antahpushpa, Rakta, Lohita etc.The word Artava is used
to represent ovum at number of places in relation to fertilization, zygote, embryo and foetus i.e. Vata divides the combination of Shukra(sperm) and Artava (Ovum). Shukra(sperm) after entering the uterus through appropriate passage gets admixed with Artava (ovum) (4,5,6,7,8). The word Shonita is used to denote ovum in various places in relation to fertilization, zygote, embryo and foetus. Union of Shukra(sperm) & Shonita(Ovum) at appropriate age in male & female respectively responsible for conception. Here Shonita represents ovum.(9,10,11,12,13,14,15) The word Asrika is quoted as abnormality of Asrika as a cause of teratological abnormality in fetus so as to “asrik” refers to ovum. (16,17,18,19) Vitiation of Rakta, obstruction or compression of Rakta, enveloping of Shukra by Rakta etc. references pertaining to fertilization or zygote, refer to the use of word Rakta for ovum.(20,21,22,23). Kashyapa has mentioned Antahpushpa for ovum.(24) (Ka. Khi. 9/17) The word Raja for ovum is also quoted at certain references i.e. mother, father, Raja, Shukra as a source of Mahabhutas (five elements) in fertilization(19).

Acharya Sushruta has mentioned about the ovary, when he has described on the subject of Viddha lakshana of Artava Vaha Srotas (Symptoms of trauma to reproductive system). Any abnormality or trauma to the Artavavahasrotas(Reproductive system) may result in Vandhyatva (Infertility), Maithunasahatva(Dyspareunia) and Artavanasha(Amenorrhoea)(25). These symptoms chiefly Artavanasha(Amenorrhoea) and Vandhyatva(Infertility) relate with the functions of ovaries. In the chapter dealing with the treatment of Ashmari(Stone), Sushruta has restricted to avoid injury to eight vital parts. Among them “srotas phalayo” means two Phala Srotasa(channels) indicating ovaries.(26). Acharya Dalhna and Bhavamishra have described the word "Phalamantargatam" as the Garbhashaya(Uterus) but Acharya Gananathasena has mentioned in "Sangnapanchaka" as the ovary in the description of Peshi(muscles), in Sushruta Sharira. Sushruta had described while talking about peshis, that as there are peshis surrounding testis, in a male, just in the same way, there are peshis surrounding ovary which is called as “Antahphala” (27,28). Acharya Sushruta contraindicates Ksharakarma(medicated cautery) in Udavrutaphalayoni (upward displaced ovary)and Apavrutta Phalayoni(downward displaced ovary) in the chapter of Ksharakarma(application of caustic alkaline paste). Dalhna in Nibandha Sangrahaha has commented that Udavrutaphalayoni as “sthanat urdhvagatand” and Apavruttaphala yoni as “sthanat srastand”.(29) The word “Anda” directly refers to ovary. These references illustrate the direct description about ovary as well as Beeja Granthi, Phala, Antargataphala as synonyms of the ovary. Expulsion of matured ovum from the Beejagranthi/ovary is known as Beejotsarga(fertilization).

Ovulation(beejotsarga) in relation to vata and karma swabhava

An ancient medical science – Ayurveda says that each and every function of body is determined by Vayu(Vata dosha). It controls all physiological processes which occur in body. This is the reason behind the quotation of Acharya Charaka who says ‘Yantra tantra dharah vayu” in Vatakakalakaliya Adhyaya.(30) When it is in its normal state; it supports (Dharana) and nourishes (Poshana) the body but vitiated Vata produces many abnormalities in body, when follicle is in Pushpibhuta stage(in the stage of maturation) & its Pravartana(Release) occurs every month(31).
The first most important function of Vayu is vibhajan (division). “Vayurvibhajat” By this activity it develops the structure of foetus during antenatal period. Moreover it yields sperm and ovum for offspring. Ovum is prepared in ovary by cell division. This function of cell division is completed by Vata. The second most important function of Vata related with process is “Pravartana” (release, expel). Because of this kind of action ovum escapes from the ovary and ovulation takes place. The whole activity is known as ‘dhatu vyuhakara’– the third main function of Vata. This process of Pravartana (release) is governed by Apana Vayu (Downward moving vayu) as mentioned by Acharyas in the Prakrita Karma(normal functions) of Apana Vata(Downward moving vayu)(32). The second responsible factor for cell division is ‘Karma (deeds) and Swabhava(nature)” in the view of Charaka. On this factor Chakrapani commented that not only Vayu but Karma (deeds) and Swabhava equally play an important role in cell division. Because Karma and Swabhava(nature) controls the action of Vayu otherwise; Vayu alone would either constantly create things or constantly cause destruction of the things.(33) Thus, Vayu when properly regulated by the Karma and Swabhava it works in a balanced state which causes normal physiological function.

**Beeja Nirmana (Formation of Seed)**

(Ahara(Diet) is the most important entity for survival. The Ahara(Diet), composition of Panchamahabhuta(five elements), acts upon by Jatharagni(digestive fire), Bhutagni (five Agni from five basic elements) and Dhatvagni (fire of seven element tissues of the body) and the resultant nutritious material is made available up to cellular level. In this course, Ayurvedic texts mention the formation of Dhatus(tissues), Upadhatus(secondary tissues), Malas ('Waste Products' of the body), and Doshas etc. The formation of the factor responsible for Garbhadharana (conception) occurs from Rasadhatu (primary nourishing waters of the body). The Ahara(Diet) Rasa derived from the consumed Ahara(Diet) by Jatharagni(digestive fire)'s action is subjected to Rasa Dhatvagni to produce Artava(Menstrual blood and/ovum). The Karma of Rasadhatu is Prinana(nourish). As the incidence of description of Stanya (breast milk) and Artava (menstrual blood and/ovum) as the Upadhatus(secondary tissue) of Rasadhatu is prevailing, this Prinana (nourishment) refers to their Upadhatus (secondary tissues) also. As this Rasa Dhatu goes on decreasing qualitatively & quantitatively with age, it occur same with Upadhatus. We find the absence of Artava (menstrual blood and/ovum) and Stanya (breast milk) in the old female(37). Though the function of Rasadhatu is vividly available throughout the body it shows specificity in this function varying with the specificity of the Srotasa (channels) to which it is exposed. In the same context; the very scientific explanation of physiology of Beeja Nirmana (formation of seed) is given by Vishvamitra in Sushruta Sutra 14/14, Chakrapani Commentary. He has explained that Rakta (the form achieved by the Rasa after entering into the particular concerned Srotasa) enters into the minute channels which are carrying blood and seed –ovum (Sukshma Kesha Pratikasha Beeja Raktavaha Shira) attaining the particular nuclear form which has the capacity to form Beeja(seed-ovum). In the same context Sushruta described that the Rasa which attains Raktatva - through innumerable Dhamanis(blood vessels), gets Upachito(nourished) to reach the form of Artava(menstrual blood and/ovum). Acharya Vagbhatta describes the whole procedure with the same terminology(38). Here, Acharya Kashyapa
only differs in the terminologies but has quoted the same things indicating a common gist. He has mentioned that the Garbha(zygote) forming entity is exposed to the Rajovaha Shiras(channels carrying menstrual blood and ovum) where the Rajaha Pravisarjana occurs. This then takes the form of Pushpa (i.e. becomes the seed.)(39,40,41). The presence of this Artava (menstrual blood and/ovum)is there in the body of the female since the foetal stage but it is in the Avyakta (not manifested) form Sushruta in this context says that this Raja becomes Upachita (get nourishment) slowly and steady, simultaneously causing maturation and growth of Stana(breast), Garbhashaya(Uterus), Yoni(vagina) etc. A beautiful comparison between the unopened flower bud which has fragrance in its core but because of its undeveloped condition it is not evident. So it is the case with Bala(time) which attains maturity with Kalasapekshata. The scientific reason given by Kashyapa in the same context is that as long as not all the Dhatus(tissues) of a female body are completed with nutrition they do not divert themselves to the Yoni. Hence this maturity is achieved only after all the Dhatus(tissues) are Paripurna(matured). Thus, we can summarize the events giving the cause of expression of physical maturity characters as Vaya Parinamata(Due to the actions of Vayu) and Kalasapekshata(As per the time). Time of Ovulation during reproductive years of a life is mentioned as Ritukala(Fertile period) the appropriate period for Beejotsarga(Ovulation) and also for Garbhadhana(Conception). Rutukala(Fertile period) is defined as period most suitable for achievement of conception. The Rutukala(Fertile period) in which, the seeds deposited are likely to bear fruits. This directly refers to the period of ovulation wherein the chances of conception are most. Acharya Kashyapa has explained Rutu Kala as the Beeja Kala(Period of Ovulation) (42,43,44,45).

**Conclusion:**

In Ayurvedic texts Ovulation process is elaborated nicely. It can be concluded that Vayu(Vata dosha), Karma(deeds) and Swabhava(nature) are responsible for folliculogenesis as well as ovulation according to the Ayurvedic approach.

**References:**

1. Ovulation test at Duke Fertility Center. Retrieved July 2, 2011
2. Charaka Samhita, Chakrapanidutta, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukambha Sanskrit Series:2009. Vol II Cha.Sha.2/34;306
3. Amara Simha-Amarakosha, Maniprabha vyakhya by Pt.Haragovinda shastri,1998;47 Pratama kanda,Varga-4/28
4. Charaka Samhita, Chakrapanidutta, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukambha Sanskrit Series:2009. Vol II Cha.Sha.2/14;303
5. Charaka Samhita, Chakrapanidutta, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukambha Sanskrit Series:2009. Vol II .Sha.4/7;317
6. Sushruta-Sushruta Samhita with Nibandhsangrahavyakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukamba, Varanasi,2009, Sutra sthana,. 15/5:68
7. Sushruta-Sushruta Samhita with Nibandhsangrahavyakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukamba,Varanasi,2009, Sha.2/24;346
8. Sushruta-Sushruta Samhita with Nibandhsangrahavyakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukamba,Varanasi,2009, Shareera sthana 3/5;351
9. Charaka Samhita, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukambha
10. Charaka Samhita, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Cha.Sha. 4/5;316
11. Charaka Samhita, Chakrapanidutta, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Cha.Sha. 4/7;317
12. Sushruta-Sushruta Samhita with Nibandhsangrahavayakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukhamba, Varanasi, 2009, Shareera Sthana 4/4;355
13. Sushruta-Sushruta Samhita with Nibandhsangrahavayakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukhamba, Varanasi, 2009, Shareera Sthana 10/5;393
14. Vagbhatta, Ashtanga Samgraha, eds. Kaviraj Atrideva Gupta, Chaukhamba Krishnadas Academy, Varanasi 2005; Sharira Sthana 2/47;278.
15. Kashyapa, Kashyapa Samhita, Pt. Hemraja Sharma, Vidyotini Hindi commentary, Chaukhamba Sanskrit Sansthan, Varanasi 2009, Sharira sthana, 3/3;72
16. Charaka Samhita, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Sharirasthana, 2/6;302
17. Charaka Samhita, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Sharirasthana, 2/7;302
18. Charaka Samhita, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Sharirasthana, 2/16;303
19. Charaka Samhita, Sharma R. K., Bhagwandas, editors. C Shareera Sthana, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Sharirasthana, 2/34;305
20. Charaka Samhita, Sharma R. K., Bhagwandas, Varanasi: Chaukhambha Sanskrit Series: 2009. Vol II Sharirasthana, 8/6;345
21. Ashtanga Hridaya of Vagbhatta with Sarvangasundara of Arunadatta edited by Sri Lalchandra Vaidya, published by Motilala banarasidas Varanasi, reprint edition 2005. Sharira sthana 1/8;230
22. Ashtanga Samgraha of Vagbhatta with Hindi commentary by Kaviraj Atrideva Gupta; published by Krishnadas Academy, Varanasi, reprint edition 2002. Sharira Sthana, 1/59;269
23. Kashyapa Samhita with commentary by Pandita Hemaraja Sharama and Sri Satyapala Bhisagacharya published by Chaukhambha Sanskrit Sansthan Varanasi, edition: reprint; 2009. Sharira Sthana, 2/1;70
24. Kashyapa Samhita with commentary by Pandita Hemaraja Sharama and Sri Satyapala Bhisagacharya published by Chaukhambha Sanskrit Sansthan Varanasi, edition: reprint; 2009. Khila Sthana, 9/17
25. Sushruta-Sushruta Samhita with Nibandhsangrahavayakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukhamba, Varanasi, 2009, Shareera Sthana 9/22.
26. Sushruta-Sushruta Samhita with Nibandhsangrahavayakhya, by Vaidya Jadavji Trikamji Acharya, ed. Chaukhamba, Varanasi, 2009 Chikitsa Sthana 7/38.
27. Bhavamishra – Bhavaprakash with Vidyotini Commentary by Shri Brahmashankara Mishra, Published by Chaukhambha Sanskrit Sansthan, Varanasi, 2004. Purvakhandha 3/146.
28. Bhaskar Govind Ghanekar, Sushruta Samhita Published by Chaukhambha Sanskrit Sansthan, Varanasi, 1997. Shareera Sthana 5/53
Kamini K Dhiman, Concept of ovulation in Ayurveda

29. Acharya Sushruta – Sushruta Samhita, Ambika Dutta Shastri, Ayurveda Tatva Sampidika Vyakhy, Chaukhambha Sanskrit Sansthan, Varanasi 2nd Edition, Sutra Sthana 11/17 , Dalhana Commentary.

30. Charaka Samhita, Sharma R. K., Bhagwandas, Varanasi: Chaukhambha Sanskrit Series:2009.Vol II Sutrasthana, 12/8

31. Ashtanga Hridaya of Vagbhatta with Sarvangasundara of Arunadatta edited by Sri lalchandra Vaidya, published by Motilala banarasidas Varanasi, reprint edition 2005. Shareerasthana. 3/62:257

32. Charaka Samhita, Sharma R. K., Bhagwandas, Varanasi: Chaukhambha Sanskrit Series:2009.Vol V Chikitsa Sthana. 28/11:616

33. Charaka Samhita, Sharma R. K., Bhagwandas, Varanasi: Chaukhambha Sanskrit Series:2009

34. Charaka Samhita with Ayurveda Deepika commentary by Chakrapanditta edited by Vd. J.T. Acharya published by Chaukhambha Sanskrit Sansthan Varanasi, reprint edition- 2005. Shareerasthana.3/6;351

35. Susruta Samhita with Ayurveda Tattva Sandipika, edited by kaviraja ambikadutta Shastri published by Chaukhambha Sanskrit Sansthan Varanasi, reprint edition- 2005. su.14/11:62

36. Susruta Samhita with Ayurveda Tattva Sandipika, edited by kaviraja ambikadutta Shastri published by Chaukhambha Sanskrit Sansthan Varanasi, reprint edition- 2005. sha.3/10:351

37. Susruta Samhita with Ayurveda Tattva Sandipika, edited by kaviraja ambikadutta Shastri published by Chaukhambha Sanskrit Sansthan Varanasi, reprint edition- 2005. Su.Su.14/19 Dalhana commentary

38. Ashtanga Hridaya of Vagbhatta with Sarvangasundara of Arunadatta edited by Sri lalchandra Vaidya, published by Motilala banarasidas Varanasi, reprint edition 2005.Shareera Sthana . 3/62:257

39. Charaka Samhita with Ayurveda Deepika commentary by Chakrapanditta edited by Vd. J.T. Acharya published by Chaukhambha Prakashan Varanasi, reprint edition 2007.Shareerasthana 4/30;322

40. Susruta Samhita with Ayurveda Tattva Sandipika, edited by kaviraja ambikadutta Shastri published by Chaukhambha Sanskrit Sansthan Varanasi, reprint edition- 2005. Sutrasthana;14/18:63

41. Kashyapa Samhita with commentary by Pandita Hemaraja Sharama and Sri Satyapala Bhisagacharya published by Chaukhambha Sanskrit Sansthan Varanasi, edition: reprint; 2009 Khi.9/19;287

42. Sri Bhavamishra, Bhavaprakasha, Purva Khanda, edited by Shree Brahmsankar Mishra,Chaukhambha Sanskruta bhavan, Varanasi, (2007),Poorva khanda,Garbh prakrama 3/2;20

43. Ashtanga Samgraha of Vagbhatta with Hindi commentary by Kaviraj Atrideva Gupta; published by Krishnadas Academy,Varanasi, reprint edition 2002. Sharira Sthana 1/40;266

44. Susruta Samhita with Ayurveda Tattva Sandipika, edited by kaviraja ambikadutta Shastri published by Chaukhambha Sanskrit Sansthan Varanasi, reprint edition- 2005. Shareera Sthana.3/6;351

45. Harita, Harita Samhita, Trutiya Sthana 49/6 eds Hariprasad Tripathi, Chaukhambha Krishnadas Academy, Varanasi, 2009;Sharira sthana 1/9;515

*****