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OVULATION DESCRIBED IN AYURVEDA-Review Article

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ABSTRACT

Ovulation is the process in which mature graffian follicle rupture and ovum is released, this process of ovulation is controlled by HPO axis. Concept of ovulation is also well explained in Ayurveda and considers *Beeja* as one of the essential factor of conception. Scattered but detail information regarding *Rutumati* and *Artava* is available in Ayurvedic text which can be correlate to today's modern concepts of ovulation. *Rutukala* is term used for period where high possibility of conception which can be considered as peri-ovulatory zone. All these events regarding menstruation to fertilization take place in *aartav vaha strotas* which is part of female reproductive system.

Key Words: *Beeja, Artavah srotas, Rutukala, Artva.*

Introduction: Ovulation is essential phenomenon for fertilization and ovulatory abnormalities are major factors in cases of infertility. Artificial reproductive therapies are available in modern medicines which are very costly and having their side effects. Ayurvedic concepts of reproduction are very sophisticated and need its detail study to contribute infertility treatment. Term ovulation is exactly not used in Ayurveda as like process of ovulation is controlled by HPO axis as per modern medicine (1)

In Ayurveda it is stated that which gives birth to another object by its secretary nature is called *Beeja*. *Beeja* has capability to produce another thing (2). While describing four essential factor for Conception i.e. *Ritu*, *kshetra*, *Ambu* & *Beeja*; *Beeja* is one of them important factor contributed by mother and father (3). However no any clear description is found at one place of Ayurvedic text in this regard, hence following aims and objectives this efforts has been carried out to understand the concept of Ovulation in Ayurveda.

Aims and Objectives:

1) To search & find out the references in relation to ovulation in Ayurveda. 2) To understand the concept of ovulation in Ayurveda.

Materials:

1) Ayurvedic tests related to ovulation has been collected & critically reviewed. 2) Also Pervious research used as reference material.

Methodology: Collection, review and interpretation of data have been done to elaborate the Concept of ovulation in Ayurveda with current modern views.

Discussion on literature:

In Ayurvedic classics different terms are used to denote the ovum/*Beeja* such as *Asrika*, *shonita*, *Artava*, *Raja*, *Antahpushpa*, *Rakta*, *Lohita*, etc. *shonit* or *aartav* is an essential part of process of fertilization. *Shukra* after entering the uterus get combined with *Artava* and *vata* divides this combination (4,5,6,7,8). This description represents Ovum in relation to fertilization, zygote, embryo and fetus .The word '*shonita* denote ovum in Various places i.e. union of *shukra* and *shonita* at proper age of in male & female responsible for conception. Her *shonita* represents the ovum (9,10,11,12,13,14). *Kashyapa* has mentioned *Antapushpa* for Ovum(15).The *Raja* for ovum is also quoted at certain reference i.e. *Mahabhutas* in fertilization i.e. mother, father, *Raja*, *shukra*, elements of fertilization(16).

While describing *Viddha lakshana* of *Artavaha strotas* Acharya *sushrut* has mentioned about Ovaries. Any trauma or abnormalities of *Artavaha strotas* leads to *vandhyatva* (infertility), *Artavanash*,

maithunashatva (Dyspareunia), these symptoms chiefly related with ovaries (17). In the management of *Ashmari sushruta* has mentioned to avoid injury to eight vital parts. Among them *strotansi phalayo meanstwo phala strutas* indicating bilateral ovaries.(18)

Sushruta had described while talking about *Peshi* that as there are *peshi* surrounding testes in male, just in same way there are *peshis* surrounding the ovaries in female which is called *Antaphala*(19). Acharya *Sushruta* contraindicated *Ksharkarma* in *Udavruta Phalayoni* (upward displaced ovaries) and *Apavruta Phalayoni* (downward displaced ovaries) in chapter of *Ksharkarma*. *Dalhana* in *Nibandhsangraha* has commented that *udavrutta phalayoni* as '*sthanat urdhvagatanda* i.e. 'anda' directly refers to ovary(20). This reference illustrates the direct description about ovaries as *Beeja granthi*, *Phala*, *Antargata Phala* as synonyms of ovaries.

Process of Ovulation / Beejotsarga according to Ayurveda:

Expulsion of matured ovum from *Beejagranthi* or ovary is called *Beejotsarga* or ovulation. As *Ayurveda* says that each and every function of body is regulated by *Vayu*.(21) When *vayu* is in its normal state it nourishes the body but vitiated *vata* produces many abnormalities.

When follicle is in the state of maturation (*pushpibhuta*) stage it is released

(*pravartana*) every month.(22) the *vibhajana* is the most important function of *vayu*. By this activity ovum is prepared in ovary by cell division. The second most important function of *vata* is *pravartana* (released). Because of this action ovum escapes from ovary and ovulation takes place. This process of *pravartana* is governed by *Apana Vayu*.(23). According to *Charaka*, the second responsible factor for cell division is *karma* and *swabhava*. On this factor *Chakrapani* commented that, not only *vayu* but *karma* and *swabhava* equally play important role in cell division i.e. *vibhajana*. *Vayu* alone would either constantly create things or causes destruction of things(24). *Vayu* when properly regulated by *karma* and *swabhava* it works in balanced state causes normal physiological function.

Beeja Nirmana/Formation of seed:

2Factors responsible for *Garbhadharana* i.e. *Beeja* form from *Rasa dhatu*. *Jatharagni's* action is subjected to *Rasadhatvagni* to produce *Artava*(25). *Sushruta* explained that *rakta* enters into minute channels, which are carrying blood and seed/ovum attaining particular nuclear form which has the capacity to form *Beeja*. In some context *Sushruta* described that *Rasa* which attains *Raktatva* gets nourished to reach the form of *Artava*. Acharya *Kashyapa* has mentioned that *Garbha* forming entity is exposed to *Rajovaha sira*, where the *Raja*

Pravisarjana/secretion occurs. This takes the form of *pushpa*. This *pushpa* when come in contact with sperm, it engulfs the sperm and allows fertilization. **(26,27,28,29)**

Artava is present in female's body since her foetal age but it is in *avyakta* form. *Sushruta* said that *Raja* become *Upachita* slowly and steadily, simultaneously causing maturation and growth of *stana* and *yoni*.**(30)**. A beautiful comparison between an unopened flower bud which has fragrance in its core but because of undeveloped condition it is not evident. This maturity is achieved only after all the *dhatu*s of that female are *paripurna*.

The time of ovulation during reproductive age of life is mentioned as '*Ritukala*' and it is defined as most suitable period for achievement of conception. During *Ritukala* seeds deposited are likely to bear fruits. This directly refer to period of ovulation during which the chances of conception are high. Acharya Kashyapa said *Ritukala* as *Beeja kala* i.e. period of ovulation.

Rutumati lakshana* in relation to ovulatory phase:**(31)*

- 1) ***Peen-prasanna vadana* (Attractive/fleshy/cheerful/happy face):** Female's face become most attractive when females are most fertile. Estrus is phase of increase female sexual receptivity, selectivity and attractiveness. In young women estradiol and progesterone affect fluid regulation along

with reproductive function. Estradiol increase plasma volume and increase little amount of overall fluid retention. Cheerful, attractive, fleshy face is one of the sign of estrus due to estrogen hormone abundance during that period.

- 2) ***Praklinna atma-mukha* (Moist body and face):** Estrogen maintains skin moisture by increase acid mucopolysaccharides and hyaluronic acid in skin. Estrogen appears to aid in prevention of skin aging by increasing collagen content, skin thickness and improve skin moisture.
- 3) ***Praklinna dvija* (Moist gums/healthy periodontium):** Periodontium is composed of supporting structure of teeth like gingiva, periodontal ligament, cementum and alveolar bones. Sex hormones are responsible for healthy periodontium. Sex hormones receptors detected in oral mucosa and salivary glands. Estrogen receptors in osteoblast, fibroblast of periodontal tissues and oral mucosa resembles with vaginal mucosa in its histology as well as its response to estrogen hormone.
- 4) ***Narakam* (Increase sexual tendency):** In many species females are more sexually attractive to males near ovulation period. During ovulatory phase highly fertile women were more likely to initiate sexual activity and have stronger desire.
- 5) ***Priyakatha* (listening stories):** During mid-cycle mood of women becomes cheerful and pleasant; during which she likes to listen talks related to her appearance and relations to opposite sex.
- 6) ***Srasta kukshi, akshi, murdhajam* (laxity/subluxation):** There is a relation between estrogen and connective tissues.

Connective tissues like tendons, muscles, ligaments are composed of collagen fibers are packed together. Estrogen has an inhibitory effect on collagen synthesis which alter connective tissue metabolism. Which leads to slight subluxation of pelvis and chest region.

- 7) **Spurti bhuja, kuch, shroni, nabhee, uru, jaghan, sphicham (expansion /quivering of shoulder, breast, hips, umbilicus, thigh, mons veneris, buttocks):** All these body parts contain subcutaneous fat deposition. Due to underline excessive subcutaneous fat these parts shows sphurana. During ovulation along with breast other body parts fluctuate. Estrogen is major regulator of adipose tissue development and deposition. Estrogen promotes accumulation of subcutaneous fat by increasing lipid accumulation in it.
- 8) **Hrasha-utsukya (Pleasure/excitement):** Denotes positive, cheerful mood and also explains sexual receptivity and perceptivity. Near ovulation it was found that women walked slower and their gait was more attractive. Such behavior interpreted as unconscious desire of women to attract men.
- 9) Basal body temperature gets raised after release of LH and it facilitates process of maturation of follicle and rupture of ovarian stroma⁽³²⁾. It means risen temperature is essential for ovulation or *aartav janan*.⁽³³⁾ In the management of anovulation i.e. *aartavkshay* Ayurveda texts has advised to consume til, kulattha, mash, dadhi, amla, matsya, sura etc preparations which holds tendency to generate heat i.e.

pittajanan;⁽³⁴⁾ this favors to get ovulated. This shows that Ayurvedic treatments are in support of modern physiological concepts.

Conclusion: In Ayurvedic texts ovulation process is elaborated nicely. It can be concluded that *Vayu, Karma, Swabhava, Rasa, Rakta* and *Dhatu paripurnata* are responsible for folliculogenesis as well as ovulation. Acharya of Ayurveda are very much aware about physiological changes occurs in female body during ovulatory phase. The *avasta* of *vata, pitta, kapha* during the menstrual cycle can be directly correlate with the hormonal changes takes place in the body.

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