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Review Article

LITERATURE REVIEW ON VANDHYATVO W.S.R TO ANOVULATION

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ABSTRACT

Infertility is defined as a 'Disease of the reproductive system' and is the inability of sexually active, non-contraceptional couples to achieve pregnancy in one year. It has got many etiological factors; one among them is anovulation. Anovulatory cycles are described as menstrual bleeding without preceding ovulation and no corpus luteum formation. It may be present in otherwise normal menstrual cycle or may be associated with oligomenorrhea or amenorrhea. It may be due to a disturbance in the HPO axis or ovary. There are various scattered references available for anovulation as *Beejopaghata*, *Pushpopaghata* and *Abeejatva*. The pathology may be due to *Sroto Sanga*, *Vata-Sanskobha* and *Dhatukshaya*. Acharya Kashyapa has given a description of a woman who menstruates at regular intervals but her menstruation is fruitless i.e. she is unable to conceive which is called as *Pushpaghni*. There is an association of hair growth in the cheeks and neck. *Pushpaghni* is a curable type of *Jataharini*. Anovulation may be due to a complication of *Artava Dushti* or *Artava vaha Sroto Dushti*. *Vandhya Yonivyapad* given by Acharya Sushruta describes *Nastaartava* (anovulation) leading to *Vandhyatvo* (infertility). Acharya Kashyapa has mentioned *Beejopaghata* due to administration of *Tikshna Sodhana* to *Mridu Kosthi*. He has also given references of *Alpa Pushpa*, *Nashtapushpa*, *Nashta Beeja* and *Akarmanya Beeja* which relates to anovulation. Infertile women should be prescribed *Snehana*, *Swedana*, *Vamana*, *Virechana*, *Asthapana* and *Anuvasana Basti* in consecutive order along with the use of *UttaraBasti*.

Nasya with medicated oil & *Shamana Aushadha* having *Ushna*, *Tikshna* and *Vatanulomana* property can be of good help in anovulation.

KEYWORDS: Anovulation, Infertility, *Nastaartava*, *Pushpaghni Jataharini*, *Vandhyatva*

INTRODUCTION:

Acquiring an eminent child is a reputation as it is liberated from the bonds of ancestors. Acharya Kashyapa says that the couple having a number of children with proper growth and development due to the effect of nature or their own deeds are fortunate.ⁱ In our society also, the females blessed with children are said to be fortunate women and those who have no children are considered as unfortunate. For the formation of healthy progeny, *Stree* is the prime factor.ⁱⁱ Without a mother, there is no possibility of conception. Perfect femineity leads to healthy and safe motherhood.ⁱⁱⁱ Acharya Charaka has marked the importance of *Shuddha Yoni* and *Adushta Prakruta Beeja* in the context of *Garbhotpatti*.^{iv} Acharya Sushruta has mentioned absolutely important four factors i.e. *Rutu*, *Kshetra*, *Ambu*, and *Beeja* for *Garbhotpatti* which are similar to the necessity for germination of a seed.^v Acharya Kullookabhata has said that the quality of *Beeja* depends on *Ahara*, *Vihara*, *Achara*, *Vichara*, and *Manasika Bhava* of *Purusha*.^{vi} So, it is a prime factor for the formation of healthy progeny.

Infertility is defined as a disease of the reproductive system in which there is inability of sexually active, non-contraceptional couples to achieve pregnancy in one year. **Infertility** primarily refers to the biological inability of a person to contribute to conception.^{vii} There are two types: 1. Primary infertility: It denotes those patients who have never conceived. 2. Secondary infertility: It indicates previous pregnancy but failure to conceive subsequently.^{viii} The reproductive process is a complex, highly evolved interaction of many components and inter-related events: a) Intact hypothalamic-pituitary-ovarian-uterine axis b) Patent fallopian tube c) Adequate number of healthy spermatozoa of male partner deposited high up in the vagina d) Capability of sperm to undergo changes (capacitation, acrosome reaction) with active motility e) Healthy cervix to permit passage of spermatozoa. There are many factors that affect fertility of women. Fertility decreases with age, particularly after the age of 35.^{ix} Obese females are more prone to irregular or infrequent menstrual cycles. Moreover, there is increased risk of infertility, miscarriage and also there is decreased success with fertility treatments.^x Other factors leading to infertility are smoking, strenuous exercise, stress, faulty dietary habits, obesity and drug addiction. Faulty food habits are also the prime cause of anovulation in the present era. Females are more interested in spicy, fermented and junk food, which can't give proper nutrition to the body and lack of nutrition directly affects H-P-O axis which causes gynecological disorders & infertility. Junk foods like pizza, burger, noodles, and other foods made of fine flour and having lots of fatty substance like cheese, butter, etc. increases obesity leading to above said cause. Similarly, sedentary lifestyle also leads to obesity. Obesity mainly affects timely ovulation. The Modern Research reveals that stress disturbs the normal hormonal regulation and it decreases the LH secretion; which ultimately leads to anovulation and infertility. So, it is advised to avoid emotional stress to the infertile couple.^{xi}

Female factors leading to infertility are ovulatory dysfunctions, tubal factors like blockage, immobility, uterine abnormality or dysfunctions, cervical factors and vaginal factors or may be due to coital errors. Talking about ovulatory dysfunction, it may be related to anovulation or oligo-ovulation, corpus luteum insufficiency, luteinized unruptured follicles, premature ovarian failure, decreased ovarian reserve, and resistant ovarian syndrome. Any psychiatric illness can cause hypothalamic dysfunction & anovulatory infertility; Antipsychotic drugs can cause anovulatory infertility by affecting the hypothalamus and by causing hyperprolactinemia. Thyroid disease is common in young women and affects fertility by both hyper and hypothyroidism causing anovulatory cycles. The latter may be associated with hyperprolactinemia. Both type I & type II diabetes are associated with disturbed ovarian function. If the diabetes is poorly controlled, anovulatory infertility may occur. Type I diabetes can affect hypothalamic-pituitary function and may be associated with premature menopause due to ovarian autoimmunity. Women with type II diabetes are hyperinsulinemic and insulin increases ovarian steroidogenesis leading to hyperandrogenism and PCOS. Conversely, women with PCOS are prone to develop gestational diabetes, especially if they are overweight. Anovulatory cycles are diagnosed as menstrual bleeding without preceding ovulation and no corpus luteum formation. It may be present in otherwise normal menstrual cycle or may be associated with oligomenorrhea or amenorrhea. Normal ovulation requires coordination of the central system - hypothalamic-pituitary axis, the feedback signals, and local responses of the ovary. The loss of ovulation can be due to any one of them or due to assortments of these factors. The end result is a dysfunctional state called anovulation. The ovarian activity is totally dependent on the gonadotropins and the normal secretion of gonadotropins depends on the pulsatile secretion of GnRH from the hypothalamus. As such, ovarian dysfunction is likely to be linked with a disturbed HPO axis either primary or secondary to thyroid or adrenal dysfunction. Thus, the disturbance may result not only in anovulation but may also produce oligomenorrhea or even amenorrhea. Polycystic ovarian syndrome and premature ovarian failure also cause anovulation. As there is no ovulation, there is no corpus luteum formation and thus no progesterone secretion. In the absence of progesterone, there is continuous proliferative growth of endometrium but no secretory activity in the second half of the cycle.^{xii}

The World Health Organization (WHO) categorizes ovulation disorders into three groups: ^{xiii}

- ✓ Group I ovulation disorders (hypogonadotropic hypogonadism anovulation) are caused by hypothalamic-pituitary failure. This category includes conditions such as hypothalamic amenorrhea and hypogonadotropic hypogonadism. Typically, women present with amenorrhoea (primary or secondary) which is characterized by low gonadotropins and estrogen deficiency. Approximately 10% of women with ovulation disorders have a group I ovulation disorder. “Women in group I typically present with amenorrhea and low gonadotropin levels, most commonly from low body weight or excessive exercise.” AAFP (2015)
- ✓ Group II ovulation disorders (normo-gonadotropic, normo-estrogenic anovulation) are defined as dysfunctions of the hypothalamic-pituitary-ovarian axis. This category includes conditions such

as polycystic ovary syndrome and hyperprolactinemic amenorrhoea. Around 85% of women with ovulation disorders have a group II ovulation disorder.

- ✓ Group III ovulation disorders (hyper-gonadotropic, hypoerogenic anovulation) are caused by ovarian failure. Around 5% of women with ovulation disorders have a group III ovulation disorder.

In Ayurveda, the word *Vandhya* is derived from the root "*Vandh*" with "*Yak*" Suffix, which means barren, unproductive, fruitless and useless.^{xiv} The woman in whom there is a hindrance of any kind to the normal process of conception is called *Vandhya*^{xv} or a woman, in whom *Artava* has been destroyed, is termed as *Vandhya*. There is no direct reference regarding the types of *Vandhya* in Charaka Samhita, but the word *Vandhya* is mentioned in the context of *Beejabhaga Dushti*.^{xvi} In this reference, he further added *Sapraja* (who has a child but won't be able to get pregnant again), *Apraja* (a woman who has no child but can conceive after treatment) & *Vandhya* (absolute infertility to get pregnant)^{xvii}

Acharya Sushruta has included *Vandhya* in *Yonivyapada*. In *Vandhya Yoni*, there is destruction or absence of *Artava*. *Artava* can be taken as *Beeja* (Ovum) or *Raja* (Menstrual Blood). So, this can be correlated with anovulation or amenorrhea.^{xviii} Acharya Harita has mentioned 6 types of *Vandhya*^{xix} - ***Bala, Garbhakosha-Bhanga and Dhatukshaya*** (*Bala*- Immaturity of female reproduction system / Delayed Puberty thus results in infertility, *Garbhakosha-Bhanga*- abnormality of uterus due to trauma or anatomical defect, *Dhatukshaya*- Due to vitiation of body tissues), ***Kakavandhya*** (who has one child but failed to conceive successively), ***Anapatya*** (Primary infertility), ***Garbhasravi*** (having frequent abortions), ***Mrutavatsa*** (who keeps on having IUFD, Still birth, Perinatal death or fails to conceive after that) and ***Balakshaya*** (Infertility due to decreased energy or immunity). *Vandhyatva* has been given in the 80 types of *Vata Roga*.^{xx} Acharya Kashyapa has described *Jataharinis*. Among them *Pushpaghni, Andaghni, Durdhara, Kalaratri, Mohini, Nakini* and *Pishachi* are conditions in which female won't able to continue pregnancy due to *Daiva*.^{xxi} Acharya Bhela has said that due to abnormalities of *Beeja* of mother and father, non-consumption of congenial *Rasas*, suppression of natural urges and disorders of *Yoni*, the woman either delivers an abnormal child or becomes infertile. He further writes that causes of infertility are only two i.e. *Vata Dushti* and *Yoni Dushti*. Aggravated *Vayu* either expels the *Shukra* out of the uterus or destroys the *Raja*, thus woman becomes infertile. According to **Rasaratna Samuchchaya** *Vandhya* has been divided into **9 types**^{xxii} i.e., (1) *Adivandhya* (2) *Vataja* (3) *Pittaja* (4) *Kaphaja* (5) *Sannipataja* (6) *Daivaja* (7) *Raktaja* (8) *Abhicharaja* (9) *Bhutaja*. **VANDHYAKALPADRUMA** has described 8 types of *Vandhya*^{xxiii} - (1) ***Tripakshi***: One who has Forty-five days of menstrual cycle (2) ***Subhrati***: who has dystrophy of internal genital organs and discoloration of skin all over the body (3) ***Sajja***: who has irregular menstrual cycle (4) ***Trimukhi***: who has excessive watery discharge from *Yoni* and has no satisfaction in coitus (5) ***Vyagrini***: who has one child. (6) ***Baki***: who has red discharge from *Yoni* for 8 to 10 days. It is incurable. (7) ***Kamali***: who has continuous watery discharge from *Yoni* and she is incurable. (8) ***Vyaktini***: who has disease similar to diabetes mellitus.

ANOVLUTION - AYURVEDIC CONCEPT:

There are various scattered references available in Ayurvedic texts for anovulation as *Beejopaghata*, *Pushpopaghata* and *Abeejatva*. The causes given below are due to *Sroto Sanga*, *Vata-Sanskhobha* and *Dhatukshaya*. Some of the conditions mentioned in *Samhitas* for *Beejopaghata* or *abeejatva* are:

Revati Jataharini (Pushpaghni):

वृथापुष्पंतुयानारीयथाकालंप्रपश्यति।स्थूललोमशगण्डावापुष्पघ्नीसाऽपिरेवती॥^{xxiv}

Under the description of *Jataharinis*, Acharya Kashyapa has mentioned *Pushpaghni Jataharini*. The woman who menstruates in regular intervals but is unable to conceive is called *Pushpaghni*. There is an association of hair growth in the cheeks and neck. *Pushpaghni* is curable *Jataharini*. Probably it refers to infertility due to decreased ovarian hormones, leading to anovulation. Slight hypersecretion of hormones from the adrenal cortex gives rise to the hair on the face as hirsutism.^{xxv}

Ashtartava Dushti: Acharyas has mentioned that if *Ashtartava Dushti* remains untreated or not properly treated then it causes *Abeejatva* i.e. Anovulation. They have not described any specific etiology of these eight menstrual disorders. It can be said that specific factors responsible for aggravation of particular *Doshas* may be the causative factors.^{xxvi}

Artavavaha Srotas Vighata: Here, injury of *Artavavahi Srotas* indicates injury to ovaries & ovarian vessels which hampers the normal ovulation process and ultimately produces *Artavanasha* (Anovulation). *Vayu* is also vitiated by *Abhighata*. So, vitiated *Vayu* causes *Dhatu Kshayatmaka Sthiti* in *Artavavaha Srotas* followed by *Artavanasha* (anovulation).^{xxvii}

Avarana: In the concept of *Artavanasha*, Acharya Sushruta and Acharya Vagbhata have described that both *Vata* and *Kapha* when aggravated, obstruct the path, thus *Artava* is either undeveloped or development becomes arrested causing Anovulation. Here *Artava* can be taken as *Antahpushpa*. The *Artavavaha Srotas* is obstructed by the *Kapha* and *Vata* due to which *Artava* is not visible (Ovulation does not occur). It is also a *Sanga Pradhana Vikara*.^{xxviii, xxix}

Vandhya Yoni Vyapad: वन्ध्यानष्टार्तवाविद्यात्।

Acharya Sushruta states that in *Vandhya Yoni*, the *Artava* is destroyed. Here, we can interpret *Artava* as ovum and consider *Vandhya* as an ovulatory menstrual cycle. Ovum is a microscopic structure; its presence during those days was imagined by its role in conception. Vitiating *Vata Dosha* is the main cause of *Vandhya Yoni Vyapad*. Here, *Nashtartava* or anovulation is one symptom of *Vandhya*.^{xxx}

अल्पपुष्पनष्टपुष्पनष्टबीजाकर्मण्यबीजपरीता अनुवास्याइति ॥

Here, *Alpa Pushpa* can be related to hypomenorrhea, *Nashtapushpa* to amenorrhea and *Nashta Beeja* to anovulation.^{xxxi}

According to Acharya Kashyapa, if *Bahu Aushadha* is administered to a lady having *Mridu Koshta*, it will result in the *Atiyoga* of *Shodhana*, thus leading to *Dhatukshaya* which ultimately causes *Vata Prakopa* and

can cause *Beejopaghata*. Here; mainly *Apana Vayu* is responsible for *Beejopaghata* as it may hamper the extrusion of oocytes from the follicle. ^{xxxii}

यस्ययस्यह्यवयवस्यबीजेबीजभागेवादोषाःप्रकोपमापद्यन्तेतंतमवयवविकृतिराविशति।

During the antenatal period, if the mother takes *Vata Prakopaka Ahara* and *Vihara*, *Vata* gets aggravated and spoils the *Beeja*, *Beejabhaga* or *Beejabhagavayava* in the female child and that in turn results in the congenital abnormality of a female genital organ which leads to *Vandhyatva*. ^{xxxiii}

Besides all these reasons dietetic habits also cause anovulation as mentioned in *Kashyapa Samhita Kalpa Sthana*. Due to *Ati Ushna Annapana*, *Artava* and *Beeja* become vitiated. ^{xxxiv}

Management:

Conventional medicine treats anovulation by the use of ovulating drugs like Clomiphene citrate^{xxxv}, letrozole^{xxxvi}, gonadotropins^{xxxvii}, tamoxifen^{xxxviii}, Bromocriptine^{xxxix}, etc which has its own side effects and after some time of regular use, it may be resistant to ovary or there may be ovarian hyperstimulation syndrome leading to many adverse effects. Surgical therapy includes Laparoscopic ovarian drilling (LOD), Wedge resection, Bariatric surgery, etc which has undue complications. ^{xl}

In Ayurveda, avoidance of *Nidana* is prime responsibility during treating any diseases. For infertility, *Nidana* can be taken as *Kaphakara* and *Vatadushtikara Ahara-Vihara*, *Manasika Bhava*, etc. So, firstly *Vandhya Stree* is advised to do *Nidana Parivarjana* like avoiding sedentary lifestyles, eating unhealthy foods, junk foods, strenuous exercise, smoking, etc. ^{xli} Vitiated *Vata* is the root cause of *Yoniroga*. So, *Vatadushti* has to be treated first, followed by other *Prakupita Doshas*. ^{xlii} Undergoing possible *Shodhana Karma* after *Snehana*, *Swedana* and following *Brahmacharya* for one month, one should start the regimen as follows: *Snehana* with *Pumsavanakara Ghritas* like *Phala Sarpi*, *Mahakalyana Ghrita*, *Purusha* should have *Madhura Aushadha Samskrita Ghrita*, *Ksheera & Stree* should have *Taila*, *Masha* ^{xliii} The couple having psychological intimacy with each other with high feeling of carnal relation is needed for *Garbhadhana*. A cordial atmosphere surrounded by friends and relatives and a provocative environment with fragrant flowers are essentials for healthy intercourse. Described hymns should be chanted before the same. These entire regimens control the etiology like: *Ahara Dosha*, *Vihara Dosha*, *Kala Dosha*, *Atma Dosha*, and *Manasika Abhitapa*. It also produces basic treatment for clinical conditions like *Vata-Vyadhi*, *Shukra-Dosha*, *Artava-Dosha*, *Yoni-Vyapad* and *Yoni-Pradosha*. ^{xliv}

Infertile woman should be prescribed *Snehana*, *Swedana*, *Vamana*, *Virechana*, *Asthapana* and *Anuvasana Basti* in consecutive order, with the use of these the woman conceives easily and delivers normally. *Snehana*, *Swedana*, *Vamana*, *Virechana*, *Niruha*, etc. and specially *Uttarabasti* are to be employed in the treatment of *Artavadushti* also ^{xlv}. यथादोषविशोधयेत्.....विरचनेन...बीजभवत्तिकामुक्.....| ^{xlvi}

Virechana is an ideal treatment in Anovulation. (*Akarmanya Beeja*) as it detoxifies the body and balances *Agni* in normal level. The use of *Basti* then after that is highly beneficial as said there is no *Yoniroga* without

the vitiation of *Vata* and *Basti* is highly effective on suppressing *Vataj* disorders.^{xlvii} The woman having infertility due to the abnormality of either of the partners conceives after *Anuvasana Basti*. *Niruhabasti* works as nectar for infertile women and she definitely conceives after *Anuvasana Basti*^{xlviii} *Niruha Basti* is advocated for many diseases, one of them is "*Rajonasha*."^{xlix} ***Yapanabasti*** performs both the actions i.e. cleaning action of *Niruha* and oleation of *Anuvasana*. By use of this, couple gets healthy progeny.^l In our classics, *Nasya* is indicated in *Vandhyatva*. The drugs that can be used for *Nasya* are *Narayana Taila*^{li}, *Lashuna Taila*,^{lii} *Shatapushpa Taila*^{liii}, *Lakshamana + Godugdha* depending upon the condition^{liv}.

The drugs like *Lakshamanadi* are prescribed for *Pumsavana Karma*. It can also be used for infertile couples to get progeny.

A mixture prepared with *Bala*, *Sita*, *Atibala*, *Madhuka*, *Vatankura* and *Gajakeshara* mixed with *Madhu*, *Ghrita* and *Ksheera* gives progeny to an infertile woman.^{lv} Yoga Ratnakara has mentioned *Ashvagandha Siddha Ksheerapaka* in *Yoni Chikitsa Adhyaya* as *Garbham* and should be taken every day in the morning hours after *Rutu Snana*. He has also mentioned the use of one seed of *Matulunga* pounded with milk at the end of *Rutu* results in the birth of a son. Kashyap has mentioned the use of ***Shatapushpa Kalpa*** in infertile woman to get a son.^{lvi}

Some specific ***Shamana drugs*** that can be used in anovulation are as follows:- ***Churna*** (*Pippalyadi Yoga*^{lvii}, *Shatapushpa Churna*^{lviii}), ***Gutika*** (*Yogaraja Guggulu*^{lix}), ***Kwatha*** (*Maharasnadi kwatha*^{lx}), ***Taila*** (*Narayana Taila*^{lxi}, *Shatavari Taila*^{lxii}, *Shatapushpadi Taila*^{lxiii}, *Shatapaki Taila*^{lxiv}), ***Ghrita*** (*Phalaghrita*^{lxv}, *Lashuna Ghrita*^{lxvi}, *Shatavari Ghrita*^{lxvii}), ***Arishta*** (*Dashamoolarishta*^{lxviii}), ***Rasa*** (*Khandakadya Lauha* (B.P. Chi. /9)), ***Paka*** (*Pugapaka* (Y.R.Prameha Roga Chikitsa). Acharya Kashyapa has described *Shatapushpa* as *Putraprada*, *Rutupravartani*, and *Yonishukra Vishodhini* in *Shatapushpa- Shatavari Kalpa Adhyaya*.^{lxix} The line of treatment described for *Shukradosha*, *Artavadosha*, *Stanyaroga*, can also be adopted for *Artavadushti Chikitsa*.^{lxx}

RASAYANA & VAJIKARANA CHIKITSA:

Rasayana and *Vajikarana* drugs are also useful for treating *Yonirogas*.^{lxxi}

DAIVAVYAPASHRAYA CHIKITSA- *Putreshti Yagna* is being performed by lady for the fulfillment of the desired child by stabilizing *Prajapati* to *Yoni* of the woman and reciting *Vishnuryoni*, etc. *Yagna* will be completed by going round the fire with husband and getting benediction from *Bhahmanas*.^{lxxii} Acharya Kashyapa has indirectly mentioned the use of *Varana Bandha* in the *Rutumati Stree* who wants to conceive. He mentioned that in the woman having *Prajavarana-Bandha*, infertility cannot happen.^{lxxiii}

By thoroughly analyzing all the Samhitas, we can relate anovulation to *Pushpaghni Jataharini*, complication of *Artavadushti*, *Artava Vaha Sroto Dushti* or *Vandhya Yonivyapada* mentioned by Acharya Sushruta. There is mostly *Vata Kapha* predominance for causing anovulation or there may be *Avarana* of *Vayu* by *Kapha Dosha*. *Dosha Dushya* involvement should be analyzed critically and suitable treatment should be done.

Firstly, *Sodhana* should be performed in all cases then Shamana drugs suitable according to *Roga* and *Prakruti* of patient should be given.

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