

MANAGEMENT OF VANDHYATWA WITH ANOVULATORY CYCLES (ARTAVA DOSHA) BY AYURVEDIC MEDICINES

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Abstract

Ovulation disorder is the most common female infertility factor. In Ayurveda it is mentioned as one of the four essential factors for conception apart from ritu (season or ovulation), kshetra (field or female reproductive system) and ambu (water or nourishing substance). It is the bija (seed) which yields the garbha (pregnancy). The absence of this bija in women is termed as anovulation, which contributes about 40% of female infertility. 50 patients, suffering with infertility were selected after counselling, examination, investigations and diagnosis. All the patients were subjected to phala kalyana ghrutam pichu (medicated tampon at vaginal cervix) for five days after cessation of menstrual bleeding followed by sahacharadi tailam matravasti (medicated enema) for five days. Both procedures were done one after one for three cycles. Bhumyamalaki (*Phyllanthus urinaria* Linn.) (1000 mg of whole plant extract) in tablet form one tablet oral & Jyotishmati (*Celastrus panniculatus* Willd.) (500 mg of leaves powder) in capsule form, one capsule oral - both given twice daily for 15 days after cessation of menstrual bleeding for three cycles. Proper pathyapathya (congenial and non-congenial), ahara (diet), vihara (behaviour) were suggested along with medication. Occurrence of normal menstrual flow, regularization of menstrual cycle, occurrence of ovulation and relief from underlying causes like PID (Pelvic Inflammatory Disease), Endometriosis, PCOD (Poly Cystic Ovarian Disease), Thyroid dysfunction etc. were taken as assessment criteria. Obtained results were very satisfactory. Gradual relief of symptoms were noticed and subjected to statistical measures. P value by chi square test applied to the obtained statistical data. It was proved that Sahacharadi taila matravasti, Phala kalyana ghruta pichu and oral administration of Bhumyamalaki & Jyotishmati are highly significant and effective in Management of Vandhyatwa (infertility) with anovulatory cycles.

Keywords: Anovulatory cycles; Female Infertility; Matravasti; Pichu; Stree Vandhyatwa; Artava dosha.

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INTRODUCTION

Ayurveda describes four essential factors i.e. *rutu* (fertile period), *kshetra* (healthy reproductive organs), *ambu* (proper nutrient fluid) and *bija* (ovum / sperm) are responsible for the formation of *garbha* in comparison to germination of a seed.^[1] Defect in any one of them can cause *vandhyatva* (infertility). Among these four factors, *bija* (seed) is directly related to ovulation process. Absence of this *bija* in women is termed as anovulation. The main reason for anovulatory cycles is vitiation of *artava* (Afflicting menstrual / ovulatory phase); and vitiated *artava* does not possess *bija* (ovum).^[2] Anovulatory cycles have become a life style disorder. Irregular dietetic and behavioural habits results into *dosha* vitiation and mal-absorption which lead to *margasyaavarana* (obstruction), then results *rasa / rakta dosha*. It's one among the symptom is *artava ksaya* (diminished menstrual fluid). This can be *drusya rupa* (visible) or *bija rupa* (invisible). Due to *dhatu kshaya* (diminished tissue element) and *margasya avarana* (obstruction of passages), *vata* aggravates along with *pitta*, *kapha* reaches to *srotases* (channels) inturn results different disorders and *rasadi dhatu sosha*.^[3] *Kshina artava dushti* (diminished menstrual phase) caused by *vata* along with *pitta*.^[4] Due to obstruction in the passages of *doshas*, *artava* (menstrual phase) is destroyed in women.^[5] Delayed menstruation or non-appearance of menstruation at appropriate time, scanty menstrual blood and pain in vagina (*yonivedana*) are the symptoms of *kshina artava* (diminished menstruation / ovulation).^[6] Scanty bleeding is one among the symptoms of *Polycysticovarian disorder* in which ovulation will not occur.^[7]

Incidence

About 10-15% of couples are infertile in India. Female infertility is about 40-50%. Male factor is about 40%. Unexplained is about 20%.^[8]

Faults in the female for infertility are as follows - Tubal and peritoneal factors are 36 to 44%. Ovulatory factors 26 to 44%. Endometriosis is 1 to 10%. Ovarian factors 30 to 40%. Tubal factors 40%. Uterine factors 10%. Cervical factors 5%.^[9]

Aims and Objectives

To know the prevalence of disease; to study and asses the efficacy of *Sahacharadi taila matravasti*, *phala kalyana ghrutam pichu* and oral administration of *Bhumyamalaki & Jyotishmati* oral in management of *Stree Vandhyatva* (female infertility) with *artava dosha* (afflicted menstrual / ovulatory phase).

MATERIAL AND METHODS

Selection of Patients

50 patients of *vandhyatva* with *artava dosha* were identified by symptoms like – scanty menstruation, irregular cycles and anovulatory cycles etc. and by the investigations like ultrasonography.

Investigations

Complete Blood Picture (CBP), Erythrocyte Sedimentation Rate (ESR), Complete Urine Examination (CUE), Fasting blood Sugar (FBS), Post Lunch Blood Sugar (PLBS) and VDRL. HbsAG , HIV I & II , TORCH, Blood Group & Rh Typing, Hystero-Salpingography (HSG), Mantoux test, Follicular study, Post Coital test (PCT), PAP smear, Thyroid Function test (T3, T4, TSH) etc. were done prior to the treatment as per need. Husband's Semen analysis test was done to select the patient.

Inclusive criteria

Age between 20 to 35 years; Patients irrespective of caste, religion, socio-economic strata; Female infertility due to *artava dosha* were selected.

Exclusive criteria

Male infertility, Tuberculosis specific in fallopian tube, Below the age of 20 years & after the age of 35, Unmarried girls, Cervical polyp, Non Co-operative Patients, Endometrial polyp, Intra uterine fibroid or growth, HIV sufferers, Hepatitis B sufferers were excluded.

Work place

Dr. B.R.K.R. Govt. Ayurvedic College & Hospital, Hyderabad and Govt. Ayurvedic Hospital, Charminar, Hyderabad. Approval of Institutional ethical committee was taken.

Clinical Plan

Factors of infertility were confirmed by counseling, check up and investigations. 50 patients of vandhyatwa with artava dosha - Subjected to the procedures.

All the patients were kept on one tablet Abhayadi modaka oral for Virechanam (purgation) at 5 AM one day before to start each cycle of the treatment for bowel toileting. Snehana (oleation with light massage) of tila taila (gingelly oil) on lower abdomen and back was given before the procedure. Yoni prakshalana (vaginal douche) done with Triphala kwatha to sterilise the vaginal part before inserting the pichu (tampon). Triphala kwatha (decoction) preparation - Equal parts of dry pulp of Amalaki (*Emblica officinalis* Gaertn.), Haritaki (*Terminalia chebula* Retz.) and Vibheetaki (*Terminalia bellerica* Roxb.) taken, together made fine powder and used for preparation of kwatha.^[10]

Pichu

From sixth day or after complete cessation of menstrual bleeding, procedure was applied. Cotton tampon was soaked in Phala kalyana ghruta.^[11] After passing the urine patient was kept in lithotomy position. Soaked tampon was inserted in vagina near vaginal cervix

with all antiseptic precautions. Time of the tampon in vagina is Amutravat or Muhurtakala or urinary urge or minimum one hour and asked the patient to take out the tampon while passing the urine. This process was done forenoon once in a day, for five days; following this process matravasti was given for five days.

Matravasti

After emptying the bowel in morning, immediate after taking light food (ardrapani) at morning at about 9 AM, sahacharadi tailam^[12] loaded into 100 ml glycerine syringe and induced through rectum slowly in left lateral position with bending the right thigh near to chest. 60 ml Sahacharadi tailam induced to the patients upto 60 kg body weight. 80 ml of Sahacharadi tailam induced to the patient upto 70 kg body weight. 100 ml of Sahacharadi tailam induced to the patients above 70 kg body weight. Time of retention of drug noted after matravasti. Retention time of drug is gradually increased. These two processes (pichu and matravasti) were done one after one for three cycles. Bhumyamalaki (1000 mg) in tablet form, one tablet oral & Jyotishmati (500 mg) in capsule form one capsule oral, given twice daily for 15 days after cessation of menstrual bleeding for three cycles.

Treatment duration – 3 months

Follow up period

Once in 1 month for 3 months for examination / counseling. Further follow up was done for 1 year for observation and necessary investigation.

Pathya (Wholesome diet)

Sesame (tila) + jaggery (guda), horse gram (kuluttha), papaya, garlic (lashuna), fish, hingu (*Ferula foetida* Regel.), saunf (*Foeniculum vulgare* Mill.) etc.^[13] for oral in diet is

suggested. Breathing exercises; weight reduction measures like walking, dieting, etc. were suggested as per need.

Observations

The patients were asked to review every month and the relief in the etiopathology was observed. USG and serial USG for ovulation were done before and after the treatment to know about the progress.

RESULTS

Results were assessed based on assessment criteria. Normal menstrual flow, regular menstrual cycle, normal uterus size, normal endometrial thickness, relief from underlying cause and occurrence of ovulation were taken into assessment criteria.

Assessment Criteria

Objective

- i) Normal menstrual flow (3 to 5 days, 2 to 3 pads) from Scanty menstruation (bleeding less than three days and less than two pads per a day)
- ii) Regularization of cycles (Normal - 25 to 30 days) from delayed menstrual cycles (more than 30 days) and from early cycles (less than 25 days)
- iii) Occurrence of ovulation from anovulatory cycles was taken into assessment criteria.

Subjective

- i) Ultrasonography for underlying cause
- ii) Serial ultrasonography for follicular study.

Gradation of results

Results were assessed based on therapeutic response after treatment in 50 patients.

- Correction of subjective as well as objective parameters, i.e. normal

menstrual flow, regular menstrual cycles, relief from underlying cause and occurrence of ovulation together were taken up as complete relief.

- Either or some of these were taken up as partial relief.
- No improvement in subjective and objective parameters were taken up as no relief

Statistical analysis

Statistical analysis was carried out using P – value through Chi – square test to assess the Statistical significance.

DISCUSSION

Influence of ovarian cycle on endometrium cycle or vice – versa can be as follows. Menstrual cycle includes both ovarian cycle and endometrium cycle. In ovarian cycle the cohort of growing follicles undergoes a process of development and differentiation which takes about 85 days and spreads over three cycles. It takes three months for the follicle to grow and mature to ovulation, in which 2 months to reach an antral stage measuring 1 mm. 2 weeks to reach 5 mm and another 2 weeks to reach 20 mm for an existing healthy follicle.^[14] After maturation, follicle ruptures and healthy ovum will release. Then it enters in fallopian tube and will be ready for fertilisation. This entire process is called as ovulation. It happens two weeks prior to next menstruation in healthy persons with regular cycle and normal flow at reproductive age and ovum is one among the components of conception.^[15] Progesterone and oestrogen are the hormones release from ovary.^[16] Only the functional zone of endometrium will be influenced and respond by the hormones as per phase.^[17] Withdrawing the support of hormones leads to degenerative process in turn vessels damage and results in bleeding along with endometrial shedding.^[18] Defect at any / all of above stage / phase may lead to infertility. Very thin or very thick

endometrium may not respond to hormones properly and may result scanty menstruation and delayed cycles. Uterus is a pelvic organ staying between bladder and rectum.^[19] Fluid in pouch of douglas indicates both - ovulation in healthy ovarian cycles^[20] and inflammation in PID cases.^[21] Any functional or structural disturbance can result menstrual irregularities in turn anovulatory cycles pathologically. Delayed / irregular menstrual cycles, scanty menstrual flow etc. are the symptoms of uterine dysfunction.

Probable mode of action

Virechanam (purgation) is beneficial for all yoni roga (disorder of reproductive system) and artavadosha.^[22] In matravasti (medicated enema), drug induced through rectum can retain for some time in empty bowel. Absorption of drug at tissue level is more effective through which pelvic plexus can activate accordingly.

Action of Pichu (tampon) and matravasti

The free anastomosis between the superior rectal veins of the portal, the middle and inferior rectal veins of the systemic system explains the liver metastases from the genital organs.^[23] A study of nerve supply of the internal genital organs gives a view about the action of pichu (tampon) and matravasti (medicated enema).

Both the motor and sensory part of the somatic supply to the pelvic organs are through - S2, S3, S4, L1 and L2. Autonomic supply is principally from sympathetic and partly from parasympathetic systems. The motor fibres arise from the segments D5 & D6. Sensory fibres arise from the segments D10 to L1. The fibres from the pre aortic plexus of the sympathetic system are continuous with those of the 'superior hypo gastric plexus'. This plexus lies in front of 5th lumbar vertebra and more often wrongly called pre-sacral nerve. While passing over the bifurcation of aorta, it

divides into right and left hypogastric nerves. The hypogastric nerve joins the pelvic parasympathetic nerve of the corresponding side and forms the pelvic plexus (right and left) or inferior hypo gastric plexus or Frankenhauser plexus. This plexus lies in the loose cellular tissue, postero-lateral to the cervix below the uterosacral folds of peritoneum. The pelvic plexus then continues along course of the uterine artery as paracervical plexus. The parasympathetic fibres (nervi erigentes) are derived from the S2, S3 and S4 nerves and join the hypogastric nerve of the corresponding side to form pelvic plexus. The fibres are mainly sensory to the cervix. Thus from the vaginal plexus, the nerve fibres pass on to the uterus, upper third of vagina, urinary bladder, ureter and rectum.^[24] So superior hypogastric plexus continued as pelvic plexus (right and left) or inferior hypogastric plexus or Frankenhauser plexus then paracervical plexus and then vaginal plexus. Rectum commences at the level of third piece of sacrum in continuation of pelvic colon, ends in anal canal. It measures 12 to 15 cm. It follows then curve of sacrum. It curves twice to left and once to right before continuing as anal canal. Laterally rectum related to uterosacral ligament, pelvic plexus of nerves and ureter. Rectum is supplied by autonomic through pelvic plexus. Floor of the pouch of douglas is about 6-7 cm. above anal orifice. It is formed by reflexion of the anterior peritoneum onto the anterior surface of the rectum.^[25] Retention of medicated drug with the medical properties of ingredients either in the rectum and pelvic colon or at vaginal cervix absorbs in tissue, eradicates dosha, nourishes / stimulate the local plexus and activate the viscera to function properly.

Treatment plan

Deepana (appetizer) and grahi property (digestive stimulant, carminative and constipative) drugs are indicated in avarana chikitsa.^[26] Hetu vyadhi vipareeta oushadham (Drug / medicine against cause and disease) is

indicated in Ama chikitsa (treatment to the disorder occurred by indigested food or bi product of metabolism).^[27] Apatarpana (depletion of dhatus) indicated in Ama pradoshaja disorders.^[28] Pachanam (helps in digestion of indigestive or metabolic by-products) is one among Chatush prakara samsuddhi.^[29] Artava is the upadhatu of rasa, so correction at processing level will give good results.^[30]

The properties of main drugs

Bhumyamalaki (*Phyllanthus urinaria* Linn.) is having the properties of meha vyadhi hara, sodhahara (reducing/alleviating oedema), deepana, pachana, yakrut uttejakara, anulomana (downward movement). Jyotishmati (*Celastrus panniculatus* Willd.) is having the swedajanana (causes sweating), mastishka uttejjanaka (brain stimulant), sodhahara (alleviate oedema).^[31]

Pathyapathya (congenial and non-congenial)

Hingu (*Ferula foetida* Regel.) is having the deepana (stimulate digestion), ama pachanam (helps in digestion of metabolic bi-product), artava janana, pitta vardhana (increases pitta). Lashuna (*Allium sativum* Linn.) is vrushya (aphrodisiac), pittasra vridhhi (increases pitta and blood). Kuluttha (*Dolichos biflorus* Linn.) Horse gram is pitta rakta krit (promoter of pitta and blood);^[32] fish etc. used with their properties given good results. More oxygen supply occurs to brain tissue by breathing exercises. Sweating is one among mala (waste) occurs by walking by which the cell level toxicity will release through the skin.

Patients in between 20 to 25 years age group were 25. Patients in between 25 to 30 years age group were 15 and 10 patients were in between 30 to 35 years age group. Housewives were more i.e. 24; working women were 16 and 10 patients were labour / physical workers. 26 patients' menarche was in

between the age of 12 to 13 years. 16 patients' menarche was in between the age of 13 to 14 years and 8 patients' menarche was in between the age of 14 to 15 years. Patients within the 5 years marital life were 22. Patients within the 10 years marital life were 16 and patients within the 5 years marital life were 12. Primary infertility patients were 28 and Secondary infertility patients were 22. Patients with anti-verted uterus were 35 and patients with retro-verted uterus were 15.

Scanty menstrual flow noticed in 35 patients; after treatment 30 patients got regular cycles and P value significant. (Table 1) Delayed menstrual cycles noticed in 26 patients; 19 patients got regular after the treatment cycles; early menstrual cycles noticed in 14 patients; 11 patients got regular cycles. P value is significant. (Table 2) As per USG – just small size than normal uterus noticed in 22 patients; 17 patients became normal; Just bulky size than normal uterus noticed in 14 patients; 9 patients got normal; Abnormal Endometrium Thickness noticed in 35 patients; Normalcy noticed in 30 patients and P value is significant. (Table 3) 10 patients were PID sufferers and reduced in 5 patients. 5 patients were suffering Endometriosis; reduced in 3 patients. PCOD was seen in 10 patients; 8 patients got cured. Thyroid dysfunction noticed in 5 patients; 3 patients became normal. Nonspecific symptoms patients were 20; Normalcy noticed in 15; P value is highly significant. (Table 4) Patients with anovulatory cycles as per serial ultrasonography were 50; ovulation observed in 33 patients after treatment; P value is highly significant. (Table 5) Change before and after treatment into is as follows – 30 patients got normal flow for 35 patients with scanty menstruation; 30 patients got regular cycles for 40 patients with irregular menstrual cycles; Endometrium thickness became to normal in 30 patients for 35 sufferers. Abnormal uterine size became normal in 26 patients for 36 sufferers; 38 patients got relief from underlying cause like PID, Endometriosis,

Table 1: Distribution of patients as per menstrual flow

	BT	AT	Relief	Chi – square	P value	Remarks
Scanty menstrual flow	35	5	30	49.1	P < 0.001	Significant

Table 2: Distribution of patients as per menstrual cycles

	BT	AT	Relief (%)	Chi- square	P value	Remarks
Delayed	26	7	19 (73.1)	26.9	P < 0.001	Significant
Early	14	3	11 (78.6)	15.0	P < 0.001	Significant

Table 3: Distribution of patients as per Uterus size

Uterus size	BT	AT	Relief (%)	Chi- square	P value	Remarks
Just small	22	5	17 (77.3)	24.5	P < 0.001	Significant
Just bulky	14	5	9 (64.3)	10.5	P < 0.001	Significant
Normal	14	40	26 (52.0)	--	--	--
Abnormal EM. Thickness	35	5	30 (85.7)	49.1	P < 0.001	Significant

Table 4: Distribution of patients as per underlying cause through USG

Sign & symptoms	BT	AT	Relief (%)	Chi- square	P value	Remarks
PID	10	5	5 (50.0)	4.27	P < 0.001	Significant
Endometriosis	5	2	3 (60.0)	--	--	--
PCOD	10	2	8 (80.0)	9.2	P < 0.001	Significant
Thyroid dysfunction	5	2	3 (60.0)	--	--	--
Nonspecific	20	5	15 (75.0)	20.9	P < 0.001	Significant

Table 5: Distribution of patients anovulatory cycles as per serial ultra sonography

Ultra sonography	BT	AT	Relief (%)	Chi- square	P value	Remarks
Patients	50	17	33 (66.0)	46.3	P < 0.001	Significant

Table 6: Change before and after treatment in patients

Sign & symptoms	BT	AT	Relief (%)	Chi- square	P value	Remarks
Scanty menstrual flow	35	5	30	49.1	P < 0.001	Significant
Irregular menstrual cycle	40	10	30	44.9	P < 0.001	Significant
Abnormal EM – Thickness	35	5	30	49.1	P < 0.001	Significant
Abnormal Ut. Size	36	10	26	37.6	P < 0.001	Significant
As per under lying cause	50	12	38	58.1	P < 0.001	Significant
Anovulatory cycles	50	17	33	46.3	P < 0.001	Significant

Table 7: As per therapeutic response

Response	No. of cases	Percentage
Complete relief	31	62.0
Partial relief	11	22.0
No relief	8	16.0
Total	50	100.0

PCOD, Thyroid dysfunction and Nonspecific reason in 50 patients; & 33 patients were ovulated for 50 patients with anovulatory cycles; P value is significant. (Table 6) As per therapeutic response – complete relief noticed in 31 (61%) patients; Partial relief observed in 11 (22%) patients. (Table 7) No complications during treatment. General condition was not disturbed.

CONCLUSION

The combined effect of drugs Sahacharadi tailam, Phalakalyana ghrutam, Bhumyamalaki and Jyotishmati is very effective in management of artava kshaya through resulting regular menstrual cycles, normal flow and ovulation.

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REFERENCES

1. Susruta. Susruta Samhita. Ambica Dutta Shasthry, editor. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 1972. SareeraSthana, 2/35.p.15.
2. Susruta. Susruta Samhita. Ambica Dutta Shasthry, editor. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 1972. Sareerasthana, 2/3.p.6.
3. Caraka. Caraka Samhita (Andhra tatparyasahita). Sripada Krishnamurthy sastri, editor. 4th ed. Rajamundry: Sripada Krishnamurthy sastri & Sons; 1989; Chikitsasthana, 28/59,60.p.650-651.
4. Vagbhata. Ashtanga Hrudaya (Andhra tatparya sahita). Madras: Vavilla Ramaswami Sastrulu & sons, Vavilla press; 1954; Sareerasthana, 1/11.p.8.
5. Susruta. Susruta Samhita. Ambica Dutta Shasthry, editor. 3rd ed. Varanasi: Chowkhamba Sanskrit Series Office; 1972. SareeraSthana, 2/23.p.13.
6. Susruta. Susruta Samhita. Tirumala pallerlamudi Ramanuja swami, editor. 1st ed. Madras: Vavilla Ramaswami Sastrulu & sons, Vavilla press; 1952. Sutra sthana, 15/27.p.128.
7. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001.Ch. 27, p.422.
8. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 15, p.212.
9. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 15, p.214-216.
10. Madadi Damodar Reddy. Dravyaguna vignanam. 1st ed. Karimnagar: Master Art Printers; 1987.p.343, 252, 255.
11. Govinda das. Bhaishajya ratnavali (Vidyotani Hindi commentary). Brahma Sankara Sastry, Kaviraj Ambica Dutt Sastry, editors. 18th ed. Varanasi: Chowkamba Sansrit Samsthan; 2005. 67/78-84.p.1046.
12. Vagbhata. Ashtanga Hrudaya (Andhra tatparya sahita). Madras: Vavilla Ramaswami Sastrulu & sons, Vavilla press; 1989. Chikitsasthana, 21/66-68.p.405.
13. Madadi Damodar Reddy. Dravyagunavignanam. 1st ed. Karimnagar: Master Art Printers; 1987.p.268, 270.
14. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 7, p.76-78.
15. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 2, p.20.
16. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 7, p.80.
17. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 7, p. 82.
18. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 7, p. 83, 84.
19. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 1, p.7.
20. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 15, p. 222.
21. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 9, p.121.
22. Susruta. Susrutasamhita (Andhra tatparyasahita). 1st ed. Madras: Vavilla Ramaswami Sastrulu & sons, The Chandrika Press; 1958. Chikitsasthana, 33/33. p. 454.
23. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 2, p.26.
24. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 2, p. 30-31.

25. Dutta DC. Text book of gynaecology. 3rd ed. Calcutta: New Central Book Agency (P) Ltd.; 2001. Ch. 1, p.16-20.
26. Caraka. Caraka Samhita (Andhra tatparyasahita). Sripada Krishnamurthy sastri, editor. 4th ed. Rajamundry: Sripada Krishnamurthy sastri& Sons; 1989. Chikitsasthana, 28/241. p.673.
27. Caraka. Caraka Samhita (Andhra tatparyasahita). Sripada Krishnamurthy sastri, editor. 4th ed. Rajamundry: Sripada Krishnamurthy sastri& Sons; 1989. Vimanasthana, 2/20.p.90.
28. Caraka. Caraka Samhita (Andhra tatparyasahita). Sripada Krishnamurthy sastri, editor. 4th ed. Rajamundry: Sripada Krishnamurthy sastri& Sons; 1989. Vimanasthana, 3/48.p. 105.
29. Caraka. CarakaSamhita (Andhra tatparyasahita). Sripada Krishnamurthy sastri, editor. 4th ed. Rajamundry: Sripada Krishnamurthy sastri& Sons; 1989. Sutrasthana, 22/18.p.215.
30. Caraka. Caraka Samhita (Andhra tatparyasahita). Sripada Krishnamurthy sastri, editor. 4th ed. Rajamundry: Sripada Krishnamurthy sastri& Sons; 1989. Chikitsasthana, 15/15.p.347.
31. Madadi Damodar Reddy. Dravyaguna vignanam. 1sted. Karimnagar: Master Art Printers; 1987.p. 224, 534.
32. Madadi Damodar Reddy. Dravyaguna vignanam. 1st ed. Karimnagar: Master Art Printers; 1987.p. 268, 355, 444.

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