

Uttarabasti – An Alternative Treatment For Tubal Block Induced Infertility.



Medical Science

KEYWORDS : HSG, infertility, niruhabasti, pichu therapy, sahachartaila, tubal block,uttarabasti.

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ABSTRACT

Background - . Intrauterine instillation of medicated oils, known as *uttarabasti*, is a well known Ayurvedic *pancakarma* therapy (~ specialized treatments mentioned in the texts for elimination of anomalous doshaout of the body) indicated for the treatment of several diseases affecting the reproductive system. It is one of the principal therapies for the treatment of *vandhyatva* or infertility. **Aim -** The present study was carried out to evaluate the role of *uttarabasti* in eliminating tubal blockage confirmed by HSG. Tubal blockage was the only reason for infertility in all the patients as confirmed by HSG and all the other reports of investigations like follicular study and semen analysis were found to be normal. **Methodology -** *Uttarabasti* of *sahachartaila*, as per pre-planned treatment protocol was duly administered in 30 patients confirmed of tubal block by HSG and laparoscopy. Out of 30 patients 16 patients had both tubal block at distal & 12 patients had mid segment diagnosed by HSG & 2 patients had proximal block which was confirmed by laparoscopy. **Results -** Out of 30 patients, 21 patients had shown both tubes opened after consequent 3 months of treatment & 7 patients had shown single tube open; only 2 patients with proximal end block had not shown any effect. Out of 19 cases of secondary infertility, 9 patients conceived within next 3 months to 1 year of period and out of 11 cases of primary infertility, 5 cases conceived within 3 to 9 months after treatment. **Conclusion:** The positive results of the study in 93% patients prove the efficacy of *Sahachartaila* *uttarabasti* in patients with tubal block induced infertility. The modified procedure of *uttarabasti* used for this study is also useful to decrease the probable complications which might arise during the therapy

Introduction – Infertility is defined as the inability to conceive after at least one year of coitus without using any contraceptive method. The causes for infertility may lie with either one or both of the partners. The causes of infertility in female patients can generally be attributed to anovulatory cycles, endometriosis, PCOD, PID, uterine fibroids or blockage of fallopian tubes. Blockage of the fallopian tubes prevents the entry of the ovum into the uterus and its implantation into the endometrium. Tubal blockage contributes to about 20-30% of infertility problems worldwide. Tubal block may be caused due to urinogenital tract infections and several other factors like hydrosalpinx, previous ectopic pregnancy, and endometriosis, scar tissue from abdominal surgery, tuberculosis or congenital conditions.

Tubal blocks are of three types - proximal tubal obstruction/cornual block, mid segment occlusion or distal tube obstruction. Modern medicine has introduced many techniques in the treatment of tubal disease. These range from the old laprotomy gaseous insufflation, hydrotubation, microsurgery to the more recent laproscopic surgery, modern micro surgery using CO2 laser and the micro endoscopic procedures. Tubal microsurgery or laproscopical stenting is the treatment of choice offered by modern science to eliminate the blockage of the fallopian tubes. However, the chances of recurrence of the problem and that of ectopic pregnancy are high and cannot be neglected. Moreover, IVF is suggested to the patients post tubal microsurgery and the costs of this treatment are very high with only about 10% success rate. Hence, it becomes important to look for an alternative, safe, cost effective treatment for the same.

Uttarabasti as alternative treatment -

“*Vandhyatva*” is a term used in Ayurvedic *samhitas* for infertility. According to Ayurveda the normal and healthy state of all the factors of *rutu kshetra*, *ambu* and *beeja* is essential for conception. [1] *Rutu* implies the fertile period of the menstrual cycle and a normal and healthy menstrual cycle indicates normal functioning of the female reproductive system. The term *k etra* stands for the female reproductive organs and the normal structure and physiological functioning of this system is vital for conception. *Ambu* implies the provision of ample nutrition which is crucial in maintaining the healthy state of the mother and fetus both. *Beeja* implies the seeds (~ ovum and sperm) and the health of these factors is also an indispensable component for timely conception. Abnormality in any of these may either lead to problems in conception or infertility. Ayurvedic texts do not describe ‘tubal block’ as the cause of infertility. However, tubal block can be understood as the structural abnormality of the re-

productive system and be treated as *k etra vikruti*.

Uttarabasti is an important Ayurvedic *pancakarma* therapy mentioned in the classics for the treatment of urino-genital disorders in both male and female patients. [2] Along with other indications, the classics particularly mention this therapy for the treatment of ‘*vandhyatva*’ or infertility in female patients. *Uttarabasti* in female patients implies the intrauterine instillation of medicated oils or decoctions. [3] *Uttarabasti* therapy has been successfully practiced by Ayurvedic physicians for generations together for the treatment of infertility and other gynecological disorders. Though several researches have been done for the successful administration of *uttarabasti* in several gynecological disorders, there are not many researches which indicate a direct correlation between the administration of *uttarabasti* and the elimination of tubal blockage confirmed by HSG. Moreover, much work done on *uttarabasti* has also met with limited success rate owing to complications like uterine distension, tubal distension, cervical trauma, need of local anesthesia and abdominal discomfort. Administration of *uttarabasti* for the elimination of tubal block has been discussed earlier in certain research papers however, this study intends the application of the methods mentioned in the classics to try and eliminate all the above mentioned complications without deviating from the Ayurvedic principles and achieve the expected results.

The modification of procedure includes the administration of *niruha basti* with *dashmoola kwatha* one the fifth day just after the cessation of menstruation and the placing of *pichu* (~ vaginal tampon) dipped in *sahachara taila* for 3 hrs, for two consecutive days after *niruha basti*. The patient thus prepared is then administered *uttarabasti* with *sahachara taila* without the need of any kind of local anesthesia.

Aims and objectives – The aims of the study included –

- 1) Evaluation of the efficacy of the therapy of *uttarabasti* in eliminating tubal blockage confirmed by HSG.
- 2) To eliminate the complications like vulval edema and to avoid the use of local anesthesia with the inclusion of pre-procedures like *niruha basti* and *pichu* therapy.
- 3) Determine the efficacy of *sahachara taila* in *uttarabasti* for eliminating tubal blockage.

Materials and methods – A total of 30 patients registered with the Bharati Ayurveda Hospital during 2006 - 2009, for the treatment of infertility induced by tubal block as confirmed by HSG,

were selected for the study. Total number of patients who reported to the hospital during this period with HSG reports was 126. Patients with bilateral or unilateral block, both were selected for the study.

Inclusion criteria –

1. Patients within the reproductive age of 20 – 35 yrs of age.
2. Patients with reported primary or secondary infertility of more than one year.
3. Patients with tubal blockage induced infertility as confirmed by HSG or diagnostic laparoscopy (for proximal tubal block). Normal anatomical status of the reproductive system, especially the uterine cavity was observed in the reports.
4. Patients who did not show any other reason for infertility as confirmed by follicular study and semen analysis of partner were selected for the study.

Exclusion criteria –

1. Patients suffering from any kind cervical or vaginal infections and/ or abnormalities like peritubal adhesions.
2. Patients unable to take lithotomy position for the administration of uttarabasti.
3. Patients suffering from disorders like malignancy of urinogenital organs, any kind of urinogenital infections, cervical stenosis, endometriosis, HIV, and any other complications related to the reproductive system or patients suffering from any chronic debilitating disease.
4. Patients more than 40 years of age.

Investigations done before treatment –

1. CBC, ESR, Blood group
2. HIV
3. HBSAG
4. Urine routine.

Special investigations carried out for the purpose of study included –

1. HSG before and after treatment.
2. PAP smear
3. LFT, RFT
4. Hormonal assay
5. USG to rule out any kind of related pelvic pathology.

Treatment protocol -

Patients were asked to report to the hospital immediately after the cessation of menstruation.

1. Each patient was administered local snehana (~ oleation and light massage) of the lower abdominal and back region with tila taila (sesame seed oil) and nādi svedana (hot water fomentation).
2. Niruha basti– Niruha basti was administered with the help of enema pot.
3. Drugs used for niruha basti included a blend of – Dashmoola kwatha½ litre + 20 cc tila taila + 10 gm honey + 2 gm saindhava.
4. Pichu soaked in sahachara taila was inserted and kept for three hrs in the vagina for two consecutive days, starting the next day after administration of niruha basti, to prepare the vaginal region for easy administration of uttara basti.
5. Each pichu was soaked in about 10 – 15 ml of Sahachara taila and pichu was also inserted after proper pre-procedures of snehana and svedana.
6. The patient was asked to remove the pichu after three hrs. The pichu was inserted after urination and the removed around the time of the next sensation for urination.
7. Both the procedures of niruha basti and pichu therapy were carried out as OPD procedures.
8. Thereafter, uttarabasti was administered for three consecutive days with proper aseptic precautions in the operation theatre using autoclaved instruments. Snehana and svedana were

done as pre-procedures of uttarabasti administration.

Procedure for administration of uttarabasti–

Patient was placed in dorsal lithotomy position and perivaginal cleaning by betadine and vaginal cleaning by normal saline and draping was done. The cervix was visualized with the Sim's speculum and the anterior vaginal wall retractor. The cervix was held by the elice. A syringe was filled with 5 cc of sahachar taila and an infant feeding tube was attached to the same. The tube was passed into the uterine cavity with the help of artery forceps and the drug was pushed above the level of the internal os with constant pressure to help it reach up to the tubes. 1/2 cc of oil was instilled at every 5 min. interval at one time gradually to avoid uterine distention and oil embolism. A total of only 2 cc of oil was instilled in the uterine cavity. Patient was kept in head low position for about half an hour and sent home after an hour. The same position and method for the administration of uttarabasti has also been described in the texts. [4]

The patients were asked to avoid excessive physical strain and to abstain from coitus during the course of the treatment. The same treatment was followed for three months after the cessation of menstrual periodic cycle.

Standardization and authentication of the drug (sahachar taila) used for the purpose of uttara basti, dashmoola kwatha(used for niruha basti) was done prior to the start of the treatment.

No	Post Menstrual Day	Treatment	Medicine
1	5 th	Niruha Basti (Decoction Enema)	dashmoola decoction
2	6 th & 7 th	Pichu therapy (Insertion of medicated oil tampon in vagina)	Sahachar taila
3	8 th & 9 th & 10 th	Uttarabasti (Intrauterine instillation of medicated oil)	Sahachar taila

Post procedural observations after administration of uttarabasti:

1. Mild abdominal discomfort – Hot water bag was given for fomentation.
2. Moderate abdominal discomfort- Shankhvati 250 mg was administered with hot water.
3. None of the patients reported of severe abdominal discomfort.
4. Pratyagaama of basti dravya or the excretion of medicine instilled by basti treatment from the uterus is essential part of the uttarabasti procedure. All the patients reported the flowing out of the basti dravya almost immediately after getting up from the bed.

Observations –

A total of 30 patients were administered uttarabasti for the treatment of tubal block. Out of these 30 patients, the HSG reports of 16 patients showed bilateral tubal block at distal end, while 12 patients reported of mid segment tubal block. 2 patients had proximal block as confirmed by laparoscopy.

Out of these 30 cases, 19 cases were of secondary infertility, while 11 were primary infertility patients.

Results –

1. HSG reports of 21 patients showed both the tubes open after treatment for three consecutive months. 7 patients showed single tube open, while 2 patients suffering from proximal end blockage did not show any changes in

No	Place of block	No	Bilateral block	Unilateral block
1	Distal	16	16	-
2	Midsegment	12	-	12
3	Proximal	02	02	-

HSG reports after treatment -

No	Place of block	Single tube opened	Both tubes opened	Not opened
1	Distal	05	11	-
2	Midsegment	10	02	-
3	Proximal	-	-	02

2. Out of 19 cases of secondary infertility, 9 patients conceived within three months to one year of treatment while out of 11 patients of primary infertility, 5 patients conceived within 3 to 9 months after treatment.

Table - Cases of secondary and primary infertility

No	Type of infertility	No of patients	Conceived after treatment
1	Primary	11	05
2	Secondary	19	09

- Follow-up on conception was available only till after one year of treatment. It was then considered that only 14 patients out of 30 conceived after treatment.
- Patients with distal and midsegment blocks showed better response to treatment however, proximal block could not be eliminated with this procedure. (Table 1.6)
- In 93% patients shown efficacy of sahachar taila uttarabasti. 46% patients conceived within the period of 3-12 months of period.

Discussion -

Uttarabasti is indicated in the classics for the treatment of several urinogenital problems. Infertility or vandhyatva forms one of the most important indications. Almost all the Ayurvedic classics mention the importance of uttarabasti to treat vandhyatva.^[5]

Vandhyatva is infertility caused due to a range of different reasons including congenital and acquired causes. Tubal blockage induced infertility has not been mentioned in the texts but as evident from modern investigations like HSG and laproscopy, accounts to about 20 - 30 % of infertility cases. Though the Ayurvedic treatment of uttarabasti has been successfully administered for eliminating tubal blockage by many Ayurvedic physicians till date, determination of the efficacy of this treatment with proper research protocol and standards has hardly been done. The local and the systemic effects of uttarabasti have been studied and documented. This study concentrates largely on the local effect of the basti treatment to eliminate the physical cause of infertility i.e. tubal blockage.

The treatment protocol for this study as mentioned above, was established using the guidelines offered in the classics. The administration of niruha basti prior to uttarabasti is a procedure mentioned in the classics, however the placing of pichu in the vagina, though not particularly mentioned there, had been done with the aim of conditioning the vagina and the smoothing of cervix with snehana therapy to avoid the use of local anesthesia and allow the easy insertion of the infant feeding tube into the uterine cavity and the complications like vulval edema post treatment. The drugs used for the treatment, dashmoola kwatha for niruha basti and sahachar taila for pichu and uttarabasti were also selected on the basis of their unique attributes men-

tioned in the texts.

Niruha basti- Niruha basti was administered on the day after the cessation of menses for the purpose of vatanulomana (~ redirecting the course of vata dosha) and cleansing of the bowels. The procedure followed here in this study calls for the administration of niruha basti prior to the administration of uttarabasti. This is so because the texts advice the administration of niruha basti prior to the administration of sneha basti since it helps to clear bowels and eliminate all the stagnant wastes from the alimentary tract and also to redirect the course of the vata dosha (vatanulomana), which is extremely essential before imparting any treatment. The treatment basti directly affects the area of the apana vayu which is responsible for the functioning of all the urinogenital organs located in the pelvic region. Thus, it helps conditioning and preparing the pelvic area and the organs located therein for better acceptance and absorption of medicinal oils instilled therein. The texts also state that the therapy of uttarabasti receives its name as 'uttara basti' because it should be administered after the therapy of niruha basti (niruhat uttaroyasmat tasmatuttaro samgyakhya)^[6]. Niruha basti was administered to every patient on the morning after the cessation of menses, between 10:00 to 11:00 am. The niruha basti drug was a compound mixture of the following ingredients -^[7]

- Dashmoola decoction - ½ lt.
- Sesame oil - 20 cc
- Honey - 10 gm
- Rock salt - 2 gm.

The ingredients of the drug used for niruha basti and attributes of each are provided in the table -

1.1 - Ingredients of niruha basti -

Ingredients	Proportion	Attributes
1. Saindhav (rock salt)	2gm	Lekhana, vataghna, niruhopavogi dravva
2. Honey	10gm	Lekhana, kaphaghna, niruhopavogi dravva
3. Dashmoola decoction	1.5 lt.	Vataghna, important ingredient for niruha (niruhadi gana), shulaghna, vatanulomana
4. Sesame seed oil	20 cc	Vataghna, vatanulomana, niruhopavogi dravva

Dashmoola kwathawas prepared fresh during administration of each niruha basti for every patient.

Dashmoola kwathapreparation - The decoction was prepared by boiling together one part of coarse dashmoola powder in eight parts of clean palatable water. The mixture is boiled till only 1/4th of the decoction remains behind which is then strained and used.^[8]

The dashmoola kwath is ushna (~ hot), vataghna (~ pacifies the vata dosha), anaha nashaka, (~ eliminates bloating or augmentation of gas in the abdominal cavity), bastishodhana (~ cleanses the bowels) in attributes.^[9] It is has also been mentioned in the 'niruhopavogi gana' (~ drugs used for niruha basti) and is useful for niruha basti to clear the bowels and to redirect the course of vata dosha (vatanulomana).^[10]

The attributes of the dashmoola as a formulation and the independent attributes of each of its ingredients w.r.t. the present study have also mentioned in the table -

1.2 - Ingredients of dashmoola kwatha-

Ingredients of dashmoola	Attributes
1. Bilva	Vataghna, kaphaghna, ushna, pachana, vatanulomana

2. P atala	Tridoshaghna, shothahara, grahi
3. Agnimantha	Ushna, vibandhanashaka, tridoshaghna, vishaghna
4. Gambhari	Ushna, kaphavataghna, shothagnha, shulaghna
5. Shyonaka	Kaphavataghna, shulaghna, shothagnha
6. Shaliparni	Tridoshaghna, rasayana, shothagnha, krumighna
7. Prushniparni	Tridoshaghna, ushna, shothagnha, vrushya, mutral
8. Bhruhati	Kaphavataghna, ushna
9. Kantakari	Sara, ushna, kaphavataghna,
10. Gokshura	Vataghna, mutrashodhana, shulaghna, shothagnha.

The treatment of niruha basti was followed by pichu therapy. The pichu, soaked in sahachar taila, was inserted and held in the vaginal cavity for three hrs daily, for two consecutive days after niruha basti. The therapy of pichu helped the smoothing and conditioning of the internal mucosa of the vagina and considerably reduced the chances of vulval edema post uttarabasti. This therapy is known to impart mrudut to the system.^[11] It was also observed during therapy that the administration of uttarabasti without anesthesia did not lead to any complications if the vagina was preconditioned for the treatment.

The sahachar taila is a formulation mentioned in the Bharat Bhaishajya Ratnaavali especially for the treatment of anomalies caused due to vata dosha. It is particularly mentioned for the treatment of chronic diseases which are difficult to cure and are caused due to the anomaly of vata dosha. It is also indicated specifically for the treatment of yoniroga and is known to remove stambha (~ stiffness and obstructions) and shosha (~ excessive dryness).^[12] The contents of this formulation and their independent attributes have been mentioned in the table.

1.3 – Ingredients of Sahachar taila

Ingredients of sahachar taila	Attributes
1. Sesame seed oil	Ushna, vataghna,
2. Sahachar kwatha	Vataghna, vatanulomana
3. Dashmoola kwatha	Tridoshaghna, vatanulomana, shothagnha, anahaghna,

The uttara basti, as mentioned in detail above, is a minor operative procedure which can be performed at OPD level but in well equipped operation theater to achieve complete aseptic techniques to avoid pelvic inflammation & vaginal infections. The classics advise this therapy for the treatment of almost all kinds of urinogenital disorders. However, the therapy is largely practiced today for the treatment of infertility. The uttarabasti has to be administered in the rutukala (~ just after the menstrual period) after having purified the body with niruha basti. This is so that the garbhashaya is ready to absorb the sneha (medicated oil) at that time and also that during menstruation the vaginal and uterine orifices are open (apavrutta yoni) and the medicines can be instilled easily inside the uterus.^[12] The texts particularly advise the administration of uttarabasti for three consecutive days during the rutukala and hence the aforementioned protocol also included the uttarabasti administration for three days after the pichu therapy.^[13] Specifically classifying the cases of tubal block induced infertility and administering uttarabasti was the purpose of this study. Successful elimination of tubal block in about 93 % patients and conception in about 46 % of patients indicates the high efficacy of the treatment.

The probable mode of action of the entire treatment protocol of uttarabasti of sahachar taila can be understood and interpreted in the following ways –

1. The therapy of snehana and svedana imparted prior to the niruha basti and uttarabasti both are extremely important.^[14] These therapies, applied locally to the lower abdomen/

pelvic region help the anulomana of the apanavayu, which resides in the pelvic region and which is responsible for most functions of the urinogenital system. These therapies help the abdominal muscles to relax and avoid undue contraction of the uterus leading to inability to retain the medication for required amount of time. Snehana and svedana prevent the pain and discomfort during and after procedure by relaxing all the organs of the pelvic region which is extremely important during this procedure.^[15]

2. The administration of niruha basti prior to uttarabasti helps redirect the course of vata dosha and eliminate the wastes, thus facilitating the absorption and optimal action of the drug.^[16]
3. The pichu therapy helps condition and smoothen the vagina and eliminate any minor infection therein. This therapy is known to impart mruduta (~ softness or suppleness) to the system.^[11] The text Bhavprakash states that placing the pichu in the vaginal passage helps alleviate pain and smoothen the inner walls.
4. It was also observed that pichu therapy considerably helped reduce the chances of post treatment vulval edema and other complications.
5. The uttara basti, as per the classics is administered during the rutukala, just after the cessation of the menses when the garbhashaya is actively preparing the endometrial bed and is ready to absorb the sneha or medicated oil.
6. The high intrauterine administration of uttarabasti aids the direct action of the drug on the affected area and helps remove the blockage of the tubal lumen by mechanical/ drug action on the site of obstruction.
7. The instillation of drug directly into the uterine cavity ensures maximum absorption and optimal drug action (vataghna) on the affected area.
8. The therapy also probably helped restore the normal function of the tubal cilia, stimulating these and facilitating the movement of the ovum towards the uterus.
9. The oil is useful in regeneration of the endometrial lining of the tubes and to scrape the intratubal mucus plugs and break the intratubal adhesions with its ushna attributes.

Thus, uttarabasti can be termed as an extremely effective procedure for the treatment of tubal block induced infertility of both primary and secondary type. The treatment is cost effective and can be advised to the economically backward sections of the society. It does not require anesthesia or hospitalization for more than 4-5 hrs. and also eliminates the possibility of all kinds of complications which may arise post surgical procedures.

Though this study reports about 93% elimination of tubal blockage and 46% rate of conception, a more wide spread study with increase in sample size shall establish the efficacy of uttarabasti administered with this particular treatment protocol. More conclusive and definitive research on the mode of action of drugs can be initiated with histopathological studies of reproductive organs at different stages.

Conclusion - Uttarabasti can be termed as a highly effective treatment for tubal block induced secondary and primary infertility. Use of modified treatment protocol, with the administration of niruha basti and pichu therapy, increases the efficacy of the treatment and eliminates the possibility of complications post procedure. Sahachar taila used for the purpose of pichu therapy and uttarabasti is effective in eliminating tubal blockage with its lekha (~ abrasive action/ scraping) and vataghna (~ pacification of aggravated vata dosha) attributes. Uttarabasti which is a cost effective, non-surgical procedure carried out without local anaesthesia should be propagated as a safe Ayurvedic alternative for treatment of tubal block.

REFERENCE

- | 1. Sushruta, Sushruta Samhita, Sharirshaana, Shukrashonita Shuddhi Sharir, 2/33, edited by B. T. Ghanekar, New Delhi, Motilal Banarsidas, 1938.
- | 2. Chakrapanidutta, Commentator. Charaka Samhita, Siddhistaana, Trimarmiya siddhi adyaya, 9/62-64, edited by Vaidya Yadavji Trikamji Acharya, 1st edition, New Delhi, Munshiram Manoharlal Publishers Pvt. Ltd., 1981. | 3. Chakrapanidutta, Commentator. Charaka Samhita, Siddhistaana, Trimarmiya siddhi adyaya, 9/68, edited by Vaidya Yadavji Trikamji Acharya, 1st edition, New Delhi, Munshiram Manoharlal Publishers Pvt. Ltd., 1981. | 4. Sushruta, Sushruta Samhita, Chikitsaasthaana, Anuvasanottar Basti Chikitsa, 37/125, edited by B. T. Ghanekar, New Delhi, Motilal Banarsidas, 1938. | 5. Vrudhavagbhata, Ashtanga Sangraha, Pratham Khanda, Sutrasthaana. Bastividhi adhyaya, 28/9, edited by P.G. Athalye, Nagpur, Drushtarthamala Prakashana, 1991. | 6. Arundutta, Commentator. Vagbhata, Ashtanga Hrudaya, Sutrasthaana, Basti vdhii adhyaya, 19/52, edited by H.S. Paradkar, Varanasi, Chowkhamba Orientalia, 1982. | 7. Sharangadhar, Sharangadhar Samhita, Madhyamkhanda, Kwath Kalpana, 2/1-7, edited by P.S. Vidyasagar, Varanasi, Krushnadas Academy, Chowkhamba Sanskrit Series, 1986. | 8. Bhavmishra, Saartha Bhav Prakash, Purvakhanda, Guduchyaadi varga, edited by P.S. Nanal, Pune. Raghuvanshi Prakashana, 1929. | 9. Kaviraj Shree Ambikadattashastri, Bhaishajya Ratnaavali, Tatvonamanadhikara, 26/79, edited by Narendra Prakash Jain, New Delhi, Motilal Banarsidas, Shree Jainendra Press, 1970. | 10. Arundutta, Commentator. Vagbhata, Ashtanga Hrudaya, Sutrasthaana, Shodhnadi gana sangraha, 15/3, edited by H.S. Paradkar, Varanasi, Chowkhamba Orientalia, 1982. | 11. Arundutta, Commentator. Vagbhata, Ashtanga Hrudaya, Chikitsaasthaana, Vatavyadhichikitsa 21/67, edited by H.S. Paradkar, Varanasi, Chowkhamba Orientalia, 1982. | 12. Kaviraj Shree Ambikadattashastri Bhaishajya Ratnaavali, Tatvonamanadhikara, 26/79, edited by Narendra Prakash Jain, New Delhi, Motilal Banarsidas, Shree Jainendra Press, 1970. | 13. Acharya JT, Chakrapanidutta, Commentator. Charaka, Charaka Samhita, Siddhistaana, Trimarmiya siddhi adhikara, 9/69, edited by Yadavji Trikamji Acharya, 1st edition, New Delhi, Munshiram Manoharlal Publishers Pvt. Ltd., 1981. | 14. Arundutta, Commentator. Vagbhata, Ashtanga Hrudaya, Sutrasthaana, Snehavidhi, 16/4, edited by H.S. Paradkar, Varanasi, Chowkhamba Orientalia, 1982. | 15. Arundutta, Commentator. Vagbhata, Ashtanga Hrudaya, Sutrasthaana, Swedavidhi, 17/24-26, edited by H.S. Paradkar, Varanasi, Chowkhamba Orientalia, 1982. | 16. Arundutta, Commentator. Vagbhata, Ashtanga Hrudaya, Sutrasthaana, Nasyavidhi, 20/70, edited by H.S. Paradkar, Varanasi, Chowkhamba Orientalia, 1982.