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# CLINICAL EFFICACY OF NISHALAUHA VATI AFTER VIRECHAN KARMA IN PANDU ROG W.S.R TO IRON DEFICIENCY ANEMIA

**Dr. Vishal Saxena*[1] and Dr. Sanjay Kumar Tripathi[2]**

[1]PG Scholar, Dept. of Kaya Chikitsa, Rishikul Govt. Ayurvedic College and Hospital, UAU, Haridwar.

[2]Professor, Dept. of Kaya chikitsa, Rishikul Govt. Ayurvedic College and Hospital, UAU, Haridwar.

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***Corresponding Author**
**Dr. Vishal Saxena**
PG Scholar, Dept. of Kaya Chikitsa, Rishikul Govt. Ayurvedic College and Hospital, UAU, Haridwar.

## ABSTRACT

*Pandu Roga* can be effectively compared with Anemia on the ground of its similar signs and symptoms. The main characteristic features of the disease is *Panduthwa* i.e pallor. The clinical features of anemia like pallor, weakness, giddiness etc are similar with *Panduroga* mentioned in *Ayurvedic* classics. Iron deficiency is the commonest nutritional deficiency world over and its prevalence is highest in Indian population. According to survey 30% adult males, 45% adult females, 80% pregnant females and 60% children in India are suffering from Anemia. This article is based on the clinical efficacy of *Nishalauha Vati* after *Virechna Karma* in *Pandu Roga*. Hence a trial will be taken on total 60 patients of *Pandu Roga*. Three groups i.e. 20 patients in each group will be made on the basis of inclusion & exclusion criteria depending on the detailed clinical history, physical examination & other necessary investigations & irrespective of their gender caste or creed. Three groups will be given medicines-Group A Nisha lauh vati, Group B Nisha lauh vati after virechana karma and Group C Tab Iron, comparision will be made on the basis of result.

**KEYWORDS:** *Pandu Roga, Panduthwa, Nishalauha Vati, Virechna Karma, Pallor, Weakness.*

## INTRODUCTION

*Ayurveda* is enriched with the variety of clinical presentations, each having abroad umbrella of systemic disorders described in modern science. Among them, *Pandu* is a *Rasa*

*Pradoshaja vikara* described by *Acharya Charaka* (Cha. Su. 28\9). It is characterized by pallor of the body. The signs of *Pandu* are described as:-

**"सोऽल्परक्तकोअल्पमेदस्कोनिस्सार: शिथिलेन्द्रिय: ।(Ch. Chi. 16/6)**

This description avails the correlation of *Pandu* with Anemia of Modern science. Iron deficiency is the commonest nutritional deficiency world over and its prevalence is highest in Indian population. According to survey 30% adult males, 45% adult females, 80% pregnant females and 60% children in India are suffering from Anemia. Therefore, the management of the disease is one of the top priorities in Health care plans of Government of India. *Pandu* causes extreme debility as it is dominated by the symptoms like Palpitation, Fatigability, Dyspnoea on exertionetc.

**"तस्यलिङ्गंभविष्यत: हृद्यस्पन्दनंरौक्ष्यंस्वेदाभावःश्रमस्तथा। (Ch. Chi. 16/12).**

Due to the vitiation of *Rasa* and *Rakta Dhatu*, which are the essential factors for nourishment of every cell in the body.

*Pandu* disease symptomatically correlated with anemia of modern science. Anemia is considered as a blood disorder characterized by low Hemoglobin (Hb) level. Hb is Iron bearing Protein in Red Blood Cells, which delivers oxygen to tissues throughout the body. Indian women are also prone to anemia. At least 60 to 70 percent of rural women and 30 per cent of urban women are anemic. Anemia affects an estimated 50% of the population. Surveys in different parts of the country reveal that 87% of pregnant women suffer from anemia and about 10% have severe anemia (Hb<8.0 g/dl).

For the management of *Pandu* iron preparation are given in both system of medicine. According to classics of modern medicine iron preparation were introduced for management of *Pandu*in 1829 by physician Gabriel Andral but in *Ayurvedic* classics use of iron preparation with some herbal drugs is mentioned in different formulations in *Charaka Samhita, Sushruta Samhita, Ashtang Hridaya, Ashtang Sangraha, Bhaishajya Ratnavali* etc.
30% population of world may be affected by anemia at some time in the life. The most common cause world wide is iron deficiency. As anemia is affecting a large proportion of population and decreasing their quality of life so we planned the present study titled as "CLINICAL EFFICACY OF NISHALAUHA VATI AFTER VIRECHAN KARMA IN PANDU ROG W.S.R TO IRON DEFICIENCY ANEMIA"

Iron deficiency anemia develops when the supply of iron is inadequate for requirement of hemoglobin synthesis. Initially, the negative iron balance is made good by mobilization from the tissue stores so as to maintain Hb synthesis. It is only after the tissue stores of iron are exhausted that the supply of iron to the bone marrow become insufficient for Hb formation so that a state of iron deficiency anemia develops. The development of iron depends on one or more of the following factors:

1. Increased blood loss
2. Increased requirement
3. Inadequate dietary intake
4. Decreased intestinal absorption

## DISEASE REVIEW

### *Ayur vedic* view

***Vyutpati***

According to *Shabdakalpadruma* The word "*Pandu*"is derived from root ‘pifnazne’ with suffix "k…" and elaboration through “in"

**पाण्डु: - पडिनाशने + कुप्रत्यय**

***Nirukti* of *Pandu Roga***

**According to *Acharya Charaka***

**पाण्डुनावक्ष्यमाणहरितादिवर्णेभ्य: प्रधानेनवर्णेनोपलक्षितोरोग: पाण्डुरोग:॥**

This means, while describing the signs and symptoms of different types of *Pandu*, Several types of complexion like *Harita* (green) etc. are described. But all of these are dominated by *Panduta* (Pale-Yellowcolour) because of which this disease is called ***Pandu Roga***.

**According to *Acharya Sushruta***

**पाण्डुवर्णाधिक्यातसर्वेएवपाण्डुरोगा: प्रोत्यन्ते॥**

There is dominancy of *Pandu Varna*, so this disease is known as *Pandu Roga*.

***NIDANA***

***Aharaja Nidana***

***“क्षाराम्ललवणात्युष्णविरुधासात्म्यभोजनात्।***

***निष्पावमाषपिण्याकतिलतैलनिषेवणात्” ॥(च.चि. १६/७)***

- Excessive intake of *Kshara, Amla, Lavana, Ati ushna anna*.
- *Virrudha Bhojana.*
- *Asatmya Bhojana*.
- Excessive intake of *Nispava, Masha, Pinyaka, Tilatail*
- Excessive intake of *Madhya*
- *Mrid bhakshana*
- Excessive intake of *Kashaya Rasa, Katu*

***Viharaja Nidana***

**According to *Acharya Charaka***

**"विदग्धेऽन्नेदिवास्वप्नाद्व्यायामान्मैथुनात्तथा। प्रतिकर्मर्तुवैषम्याद्वेगानां च विधारणात्॥**

**कामचिन्ताभयक्रोधशोकोपहतचेतसः"।(च.चि.१६/८-९)**

Sleeping, Exercise and Sexual Intercourse even before the food is notproperly digested (*Vidagdhe Anne Diwa swapna, Vyayama, Vyavaya*). Suppression of natural urges (*Vega Vidharana*). Affliction of mind with *Kama, Chinta, Bhaya, Krodha, Shoka*, Improper administration of *Pancha Karma* Therapies (*Pratikarma*), Transgression of prescribed seasonal regimen (*Ritu-Vaishmaya*).

According to *Acharya Sushruta*

**"व्यवायमम्लंलवणानिमधं मृदं दिवास्वप्नमतीव तीक्ष्णं"।(सु.उ.४४/३)**

*Rakta* gets vitiated by *Amla lavana Bhojana, Ati Maithuna, madhya sevan, Diwa swapna*etc.

**PURVARUPA**

**हृद्यस्पन्दनंरौक्ष्यंस्वेदाभाव: श्रमस्तथा॥"(च.चि.१६/१२)**

**RUPA**

**संभूतेऽस्मिन्भवेत्सर्व: कर्णक्ष्वेडिहतानल:।दुर्बल: सदनोऽन्नद्विट्श्रमभ्रमनिपिडित:॥**

**गात्रशूलज्वरश्वासगौरवारुचिमान्नर:।मृदितैरिवगात्रैश्चपीडितोन्मथितैरिव॥**

**शूनाक्षिकूटोहरित: शीर्णलोमाहतप्रभ:।कोपन: शिशिरद्वेषिनिद्रालु: ष्टीवनोऽल्पवाक्॥**

**पिण्डिकोद्वेष्टकट्यरुपादरुकसदनानिच।भवन्त्यारोहणायासैविशेषश्चास्यवक्ष्यते॥(च.चि.१६/१४-१६)**

**SAMPRAPTI**

***दोषाः पित्तप्रधानास्तुयस्यकुप्यन्तिधातुषु।शैथिल्यंतस्यधातुनांगौरवंचोपजायते॥***

***ततोवर्णबलस्नेहायेचान्येऽप्योक्षसोगुणाः।व्रजन्तिक्षयमत्यर्थदोषदूष्यप्रदूषणात्॥***

***सोऽल्परक्तोऽल्पमेदस्कोनिःसारः शिथिलेन्द्रियः।वैवर्ण्यभजते,तस्यहेतुंश्रृणुसलक्षणं॥(च.चि.१६/४-६)***

**SAMPRAPATI GHATAKA**

Udbhava- Hridaya

Adhisthana- Rasa Dhatu

Vyakti- Twaka

Sanchara- Rasayani

Dosha- Sadhaka, Ranjaka Pitta

VyanaVayu, KledakaKapha

Dushya- Rasa, Rakta, Mamsa

Srotasa- Rasavaha, Raktavaha

**MODERN VIEW**

Anemia means a deficiency of red blood cells, which can be caused by either too rapid blood loss or too slow production of red blood cells or may be defined as a state in which the blood hemoglobin is below the normal range for the patient's age and sex (male < 12 gm/dl, female <10 gm/dl).

WHO has defined the anemia when hemoglobin male <13 gm/dl and in female <12 gm/dl.

Clinical features of anemia reflect the diminished oxygen carrying capacity of blood. The severity depends on the degree of the anemia and the rapidity of its development but is independent of its cause.

In adults the lower extreme of the normal hemoglobin is taken as 13.0 gm/dl in male, 11.5 gm/dl in females.

New born infants have higher level and therefore 15 gm/dl is taken as lower limit at birth whereas at 3 months lower limit is 9.5 gm/dl.

As many as 30% of the world population may be affected at some time. The most common worldwide cause is iron deficiency and it is estimated that half a billion people are affected.

Iron deficiency is one of the most prevalent forms of the malnutrition. Globally, 50% of anemia is attributed to iron deficiency and accounts 8,41000 deaths annually worldwide. Africa and parts of Asia bears 71% of the global mortality burden, North America represents only 1.4% of total morbidity and mortality associated with iron deficiency.

## CLINICAL FEATURES

1. Fatigue
2. Fever
3. Paleness
4. Shortness of brethe
5. Palpitation
6. Anorexia
7. Anxiety
8. Hair loss

## REVIEW OF LITERATURE

### In Vedic Kala

*Pandu Roga* had been mentioned in *Rigveda* and *Atharveda* by the name of *Halima* and *Harima* respectively.

### In Pauranika Kala

In Mahabharata, *Pandu* was depicted as the father of Five *Pandvas* and as the son of *Ved Vyasa*.

In *Garuda Purana*, there is a reference in which *"Takra"* mixed with *Lauha Churna* has been advocated for the treatment of *Pandu*.

### In Samhita Kala

- *Charaka Samhita- ChikitsaSthana*A.16
- *Sushruta Samhita- UttaratantraA*.44
- *Astanga Hridaya- NidanaSthana*A.13, *Chikitsa Sthana*A.16
- *Astanga Samgraha- NidanaSthana*A.13, *Chikitsa Sthana*A.18
- *Sharangadhara Samhita- PurvaKha*.A.7/17

- *Bhavaprakasha (Uttarardha) - Ma.Kha.-2nd Part* A.8
- *Madhava Nidana- PurvaKha.*A.8
- *Harita Samhita- TritiyaSthana*A.8
- *Kashyapa Samhita- Sutra Sthana*25/34

**PREVIOUS RESEARCH WORK DONE**

- Jain Sangeeta- A study on *Pandu Roga* w.s.r. to Anemia and its management

With *Shodhana* and *Yograja Rasayana* (2000)

- Sarkar P K- A comparative pharmco pharmaceuticoclilnical study of *Lauha*

*Bhasma* and *Mandoora Bhasma* w.s.r. to *Panduhara* effect (2005)

- Bhaveshpatel- *A comparative pharmacetico pharamaco clinical study of Kasisbhasma w.s.r to its effect on pandu (iron deficiency anemia) (2006)*
- Vyas Madhuri- A comparative study of *Hansamandu*r and *Phalatrikadi Kwatha*in the management of *Pandu* w.s.r to Iron deficiency Anemia.(2008)
- Deepmalapatil- A *comparative study of NISHALOHA VATTI and NAVAYASA LOHA VATTI in the management of panduroga.(2008)*
- Madhavisubhash Chandra-*Apharmacetico clinical study of Dhatyarishta prepared by Dhatriswaras and Dhatrikwatha w.s.r to its effect on pandu(iron deficiency anemia)(2009)*
- Monica aggarwal- *A* clinical study on the effect of *virechan karma* and *pandughanivatti* in the management of *pandu* w.s.r to iron deficiency anemia (2011)
- Preetisharma- A comparative clinical study to evaluate the efficacy of *Navayasachurana* and *Mandura Vatti* in the management of *pandu* w.s.r to iron deficiency*anemia.(2016)*

**Drug review & Treatment review**

**A. निशालौह**

**"लौहचूर्णंनिशायुग्मंत्रिफलारोहिणीयुतम्।प्रलिहान्मधुसर्पिभर्याकामलापाण्डुशान्तये"॥ (भै.र.१२/२९)**

It contains the following drugs

01. *Haritaki* 1 Part
02. *Bibheetaki* 1 Part
03. *Amalaki*1 Part
04. *Haridra* 1 Part
05. *Daruharidra* 1 Part

06. *Kutaki* 1 Part

07. *Lauha Bhasma* 6 Part

**Table Containing Following Drugs**

| Drug | Botanical name | Family | Rasa | Guna | Virya | Vipaka | Chemical constituents |
|---|---|---|---|---|---|---|---|
| *Haridra* | *Curcuma longa* | *Zingiberacae* | *Tikta, Katu* | *Rukshalaghu* | *Ushna* | *Katu* | Volatile oil, curcumin, vit A, protein etc. |
| *Daruharidra* | *Berberisaristata* | *Berberidaceae* | *Tikta, Kashaya* | *Laghu,ruksha* | *Ushna* | *Katu* | Berberinkshar, chichamla, sevamla. |
| *Haritaki* | *Terminaliachebula* | *Combretacae* | *Pancharasa(lavana-varjita) kashayapradhana* | *Rukshalaghu* | *Ushna* | *Madhura* | Tanim,chebulagic acid, chebulnic acid, corilagil,sugar, 18 amino acid, succinic acid, phosphoric acid. |
| *Bibheetak* | *Terminaliabellerica* | *Combretacae* | *Kashaya* | *Rukshalaghu* | *Ushna* | *Madhura* | Galic acid, ellagic acid, phyllemblin, ethylgallate&galloysl glucose. |
| *Amalaki* | *Emblicaofficinalis* | *Euphorbiaceae* | *Pancharasa(lavana-varjita)amlapradhana* | *Laghu, ruksha, sheeta* | *Sheeta* | *Madhura* | Gallic acid,tannic acid, sugar, albumin, cellulose, calcium, vit-C |
| *Katuki* | *Picrorhizakurroa* | *Scrophulariaceae* | *Tikta* | *Rukshalaghu* | *Sheeta* | *Katu* | Picrorhizin, kutkin |
| *Lauhabhasma* | _____ | _____ | *Tikta, kashaya* | *Ruksha guru* | *Sheeta* | *Madhura* | _____ |

**B. Virechan karma**

Virechana karma will be done depending on the patient's kostha and agnibala.

Deepanpachana(1st-3rd day)

↓

Snehapana (4th-8thday)

↓

Bahyasnehana and swedana(9th-10th day)

↓

Virechana (11th day)

↓

Sansarjanakarma(12th-15th day)

**"साध्यानामितेरषां तु प्रवक्ष्यामि चिकित्सितम्।**

**तत्र पाण्ड्वामयी स्निग्धस्तीक्ष्णैरुधर्वानुलोमिकै:"॥(च.चि.१६/३९)**

**Role of *virechna karma* in *panduroga*( iron deficiency anemia):-** The *virechna karma* is very effective in *pandu roga* ( iron deficiency anemia), iron is absorbed in our body in small intestine. If there is obstruction in *strotas*(*strotavarodha*) then the iron will not be properly absorbed & the benefit of drug will not completely stablished. The iron absorbed from small intestine and the*virechana* is the *samsodhan* procedure for small intestine. So we can think that if we use the iron preparation with *samshodhan* then iron absorption should be increased and the total time of recovery process of a patient will reduced. So the classical *virechan karma* will be done.

**Mode of action of drug**

Pandu or Iron deficiency anaemia Treatment require adequate bioavailability of Lauha. Iron salts when taken it causes constipation. In nishalauhavati iron is present. katuki is a pitta virechaka havingshodhan property. Triphala in this drug is rasayan& also have the property of shodhan karma. Haridra and daruharidra present in nishalauhavati is tikta-katu and tikta-kashaya rasa pradhan respectively and also ushnavirya having good effect on liver function. Because of all these drug present innishalauhavati, we can think that their is increased absorption of iron in the body result in rapid formation of haemoglobin.

**AIMS AND OBJECTIVES**

1. To evaluate the effect of *nishalauha* in the management of *panduroga*
2. To evaluate the effect of *virechna karma* in the management of *panduroga*.

3. To provide the reliable, effective& low cost*Ayurvedic* treatment for *pandu.*

**Plan of study**

- **Selection of patients**- 60 diagnosed patients of pandu with female- 6-10 gm% & male- 6-12 gm% Hbwill be selected for study from O.P.D & I.P.D unit of P.G department of *kayachikitsa* as well as *panchkarma* department, Rishikul Ayurvedic Campus, Haridwar with informed consent. The study will be conducted on patient randomly divided into 3 groups of 20 patients each on the basis of inclusion and exclusion criteria depending on hemoglobin level detailed clinical history, physical examination and other necessary desired investigation.

**A. Selection of Drug**

*a. Nishalauhavati*

*b. Virechna karma*

**B. Dose of drug**

1) *Nishalauhavati*– two tablets each of 250mg twice daily with luke warm water.
2) *Virechna karma* after *samayaka snehna & swedana*.

C. **Duration of study**- 60 days

D. **Type of study**- open randomized trial.

E. **Follow up**- the follow up of the patients will be done at the interval of 15 days.

**F. Drug trial schedule**

**Group 1**- patients(N-20) will be treated with *nishalauhavati*- 2 tablets B.D with luke warm water after meal.

**Group 2**- patients(N- 20) will be treated with *Nisha Lauha Vati*after*virechna karma*.

**Group 3**-patient (N-20) will be treated with ferrous sulfate (tab. Iron)100 mg BD.

**G. Inclusion criteria**

Diagnosed patients without any complication will be included.

✓ Patients having Hb% as follows-

- For female- 6-10 gm%
- For male- 6-12 gm%

✓ Patient between the age group of 15 to 60 years will be taken.

✓ Primary- the patients will be selected on the basis of the presence of classical symptomatology along with some laboratory parameters of *panduroga*.

**H. Exclusion criteria**

- ✓ Patients suffering from AIDS, cancer, tuberculosis, Diabetes Mellitus and other severe disease
- ✓ Age below 15 years and more than 60 years.
- ✓ Hb<6gm%
- ✓ Anemia due to causes other than iron deficiency.
- ✓ Pregnancy
- ✓ IBS

**I. Criteria for withdrawal**

1. Personal matter
2. Aggravation of complaints
3. Intercurrent illness
4. Any other difficulties
5. LAMA (patient leave against medical advice)

**J. Criteria for assessment**

The assessment of the drug trial will be done on the basis of the following parameters.

1) Subjective
2) Objective

**Subjective**- the assessment of drug trial will be done on the basis of improvement in the following symptoms –

1. Pallor
2. Reduced exercise capacity
3. Fatigue
4. Breathelessness
5. Palpitation
6. Dizziness
7. Headache
8. Irritability
9. Anorexia
10. Weakness

The symptoms are graded as per their severity. The detail assessment of clinical sign and symptoms are discussed below:

**1. Pallor**

**In twaka, nakha, netravartma, jihva, hastapadatala**

| | | |
|---|---|---|
| Absent | 0 | Normal |
| In any 2 of these | 1 | Mild |
| In any 3 of these | 2 | Moderate |
| In any 4 of these | 3 | Severe |
| In all | 4 | Very severe |

**2-Reduced exercise capacity**

| | | |
|---|---|---|
| No change in exercise capacity | 0 | Normal |
| Difficulty in heavy exercise | 1 | Mild |
| Difficulty in moderate exercise | 2 | Moderate |
| Difficulty in mild exercise | 3 | Severe |
| Difficulty in routine work | 4 | Very severe |

**3- Fatigue**

| | | |
|---|---|---|
| Absent | 0 | Normal |
| Fatigue during hard work | 1 | Mild |
| Fatigue during moderate work | 2 | Moderate |
| Fatigue during light ar routine work | 3 | Severe |
| Continuous fatigue even in lying position | 4 | Very severe |

**4- Breathlessness**

| | | |
|---|---|---|
| Absent | 0 | Normal |
| Breathlessness during hard work | 1 | Mild |
| Breathlessness during moderate work | 2 | Moderate |
| Breathlessness during routine work | 3 | Severe |
| Breathlessness on rest | 4 | Very severe |

**5- Palpitation**

| | | |
|---|---|---|
| Not present | 0 | Normal |
| After heavy work, relieved soon | 1 | Mild |
| After moderate work, relieved later | 2 | Moderate |
| After mild or routine work, relieved later | 3 | Severe |
| Continuous palpitation even on lying position | 4 | Very severe |

**6- Dizziness**

| | | |
|---|---|---|
| Absent | 0 | Normal |
| Present on excessive physical work | 1 | Mild |
| Present on moderate physical work | 2 | Moderate |
| Present on mild physical work or on standing position | 3 | Severe |
| Continuous dizziness even on lying position | 4 | Very severe |

**7- Headache**

| | | |
|---|---|---|
| Absent | 0 | Normal |
| Headache during heavy physical work | 1 | Mild |
| Headache during moderate physical work | 2 | Moderate |
| Headache during routine or mild physical work | 3 | Severe |
| Continuous headache | 4 | Very severe |

**8- Irritability**

| | | |
|---|---|---|
| No irritation | 0 | Normal |
| Early irritation during debates | 1 | Mild |
| Irritated early at work place | 2 | Moderate |
| Irritated during routine work | 3 | Severe |
| Irritated every time | 4 | Very severe |

**9- Anorexia**

| | | |
|---|---|---|
| No anorexia | 0 | Normal |
| Take meal routinely without desire of food | 1 | Mild |
| Mild desire of not to eat | 2 | Moderate |
| Hate to eat | 3 | Severe |
| Hate to even smell of food | 4 | Very severe |

**10- Weakness**

| | | |
|---|---|---|
| Not present | 0 | Normal |
| Weakness during heavy work | 1 | Mild |
| Weakness during moderate work | 2 | Moderate |
| Weakness during routine or mild work | 3 | Severe |
| Continuous weakness or even in lying position | 4 | Very severe |

**Objective**- the assessment will be done on the basis of change in relevant laboratory investigative parameters.

**K. Investigations**

- Hematological
- Hb%,
- TLC,
- DLC,
- ESR
- PCV Blood indices: MCV,MCH,MCHC
- Stool test
- GBP
- Serum iron level

- Serum ferritin level

**Observation**

- ✓ The observation of patients will be done before, during and after completion of trial.
- ✓ Little addition or exclusion may be done as per necessity of the study.

**CONCLUSION**

Conclusion will be made on the basis of observation done on subjective & objective parameters. The result will be analyzed statistically.

**List of important references & brief resume of relevant literatures on the proposed work**


- ➢ *Charaksamhita*
- ➢ *Sushrutasamhita*
- ➢ *Ashtanghridaya*
- ➢ *Asthangsangraha*
- ➢ *Madhavnidan*
- ➢ *Bhaishajyaratnawali*
- ➢ *Yogratanakar*
- ➢ Harrison's principles of Indian medicine.
- ➢ Text book of pathology by Harshmohan
- ➢ Manual of practical medicine by Alagappan
- ➢ Principles and practices of medicine by Davidson's