



CRITICAL REVIEW ON HEPATOBILIARY DISEASES IN AYURVEDA PERSPECTIVE

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ABSTRACT

The Hepatobiliary system is composed of the liver, gall bladder and biliary tree. In Ayurvedic literature liver is called by the name Yakrit. Description about utpatti(origin) and rachana shareera (anatomical position) of Yakrit (liver) is available in Samhitas. According to few references more than 50% of people in India rely on Ayurveda and herbal medicine for the liver diseases. In turn the explanation is available in detail about the Pleeha(spleen) Roga(disease) and at the end concluded that Pleeharoga and Yakritroga both share the similar Nidana(cause) , Lakashana(features),Bheda(classification) and Chikitsa(treatment), only difference is the side of the body affected in Pleeha roga it occurs at left side of the kukshi (abdomen) and in Yakrit roga it develops in right side of the kukshi(abdomen). Elaborate explanation about the Yakrit Roga is not available. Some scattered information is available in the classical texts about the Yakrit Roga. Whole hepatobiliary system diseases are included under the following heading Pandu, Kamala, Halimaka, Panaki, Kumbakamala, Lagaraka, Yakritodara, Yakrit Dalodhara , Yakrit Vruddi etc. The Ahara(food) and Vihara(physical activity) which causes Dusti of Rakta Dhatu will also do Dusti of Raktavaha Srotas and its Moola this may be the reason for the explanation of both the diseases together.

KEYWORDS: Yakrit Roga, Pleeha Roga, Yakritodara, Kamala, Halimaka, Panaki, Hepatobiliary Disease.

INTRODUCTION

The hepatobiliary system is composed of the liver, gall bladder and biliary tree. The pancreas is closely related and shares a portion of the biliary ductal system hence its inclusion here.^[1]

Hepatobiliary diseases include a heterogeneous group of diseases of liver and biliary system caused by viral, bacterial and parasitic infections, neoplasia., toxic chemicals, alcohol consumption, poor nutrition and metabolic disorders.^[2]

The absolute number of CLD cases (inclusive of any stage of disease severity) is estimated at 1.5 billion worldwide. The most common causes of prevalent disease are NAFLD (59%), followed by HBV (29%), HCV (9%), and ALD (2%). Other liver diseases, including primary biliary cholangitis, primary sclerosing cholangitis, alpha-1-antitrypsin deficiency, Wilson's disease, and autoimmune hepatitis, account for 1% of cases.^[3]

In Ayurvedic literature liver is called by the name Yakrit. Description about utpatti(origin) and rachana shareera (anatomical position) of Yakrit (liver) is available in Samhitas. Liver is originated from rakta and is situated

in right side of the *Kukshi*(abdomen). It is the *moola* of *Raktavaha Srotas* and it is a *Matruja Avavaya Bhava* etc.

According to few references more than 50% of people in India rely on *Ayurveda* and herbal medicine for the liver diseases.^[4] in spite of its promised results in treating liver disease since ancient time, the description of liver disease its *nidana* (cause), *lakshanas* (feature) and *chikitsa* (treatment) is not elaborated in many of the *Samhita*'s. In turn the explanation is available in detail about the *Pleeha*(spleen) *Roga*(disease) and at the end concluded that Pleeharoga and Yakritroga both share the similar *Nidana*(cause), *Lakashana*(features), *Bheda* (classification) and *Chikitsa*(treatment), only difference is the side of the body affected in *Pleeha roga* it occurs at left side of the *kukshi* (abdomen) and in *Yakrit roga* it develops in right side of the *kukshi*(abdomen)

Elaborate explanation about the *Yakrit Roga* is not available. Some scattered information is available in the classical texts about the *Yakrit Roga*. The description is scattered under various headings like *Pandu*, *Kamala*, *Halimaka*, *Panaki*, *Kumbakamala*, *Lagaraka*, *Yakritodara*, *Yakrit Dalodhara*, *Yakrit Vruddi* etc here an attempt is made to compile the information available in different section of Ayurveda about *Yakrit Roga*.

MATERIALS AND METHODS

All the relevant information about *Yakarit roga* is collected from *Ayurvedic* classical texts like *Bruhatraye's* and *Laghutraye's* and about hepatobiliary diseases relevant information is collected from contemporary text books, peer reviewed journals and various papers with digital sources.

RESULTS

Veda kala

In *Atharva veda* direct references for *Yakrit vikara*, is not available however in one of the mantra of *Atharvaveda* it is mentioned as , "I am destroying all your diseases from *Hrudaya, Kloma, Masthana, Pleeha* and *Yakrit*"⁵ by this it can be confirmed that *Yakrit* as an organ identified in the pre Vedic period itself. Meanwhile *Jalodara* (Ascites) reference is also available and it was believed to be the curse of Lord Vishnu.^[6]

Samhita kala

This is the time during which the *Samhitas* took its birth. *Bhrihatrayis* have contributed a lot in the field of medicine during this period.

Charaka Samhita

In *Charaka Samhita Sutrastahana Trishotiya Adhaya* while explaining about the *Ekadeshiya Shota Acharaya* has described about the *Pleehavruddi* where *Prakupita Vatadosha* will do the displacement of the *Pleeha* from its *Sthana* and causes the gradually pain in *Vama Parshva*(left side flank region) it is called as *Pleeha Vruddi*.^[7] *Yakritodara Nidana* (cause), *Samprapthi* (pathogenesis), *Bheda* (classification), *Lakshana* (features) and *Chikitsa* (treatment) explained in *Charaka Samhita Chikitsa Sthana*.^[8]

Susruta Samhita

Yakrit is one of the *kostanga*.^[9] *Yakrutdalyodara Nidana* (cause), *Samprapthi* (pathogenesis), *Bheda* (classification), *Lakshana* (features) is explained in *Susruta*.^[10]

Astanga Sangraha

In *Astanga Sangraha atyashita* (excessive eating) and *sankshoba yana*(irritating travel), *vyavaya*(sexual activity) etc which leads to *karshana*(emaciation), the *pleeha* (spleen)is displaced from its *sthana* and increased in its size and the increase of *Rasa, Rakta* which leads To *Vruddi* of *Pleeha*(spleenomegaly). The texture of *Pleeha* changes to *Katina*(hard) similar to *astheela*(stone) and is felt as *kurma prustavat*(the dorsum of the tortoise) in the left side of the *kukshi*.^[11]

Astanga Hrudaya

Yakritodara Nidana(cause), *Lakshana*(features)^[12] and *Chikitsa*(treatment)^[13] has been explained.

Madava Nidana

Acharya Madavakara has explained about the anatomical position of *yakrit* and also *yakrut roga* with its

nidana(cause), *samprapthi*(pathogenesis) ,*mlana yakrit lakshana*(sluggish function of liver) and *vrudaa yakrit* (hepatomegaly) *lakshanas*(features) in *Yakrit Roga Nidana* chapter in *parishistam*. *Mlana* is nothing but the sluggish. *Mlana yakrit* will produce the symptoms like *Shakrit apravritti* (obstructed bowel) ,*Pittalpata* (bile is obstructed), *Atitrushna*(poly dipsia), *Avilamutrata*(dense urine), *Kardama Dehasya*(body is full of mala), *Paandutva*(pallor), *Admana* (distention of abdomen), *Avasada*(fatigue), *Vamana* (vomiting), *Agnimandyata* (reduced digestive fire), *Tiktamukhata*(bitter taste in mouth), *Maladyata* in *jiwha*(tongue coated), *Udgara* (belching), *Katina naadi*, *Vamanecha*(likes to vomit).^[14]

Bhavaprakasha

Bhavamishra is the first person to allot the separate chapter called *Pleehadikara*. Where described about anatomical position of *Yakrit* as it lies below *Hrudaya* (Heart) and towards right side of the body, and it is a place for *Ranjakapitta* and derived from *Raktadhatu*. Bhavamishra is of the opinion that *Hetu*(Cause), *Samprapthi*(Pathogenesis) and *Chikitsa*(Treatment) of *Yakrit* and *Pleeharoga* are same, there are 4 types of *Pleeha roga* they are *Raktaja, Pittaja, Kaphaja*, and *Vataja*,^[15] Again *Pleodara* and *Yakritdalyodara* is explained in *Udaradikara* chapter.^[16]

Vangasena^[17]

According to *Vangasena Pleehodara* and *Yakrutodara* will share same *Nidana*(cause) *Bheda* (classification), *Chikitsa* (treatment). Classification are *Kaphaja, Raktaja Pittaja* and *vataja*, and *Tridoshaja Pleeha* is *asadhya*. But one difference is *Pleehodara Vama Parshva Vridi* takes place where as in *Yakritodara Dakshina Parshva Vridi* takes place.

Gada nigraha^[18]

Yakritodara Nidana(cause) and *Chikitsa*(treatment) is explained in *Udara Rogadikara* and also *Yakritodara Chikitsa* is explained.

Yogaratanakara^[19]

According to *Yogaratanakara Pleehodara* and *Yakritodara Nidana* (cause), *Lakshana*(features) and *Chikitsa* (treatment) are similar.

Bhela Samhita^[20]

In *Bhela Samhita* under the chapter name *Pleehahalimaka chikitsa adhyaya* the *Pleeha roga Nidana* (cause) ,*Bheda* (classification) and its *Chikitsa* (treatment) is explained a man who eats excessively meals that is *Abhishyandikaraka* (obstructing) and doing *Vyayama* (physical exercise) after *Langhana*(fasting) or *Virecana*(purgation) or who runs fast immediately after eating or drinking water or because of his perplexity as a result of rapid riding on the bare back of animals(such as horses and elephants) or of swimming or faulty *Snehana* and for those who are afflicted with other diseases and those who have weak bodies the spleen gets much enlarged from its normal place . 4 types of *Pleeha roga*

are mentioned they are *Vataja Pittaja Kaphaja* and *Sannipataja, Sadhyasdyata* of *Pleehodara* is also mentioned.

Bhaisajya Ratnavali^[21]

Pleehodara Chikitsa is mentioned as *Snehanan, Swedana, Raktamokshana* in left mid arm and right mid arm for *Yakritodara*.

Chakradatta^[22]

Yakrit Pleeha roga Chikitsa is elaborated in *Pleeha Yakrit Chikitsa Adhyaya*

Lakshanas (Features)

Almost in all context the *Pleeha roga* and *Yakrit roga* are explained together. So the *Lakshanas*(features) of *Pleehodara* can be considered as the *Yakrit Roga Lakshana*.

Acharya Bhavamishra is the first person to explain *Yakrit Roga* with its *Samanya Lakshanas* in separate chapter and also highlighted the classification of *Yakrit Roga* with *Vishistha Lakshanas*.

Samanya Lakshana of Yakrit Roga^[23]

1. *Dakshina Parshva Parivruddi* (enlargement at right hypochondric area)
2. *Atura seedati* (weight loss)
3. *Manda jwara* (low grade fever)
4. *Manda agni* (reduced agni bala)
5. *Ksheena bala* (loss of immunity and physical strength)
6. *Paandu* (anaemia)

In *Bhela Samhita* the *Pleeharoga* has been explained with its *samanya lakshanas* and classified into 4 types. *Samanya lakshanas*(General Features) of *Pleeha Roga* are *Dourbalya* (Weakness), *Anaha*(Distension), *Gaatra Sada* (Debilitated), *Aruchi*(Anorexia), *Avipaaka* (Indigestion), *Varcha Graham*(Stoppage of Stool), *Mutra Nigraha* (Stoppage of Urine), *Jwara* (Fever)^[24]

In *Bhavaprakasha Pleeha Roga* is classified into 4 types, they Are *Raktaja, Vataja, Pittaja, Sleshmaja Pleeha Roga*. In *Bhela Samhita* the *Raktaja* classification is not mentioned instead of that *Sannipataja Pleeha* is added as 4th classification.

Table 1: Dosha wise Pleeha Roga with its Lakshans according to Bhavaprakasha.

Raktaja Pleeha^[25]	Pittaja Pleeha^[26,27]	Kaphaja Pleeha^[28,29]	Vataja Pleeha^[30,31]
<i>Klama</i> (Tiredness)	<i>Jwara</i> (Fever)	<i>Manda Vyata</i> (Less Pain)	<i>Nithya mandda Koshta</i> (Persistent Enlargement Of The Abdomen)
<i>Bhrama</i> (Vertigo)	<i>Pipasa</i> (Thirst)	<i>Sthula</i> (Large Size Of Liver)	<i>Nithya Udavarta</i>
<i>Vidaha</i> (Burning Sensation)	<i>Daaha</i> (Burning Sensation)	<i>Katina</i> (Hard)	<i>Vedana</i> (Pain)
<i>Vaivarna</i> (Discoloration)	<i>Moha</i> (Stupor)	<i>Gourava</i> (Heaviness),	<i>Agni Mardava</i> (Mild Agni),
<i>Gatra Gourava</i> (Heaviness Of The Body)	<i>Peeta Gatra</i> (Yellowish Discoloration)	<i>Arochaka</i> (Loss Of Taste)	<i>Shoola</i> (Shooting Pain)
<i>Moha</i> (Stupor)	<i>Swedana</i> (Sweating)	<i>Nithyaanahita Kosthta</i> (Constant Distension Of Abdomen) <i>Bhela</i>	<i>Katina</i> (Hard),
<i>Raktodara</i> (Red Colour Over Abdomen)	<i>Teevra Vedana</i> (Acute Pain),	<i>Nithya Udavarta</i> (Continuous Flatulence)	<i>Maha Prigraha</i> (Covering a Large Space)
	<i>Sthabha Gaatra</i>	<i>Vedana</i> (Pain)	

- *Sannipatika Pleeha*

This includes the *lakshanas* of all the three *doshas* and it is incurable.

Bhela Samhita^[32]

Table 2: Dosha wise Pleeha Roga with its Lakshans according to Bhela Samhita.

Vataja Pleeha	Pittaja Pleeha	Kaphaja Pleeha	Sannipataja pleeha
<i>agnimardava</i>	<i>Jwara</i> ,	<i>Nithya anaha</i> (constantly distended)	synergic lakshanas are seen.
shooting pain	<i>Pippasa</i> (excessive thirst)	<i>nitya udavarta</i>	
<i>Pleeha</i> is hard	<i>Sweda</i> (Sweating)	<i>Nitya Vedana</i>	
covering a large space.	acute pain and colour changes to yellow, stiffness of the body		

Table 3: Dosha wise Pleeha Roga with its Lakshans according to Yogaratnakara.^[33]

<i>kaphaja</i>	<i>Pittaja</i>	<i>Vataja</i>	<i>Raktaja</i>
<i>Nirvedana</i> (painless)	<i>Jwara</i> (fever)	<i>Anaha</i> (bloating of abdomen)	<i>Klama</i> (fatigue)
<i>Shwetakatina</i> (pallar and hard)	<i>Trushna</i> (thirst)	<i>Udavarta</i>	<i>Atidhaha</i> (thirst)
<i>Mahaparighraha</i> (enlarged) <i>Sheeta</i> (cold to touch)	<i>Sweda</i> (perspiration)		<i>Samhoha</i> (altered consciousness)
	<i>Teevravedana</i> (severe pain)		<i>Vaivarnya</i> (discoloration)
	<i>Peetagatra</i> (yellowish discoloration)		<i>Gatragourav</i> (heavyness of body)
			<i>Raktodar</i> (red colour udara)
			<i>Brama</i> (giddiness)
			<i>Murcha</i> (fainting)

The clinical features of *Yakrit Vikara* of *Bhavaprakash* and *Yakritodara* of *Acharya Sushruta* are one and the same.

Table 4: Yakritodara lakshans according to Bhrihatrayi's.

	Ca .Chi ^[34]	A. H .Ni ^[35]	Su .Ni ^[36]
<i>Daurbalya</i> (weakness)	+		
<i>Yakrit Vriddi</i>	+	+	+
<i>Arocaka</i> (anorexia)	+	+	
<i>Avipaka</i> (indigestion)	+		
<i>Varcamutra Graham</i> (obstructed urine ,stool)	+		
<i>Ksheena Bala</i>			+
<i>Tamah Pravesha</i> (giddiness)	+		
<i>Pipasa</i> (thirst)	+	+	
<i>Angamarda</i> (bodyache)	+		
<i>Chardi</i> (vomiting)	+	+	
<i>Angasada</i> (looseness in body)	+		
<i>Kaasa</i> (cough)	+	+	
<i>Mrudu Jwara</i> (mild fever)	+	+	+
<i>Anaha</i> (abdominal distension)	+	+	
<i>Agninasha</i> (loss of appetite)	+		
<i>Karshya</i> (emaciation)	+		
<i>Asya Vairasya</i> (loss of taste)	+	+	
<i>Koshta Shoola</i> (pain abdomen)	+		
<i>Udaraauna Nila Harita Haridra Raaji Bhavanti Varnam</i> (appearance of venous network on abdomen)	+		
<i>Swasa</i> (dyspnea)	+	+	
<i>Admana</i> (distension)		+	
<i>Pandu</i> (Anemia)		+	+
<i>Murcha</i> (fainting)		+	
<i>Daha</i> (burning sensation)		+	
<i>Moha</i> (+	
<i>Udavarta</i>		+	
<i>Gourava</i> (heaviness)		+	

In *Astanga Sangraha*,^[37] the *Dosha* wise *Lakshanas* of *Pleehodara* is explained like *Vataja Pleehodara* is associated with *Udavarta*, *Ruk*, *Aanaha* *Adi Lakshana*, *Pittajapleodara* will have *Moha*, *Trut*, *Daaha* *Adikata*, *Kaphadika* will have *Gourava*, *Aruchi*, *Kaatinya* etc.

Halimaka- When *Pandu Rogi* shows greenish yellowish and bluish discoloration the condition is termed as *Halimaka*. It is predominantly caused by *vatapitta dosha*

and is associated with symptoms like dizziness thirst, impotency, mild fever drowsiness and decrease of strength and digestive capacity. *Vagbhata* gives the synonyms for these conditions like *Lodhara* and *Alasa*. While *Susruta* makes a separate mentioning for *Halimaka* and *Lagharaka*.^[38]

Kamala

The disease in which there is aversion of all the desire such as desire for food, desire for sex etc and yellowish discoloration of the body along with weakness is called as *kamala*.^[39]

Koshtashakasrita kamala

Haridra Netra(Yellowish Discoloration of eye), *Haridra Twak*(Yellowish Discoloration of Skin), *Haridra Nakha* (Yellowish Discoloration of Nails), *Haridra Anana* (Yellowish Discoloration of Face), *Rakta* or *Peeta Mutrata* (Yellowishness or reddish urine), *Rakta* or *Peeta Shakrit*(Stool), *Bhek Varno*(color like rainy frog), *Hata Indriya*(Altered Sensorium), *Daha*(rise in temperature), *Avipaka*(Indigestion), *Daurbalya*(Weakness), *Sadan* (Fatigue), *Aruchi* (Anorexia), *Karshan*(Weight Loss).^[40]

Shakashrita kamala

Haridra Netra(Yellowish Discoloration of eye), *Haridra Twak*(Yellowish Discoloration of Skin), *Shweta Varca* (pale stool), *Aatop*(gurgling in abdomen, *Vishtambha* (constipation), *Hrudaya Guruta* (heaviness in chest), *Daurbalya* (weakness), *Alpa Agni*(loss of appetite) *Parshva Arati*(pain in right loin region), *Hikka* (Hiccup), *Shwas* (Dyspnoea), *Aruchi* (Anorexia), *Jwara* (Fever).^[41]

Kumba kamala

Nasta Agni(Loss of Appetite), *Aruchi* (Aversion towards food), *Chhardi* (Vomiting), *Hrillasa*(Nausea), *Sarakta Chhardi*(Hematemesis), *Atisara*(Loose Motion), *Anaha*(Bloating), *Krishna shakrit* (melena), *Tama*(giddiness), *moha*(confusion) *nasta sangya*(coma), *klama*(fatigue), *Shwas*(Dyspnoea) ,*Nhi Utsaha*(Lack of Enthusiasm), *Daha* (rise in Temperature), *Trishna*(Thirst), *Strishu Aharsho*(loss of Libido), *Harit Nila Peeta*(Greenish or Bluish).^[42,43]

Lagaraka/Alasa

The *Kumbha Kamala* when associated with *Jwara* (Fever), *Angamarda*(Body Ache), *Bhrama* (Dizziness), *Sada* (Weakness), *Tandra*(Drowsiness) and *Ksaya* (Emaciation) is considered as *Lagharaka* or *Alasa*.^[44]

Panaki

It is associated with *Jwara* (fever), *Atisara*(loose stools) , *Peeta Netrata* (yellowish discoloration outside and inside and disorders of eye)^[45]

DISCUSSION

The elaborate description about *Yakrit Vikara* is not available the reason may be non prevalence of the disease at that time period, and also *Yakrit* and *Pleeha* are the *moola* for *Raktavaha Srotas* and also originated from *Rakta*, the *Ahara*(food) and *Vihara*(physical activity) which causes *Dusti of Rakta Dhatu* will also do *Dusti of Raktavaha Srotas* and its *Moola* this may be the reason for the explanation of both the diseases together.

CONCLUSION

According to the so far effort is made to compile the reference /information available about liver disease, all the available information is in scattered form. Whole hepatobiliary system diseases are included under the following heading *Pandu* , *Kamala*, *Halimaka*, *Panaki*, *Kumbakamala*, *Lagaraka*, *Yakritodara*, *Yakrit Dalodhara* , *Yakrit Vruddi* etc.

BIBLIOGRAPHY

1. https://www.researchgate.net/publication/276847792_Hepatobiliary_System
2. <https://nap.nationalacademies.org/read/1222/chapter/29>
3. Cheemerla S, Balakrishnan M. Global Epidemiology of Chronic Liver Disease. Clin Liver Dis (Hoboken), 2021 Jun 4; 17(5): 365-370. doi: 10.1002/cld.1061. PMID: 34136143; PMCID: PMC8177826.
4. Dr. Ashok Kumar Panda, & Dr. K. K. Rath. Ayurvedic treatment outcome for Chronic Liver diseases. *Journal of Ayurveda and Integrated Medical Sciences*, 2019; 4(06): 190-193. Retrieved from <https://www.jaims.in/jaims/article/view/785>
5. Vaidya Ramgopal Shastri – Vedome Ayurveda, First Edition-1953, Published by MadanMohanlal Ayurvedic Anusndhan Trust, Dilli Atharva veda-2/33/3.
6. Vaidya Ramgopal Shastri – Vedome Ayurveda, First Edition-1953, Published by Madan Mohanlal Ayurvedic Anusndhan Trust, Dilli Atharva veda-2/33/3.
7. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary By Chakrapanidatta, Edited By Jadavaji Trivikramji Acharya, Chaukhamba orientalia , Varanasi. Sutra Sthana, 2015; 18/28: 107.
8. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentary By Chakrapanidatta, Edited By Jadavaji Trivikramji Acharya, Chaukhamba Surabharati Prakashan, Varanasi., Chikitsa Sthana-13/35-38,77, 2009; 493,495.
9. Sushruta, Sushruta Samhita ,Nidana Sangraha Commentary Of Dalhan Acharya, Edited By Jadavji Trivikramji Acharya, Chaukhamba Surabharati Prakashan, Varanasi: Shareera Sthana, 2008; 10/12: 386.
10. Sushruta, Sushruta Samhita , Nidana Sangraha Commentary Of Dalhan Acharya Edited By Jadavji Trivikramji Acharya, Chaukhamba Surabharati Prakashan, Varanasi, Nidana Sthana, 2008; 7/14: 297.
11. Vrudda Vagbhata ,Astanga Sangraha with Sasilekha Sanskrit Commentary by Indu ,edited by Dr Shivprasad Sharma, Chowkhamba Sanskrit Series Office, Varanasi, Nidana Sthana, 2016; 12/12: 401.
12. Vagbhata, Ashtanga Hridaya, Sarvanga Sundari And Ayurveda Rasayani Commentary Of Arunadatta And Hemadri. Edited By Pandit Hari Sastri paradkar, Chaukhamba Surabharati Prakashan. Varanasi: Nidana Sthana, Chapter, 2016; 12/22: 515.

13. Vagbhata, Ashtanga Hridaya, Sarvanga Sundari And Ayurveda Rasayani Commentary Of Arunadatta And Hemadri. Edited By Pandit Hari Sastri Paradkar, Chaukhambha Surabharati Prakashan. Varanasi, Chikitsa Stana Chapter, 2016; 15/1-3: 693.
14. Madavakara, Madhava Nidana, Madhukosha Teeka Of Shri Vijaya Rakshita And Shri Kanta Data, Vidyotini Hindi Commentory Of Sri Sudarshan Sastri, Chaukhamba Prakashan, Varanasi, Part 2, Parishistam, Yakritroga Nidana, 2019; 1,2,3: 554.
15. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram, Madhyama Khanda and uttar khanda, Chaukhamba orientalia, Varanasi, 2010; 33/2,3: 385-386.
16. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram, Madhyama Khanda and uttar khanda, Chaukhamba orientalia, Varanasi, 2010; 41/17,18: 450.
17. Shaaligramaji Vaishya, Vangasena, Hindi Commentary, Edited By Shankar Lalji Jain Khemraj Shrikrishana Das Prakashana, Mumbai, udara rogakikara, 2008; 124: 512.
18. Sri Vaidhya Sodhala, Gadanigraha, Vidyotini Hindi Commentary Part II Kayachikitsa Khanda of Indradeva Tripathi, Edited By Ganga Pandeya, Chaukhambha Sanskrit Sansthan, Varanasi Udara Chikitsa, 1994; 133: 712.
19. Shri Lakshmipati Sastri, Yogaratnakara, Vidyotini Hindi Commentarty, Edited By Bhisagratna Brahmasankar Sastri, Chaukhambha Prakashana Varanasi, 2017; 30: 14 19: 104.
20. Bhela, Bhela Samhita, English Translation by K H Krishnamurthy, Edited by Priya Vrat Sharma, Chaukhambha Visvabharati Varanasi, 2008; 25/1-8: 458-459.
21. Govindadasa sen, Bhaishajya Ratnavali, English Translated By Dr G Prabhakar Rao, Vol II, Chaukhambha Orientalia, Varanasi, 2014; 41/1-3: 122.
22. Chakrapanidatta, Chakradatta, Vaidyaprabha Hindi Commentary Of Dr Indradeva Tripathi, Edited By Ramanath Dwivwedy, Chaukhamba Sanskrit Bhawan Varanasi, 2014; 38/1-48: 231-235.
23. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram Chaukhamba orientalia, Varanasi, Madhyama Khanda and uttar khanda, 2017; 33/3: 385.
24. Bhela, Bhela Samhita, English Translation of K H Krishnamurthy, Editor Priya Vrat Sharma, Chaukhambha Visvabharati, Varanasi, 2008; 25/9: 459.
25. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram, Chaukhamba orientalia, Varanasi, Madhyama Khanda and uttar khanda, 2017; 33/4: 385.
26. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram, Chaukhamba orientalia, Varanasi Madhyama Khanda and uttar khanda, 2017; 33/5: 385.
27. Bhela, Bhela Samhit, English Translation of K H Krishnamurthy, Editor Priya Vrat Sharma, Chaukhambha Visvabharati, Varanasi, 2008; 25/5: 458.
28. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram, Chaukhamba orientalia, Varanasi. Madhyama Khanda and uttar khanda, 2017; 33/6: 386.
29. Bhela, Bhela Samhit With English Translation by K H Krishnamurthy, Editor Priya Vrat Sharma, Chaukhambha Visvabharati, Varanasi, 2008; 25/6: 459.
30. Bhavamishra, Bhavaprakasha, commentary of Dr. Bulusu Sitaram, Chaukhamba orientalia, Varanasi, Madhyama Khanda and uttar khanda, 2017; 33/7: 386.
31. Bhela, Bhela Samhit English Translation of K H Krishnamurthy Editor Priya Vrat Sharma, Chaukhambha Visvabharati, Varanasi, 2008; 25/4: 458.
32. Bhela Bhela, Bhela Samhit, English Translation of K H Krishnamurthy, Editor Priya Vrat Sharma, Chaukhambha Visvabharati, Varanasi, 2008; 25/4-8: 458.
33. Vaidya Lakshmipati Sastri, Yogaratnakara with Vidyotini Hindi Commentary, Edited by Bramhasankar Sastri, Chaukhamba Prakashana, Varanasi, Udara Nidana, 2017; 20-24: 104-105.
34. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentory of Chakrapanidatta, Edited By Jadavaji Trivikramji Acharya, Chaukhamba orientalia, Varanasi, chikitsa Sthana, 2015; 13/38: 493.
35. Vagbhata, Ashtanga Hridaya, Sarvanga sundari and Ayurveda rasayani commentary of Arunadatta and Hemadri. Pandit Hari Sadashiv Sastri Paradkar, Chaukhambha orientalia. Varanasi, Nidana Sthana, 2017; 12/24-26: 515.
36. Sushruta, Sushruta Samhita, Nidana Sangraha Commentory Of Dalhan Acharya Edited By Jadavji Trivikramji Acharya Sutra Sthana, Chaper 7/15, Chaukhamba Orientalia, Varanasi, 2014; 297.
37. Vriddha Vagbhata, Astana Samgraha, Sasilekha Sanskrit Commentary of Indu Edited By Dr Shivprasad Sharma, Chaukhamba Sanskrit Series Office, Varanasi, 2016; 12/13-14: 401-263
38. Dr waghe's text book of roga nidana and vikruti vigyana rastra Gaurav publications Nagpur, 2019; 103.
39. Ca ci 16/35 Agnivesha, Charaka Samhita, Ayurveda Deepika Commentory By Chakrapanidatta, Edited By Jadavaji Trivikramji Acharya, Chaukhamba Surabharati Prakashan, Varanasi. Chikitsa Sthana, 2009; 16/35: 428.
40. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentory By Chakrapanidatta, Edited By Jadavaji Trivikramji Acharya, Chaukhamba orientalia Varanasi. Chikitsa Sthana, 2015; 16/124-127: 532.
41. Agnivesha, Charaka Samhita, Ayurveda Deepika Commentory By Chakrapanidatta, Edited By

- Jadavaji Trivikramji Acharya, Chaukhamba orientalia Varanasi. Chikitsa Sthana, 2015; 16/38: 428.
42. Sushruta,Sushruta Samhita , Nidana Sangraha Commentory Of Dalhan Acharya Edited By Jadavji Trivikramji Acharya, Chaukamba orientalia ,Varanasi, uttara tantra, 2014; 44/11: 730.
43. Sushruta,Sushruta Samhita , Nidana Sangraha Commentory Of Dalhan Acharya Edited By Jadavji Trivikramji Acharya, Chaukamba orientalia ,Varanasi, uttara tantra, 2014; 44/11: 730.
44. Agnivesha,Charaka Samhita,Ayurveda Deepika Commentory By Chakrapanidatta, Edited By Jadavaji Trivikramji Acharya, Chaukhamba orientalia, Varanasi. Chikitsa Sthana, 2015; 16/124: 532.