

REVIEW ARTICLE OF PITTASHMARI W.S.R TO CHOLELITHIASIS

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ABSTRACT

Cholelithiasis (gallstone development) results from a blend of a few components, including super immersion of bile with cholesterol, quickened nucleation of cholesterol monohydrate in bile, and bile balance or postponed gallbladder purging because of disabled gallbladder motility. In India it is progressively normal in ladies in north, upper east and east when contrasted with different zones in the nation. The infection Gall Stone has not been depicted straightforwardly in Ayurvedic works of art. The word Ashmari in Ayurveda represents stone which is portrayed distinctly with regards to Bastigat Ashmari (urinary calculi). In the wake of investigating the Ayurvedic writings it was discovered that the bile emitted from nerve bladder can relate to Accha Pitta referenced in Ayurveda because of the similitude in area and capacity. The pathogenesis of the sickness happens because of the irregular arrangement of Kapha during the procedure of processing and its vitiation due to Vata. The present article manages portrayal of arrangement of nerve stone from the Ayurvedic point of view. Alongside this the solution for nerve stone as per Ayurveda is likewise depicted.

Keywords: Cholelithiasis, *Pttashmari*, *Bigol*, *Shashwat*

INTRODUCTION

Ayurveda, truly outstanding and conventional human services frameworks of Indian beginning, endeavours to concentrate on comprehensive wellbeing the board, both anticipation and relieving of infirmities. It is more fit to Indian human brain science than present day social insurance framework. Cholelithiasis (gall bladder stone) is a crystalline solidification framed inside the nerve bladder by growth of bile parts. Cholelithiasis is one of the predominant and rich gastroenterological issues. It has a place with the gathering of complex metabolic ailment that influence human, and its basic pathogenic system are not all

around characterized. The predominance of cholesterol cholelithiasis in Western nations is around 10-20% and consistently 1-3% of individuals create nerve stones. An epidemiological investigation shows that in India commonness of cholelithiasis is about 4%. It is uncommon in initial two decades; Occurrence progressively increments following 20 years. It arrives at farthest in fifth and sixth epochs. A gall bladder stone fluctuates extensively in different networks in India, the North Indians having 2-4 crease higher inescapability as contrasted and those among South Indians. Ladies are influenced more than men,

and the proportion is 4:1. It is said that the gallstones are more in fat, prolific, forty and female.¹ There is no proof of *pittasaya ashmari* in the antiquated *Ayurvedic* settlements. It is clearly referred to in *Ayurveda* that putting of exact classification of a bug isn't constantly conceivable and that can be evaluated, analyzed or oversaw by savvy doctor thinking about the *Dosha*, *Dhatu*, and *mala* hypotheses. The ailment which had not been referenced in *Ayurvedic* works of art is opined by the researcher how to oversee them.² *Acharya Sushruta* explicitly demonstrates *Paneeya Kshara* in the administration of *Ashmari* and the *Kshara* because of its *ksharana* property can without much of a stretch disintegrate *Ashmari*.

Historical Review

Vedas are the most established composed tributes accessible to humanity on this planet. A lot of therapeutic uses have been identified in these bona fide writings. Be that as it may, there is no depiction of *Kshara* in Vedic writing. In *Upanishada*, the utilization of word *Kshara* is found yet nothing has been depicted in detail.

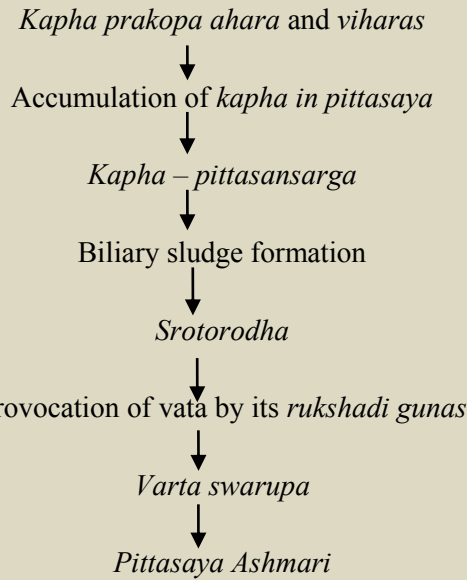
Just *Sushruta* has devoted a part to *Kshara*. He has described *Kshara* considering its extension in *Shalya Tantra* because of its characteristics like *Chhedana*, *Bhedana*, *Lekhana* and so on. Thus, in the time of *Samhita*, *Charaka* has managed definition, assortments, properties and utilization of *Kshara*. *Charaka* has referenced two sorts of *Kshara* arrangement. In first section of *Vimana sthana*, definition, general properties and unfavourable impacts of *Kshara* are mentioned. He has likewise indicated that *Kshara* doesn't have a solitary *Rasa*, however it has numerous *Rasas* in light of the fact that it is a *Dravya* arranged from different medications and comprise all *rasas* with the exception of *Amla rasa*.

Aside from that, in careful depiction likewise, *Kshara* has been referenced as "*Shastra pranidhana*" *Dalhana*, the prominent pundit of *Sushruta Samhita* clarified the word '*Ksharana*' as one which prepares and evacuates the disfigured substance, skin and so forth and furthermore expels the vitiated *Doshas* from their area.³

Causes of gall stone formation⁴

- High caloric and high fat diet
- Obesity - normal bile acid pool and secretion but increased biliary secretion of cholesterol.
- Weight loss - prolonged fasting causes gall stone formation. Mobilization of tissue cholesterol leads to increased biliary cholesterol secretion while enterohepatic circulation of bile acids is decreased.
- Female sex hormones – a. Estrogen stimulates hepatic lipoprotein receptors, increased uptake of dietary cholesterol and increased biliary cholesterol secretion. b. Natural estrogens, other estrogens and oral contraceptives lead to decreased bile salt secretion and decreased conversion of cholesterol to cholesterol esters.
- Increasing age – increased biliary secretion of cholesterol, decreased size of bile acid pool, decreased secretion of bile salt.
- Gallbladder hypo motility leading to stasis and ormatation of sludge, which is due to a. Prolonged parenteral nutrition b. Fasting c. Pregnancy d. Drug such as Otreotide
- Drug induced - Increased biliary secretion of cholesterol due to Clofibrate therapy.
- Genetic factors - as per modern science genetic factors accounted for 25%.

Probable Samprapti of Pittasaya Ashmari



Ashmari vis via Pittasaya Ashmari and its reason:

Dalhana while commenting on the *Samprapti of Ashmari*, person who does not undergo purification regularly and who indulges in unhealthy foods and activities, *kapha* gets aggravated and united with *urine* and forms *Ashmari*. *Dalhana* makes a comment that *Ashmari* will be “*Na Eka Desha*” that means *Ashmari* will not be present in only one place wherever it forms it is called as *Ashmari* only. In this context instead of combining with urine it gets combine with *pitta* with the help of *vata* it forms *Ashmari* in the *pittasaya*. So, this can be considered as *pittasaya Ashmari*. *Acharaya Susruta* explains *Ashmari* will starts forming from the childhood itself and gave the reason also. Likewise, we can correlate with the same for *pittasaya* i.e. *Alpa mukha*, *Anupachith mamsa*. Colour of the *pittasaya Ashmari* can be compared with *pittaja ahmari* in which “*Sa Raktha peetavabhasa krushna*” has been said. Where the colour of the cholesterol stones will be yellowish whereas pigmented stone will be in blackish in colour.

Probable *upadrava* can be made as from the *pittasaya mukha*----*Pittapraseka* (bile)---- *Ashayik pitta nalika* (Cystic duct) ---- *pakwashaya* ---- passes through *nutrasaya*. While considering the pathogenesis of gall stone on Ayurvedic parlance, it can be said that the *kaphaprakopaka Nidanasevan* (causative factors)

leads to accumulation of *Kapha* at first, which produces the symptoms like *Alasya* (lethargy), *Gaurav* (heaviness), *Mandoshmata* (decreased digestive fire). In *Pittashaya* (gall bladder) quantitatively accumulated *Kapha* mixes with the *Pitta* already present in it. The mixture of *Kapha* and *Pitta* in *Pittashaya* leads to the formation of viscous material (biliary sludge) causing obstruction in the passage of *Vayu*. Hence the *Vayu* gets vitiated by its *Rukshadi gunas* and converts the viscous material into dry and solid form (*Vartaswarupa*) called as *Pittashmari* (gall stone). *Dalhana* while commenting on the *Samprapti of Ashmari*, person who does not undergo purification regularly and who indulges in unhealthy foods and activities, *kapha* gets aggravated and united with urine and forms *Ashmari*. *Dalhana* makes a comment that *Ashmari* will be “*Na Eka Desha*” that means *Ashmari* will not be present in only one place wherever it forms it is called as *Ashmari* only. In this context instead of combining with urine it gets combine with *pitta* with the help of *vata* it forms *Ashmari* in the *pittasaya*. So, this can be considered as *pittasaya Ashmari*. *Acharaya Susruta* explains *Ashmari* will starts forming from the childhood itself and gave the reason also. Likewise, we can correlate with the same for *pittasaya* i.e. *Alpa mukha*, *Anupachith mamsa*. Colour of the *pittasaya Ashmari* can be compared with *pittaja ahmari* in

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Accha Pitta vis-à-vis bile:

The *Accha Pitta* generated in the second stage of digestion bears striking similarity with bile which is stored in gall bladder. Hence the gall bladder can be named as ‘*Pittashaya*’. Daily basal secretion of hepatic bile is around 500 – 600 ml.⁵ which promotes digestion and absorption of dietary fat, eliminate certain catabolites (including bilirubin), emulsify the fat soluble vitamins to enable their absorption, acts as bactericides destroying many of the microbes that may be present in the food. According to *Ayurveda*, all these functions are like *Pachan Karma* of *Accha Pitta*. Moreover, the two enzymes produced from bile viz. stercobilin and urobilin gives the normal colour to the faeces and urine respectively. This function is nothing but the *Ranjan Karma* of *Pitta* i.e. to give the *Prakrit Varna* to *Purisha* and *Mutra*. *Acharya Sushruta* has mentioned ‘*Pitavabhasata*’ as one of the symptoms of *Pittasanchaya* (accumulation of *Pitta*). *Pitavabhasata* indicates the yellowish appearance of the body which according to modern science is due to the increased secretion of bile. Hence the *Achha Pitta* can be considered as bile based on similarity in location, functions and abnormality. This *Achha Pitta* is generated from liver and stored in gall bladder; hence the gall bladder is considered as *Pittashaya*.⁶

Mechanism of gall stone formation

According to modern science there are 3 stages of gall stone formation which can be explained from *Ayurvedic* point of view as below.

Bile Super Saturation with cholesterol (*Vikrita Kaphasanchiti*)

The most important factor in gall stone formation is increased biliary secretion of cholesterol. This may occur in association with

- ✓ Obesity
- ✓ High caloric and cholesterol rich diets

- ✓ Increased hepatic uptake of cholesterol from blood⁷

Kayagni is mainly concerned with chemical processes involved in gastrointestinal digestion. Generally, digestion of food materials in the *Aamashaya* and *Pachyamanashaya* corresponds to the gastric and intestinal digestion. Special digestion relates to humoral or hormonal mechanism located in duodenal mucosae which are responsible for exciting the secretion of the digestive juices – gastric, pancreatic and hepatic – necessary for insuring intestinal digestion. This correlation will become further amplified by taking into consideration few more observations made by *Charaka*. He has made a pointed reference of digestion process as *Awasthapaka*.⁸

According to *Awasthapak*, in the first stage of digestion the food becomes *Madhura* which causes the stimulation and formation of *Kapha*. If a person having hypo function of *Kayagni* consumes more *Kaphaprakopak Ahara* then ultimately the *Kapha* production in the first stage will be more. The *Kapha* having more quantity and abnormal consistency here can be considered as *Aam Kapha* (abnormal *Kapha*). This *Aam Kapha* then mixes with the *Ahararasa* and circulates throughout the body with the help of *Vyana Vayu*.⁹

Such *Ahararasa* produces impediment (*sanga*) in the *Srotasas* due to the presence of *Aam Kapha* in it, leading to ailment. If there is *Khavaigunya* in *Pittashaya* then this *Aam kapha* gets stuck (*chaya*) in it. By virtue of this the nourishment to subsequent *Dhatu* is ceased. *Acharya Sushruta* has mentioned ‘*Mandoshmata*’ as one of the symptoms of *Kaphasanchaya* (amassing of *Kapha*). *Mandoshmata* indicates the reduced digestive function at both levels i.e. *Jatharagni* and *Dhatwagni*. So, it might indicate the impaired fat metabolism in the biliary system due to which there is saturation of cholesterol.¹⁰ Nucleation of cholesterol monohydrate with subsequent crystal retention and stone growth (*Kaphapitta sansarga*). While super saturation of bile with cholesterol is an important prerequisite for gall stone formation, it is generally not enough by itself to produce cholesterol precipitation in vivo. Most people

with super saturated bile do not develop stones because the time required for cholesterol crystals to nucleate and grow is longer than the time bile spends in the gall bladder.¹¹ As per *kalasamprapti* mentioned in Ayurvedic texts, a prolonged and abnormal second stage of digestion (*Dwitiya Avasthapaka*) accelerate the nucleation of cholesterol monohydrate crystal due to which bile spends more time in gall bladder allowing the Aam Kapha to concentrate, supersaturate and nucleate leading to the cholesterol crystal formation. In human lithogenic Bile, the nucleation of cholesterol monohydrate crystals is greatly accelerated. This acceleration of cholesterol monohydrate in bile may be due to deficiency of anti-nucleating factors. As mentioned earlier, as there is a formation of *Aam kapha* in the first stage of digestion, subsequently the second stage is also affected in which the pitta produced is unable to perform its normal functions as it comes direct in contact with *Aam kapha*. This phenomenon is somewhat like the deficiency of anti-nucleating factors and accelerated nucleation of cholesterol monohydrate crystal. Abnormal gall bladder motor function with delayed emptying and stasis (*Margavarodhajanya Vataprakopa*). A third important mechanism in cholesterol gall stone formation is gall bladder hypomotility. The stone will not be able to grow, if the gall bladder empties all super saturated or crystal containing bile. A high percentage of patients with gall stones exhibit abnormalities of gall bladder emptying. It correlates with *Vataprakopa*. At the end of second mechanism *Pittasansargita Kapha* which is in abnormal consistency is like biliary sludge. This sludge becomes obstacle in the passage of *vayu* leads its provocation. When *Vayu* gets vitiated and provoked, it produces the symptoms like *Sransa*, *Vyasa*, *Vyadha*, *Sanga* etc. In the present context of gall stone, the term *Sransa* can be taken as functional lethargy of gall bladder whereas *Vyasa* can be considered as dilatation of gall bladder leading to increased gall bladder volume. *Vyadha* and *Sanga* can be correlated with pain and obstruction causing improper emptying of gall bladder respectively. All these lead to increase in the residual volume. As

pathogenesis goes on, because of increased residual volume, *Vayu* gets provoked due to the obstruction in its passage. Hence the *Ruksha*, *Khara*, *Vishad* and *Laghu Gunas* of vitiated *Vayu* convert the sludge into *Varta swarup* (dry form) called as gall stone. Obstruction in its passage, hence the *Ruksha*, *Khara*, *Vishad* and *Laghu Gunas* of vitiated *Vayu* convert the sludge into *Varta swarup* (dry form) called as gall stone.

DISCUSSION

It is very much surprising that the malady *Pittasaya Ashmari* has not been mentioned in both *Vedic* and *Samhita kalas*. Rather than that, scattered indirect references can be seen which can be correlated. Establishment of *pittasaya* in *Ayurveda* is a challenging task where two different concepts have been used. The polemic of gallbladder in *Ayurveda* with respects to its name, structure as well as location by the different acharyas. Some of the glimpses in ancient texts are as follows.

Acharya Susruta who is known to be a Father of Surgery describes about *Ashayas* which is nothing but the potential space for the location of organs.¹² *Acharya Dalhana* while commenting it stated that *Ashayas* are nothing but the space, where the *dhatu*s are located in normal condition, and the *ashayas* facilitate them for their normal physiology.¹³ According to *Susruta*, there are *sapta Ashayas* in which *Pittasaya* is one among them.¹⁴ According to *Sharangadhara Samhita*, instead of *pittasaya* he has mentioned *agnyashaya* which is inside the *pakwashaya*.¹⁵ The exact location of *pittashaya* is quiet controversial. According to *Astanga sangraha* while describing the *garbhasaya* is situated between *pittasaya* and *pakwashaya*.¹⁶ So from the above references the location of gallbladder can be taken as *pittasaya*. There are many synonyms for gallbladder as *pittasaya*, *pittakosha*, *kloma*, *tila*. There were no tools to compare accurately so that it was given a major importance and it was explained in short. *Acharya Charaka* and *vagbhata* has included *kloma* as one among the *kostangas*. *Susruta* has mentioned that *kloma* is situated below *kalakhanda* on the right side

and it is popularly known as *tilaka*. acc. To *Adhamala kloma* is situated near the liver and it is known as *tila*. Acc. to *Kasyapa Samhita*, *kloma* is present right to the *hrudaya*. The *Accha pitta* generated in the second stage of digestion bears striking similarity with bile which is stored in gallbladder. Hence gallbladder can be named as *Pittasaya*. From the above points, we can conclude the fact presented above that the Notion of *pittasaya* is already laid in *Ayurveda*, but it is labelled morphologically with liver. So however, *kloma*, *tilaka* may be considered as gallbladder. *Kloma* would be considered along with the liver that might be the probable reason that's why it has not been mentioned separately. Acc. To *Susruta*, *Pittavabhasata* as one of the symptoms of *Pita sanchaya*. Here it indicates the yellowishness of body. Hence can be considered as a bile based on similarity in location, function, and abnormality. This *Accha pita* is generated from liver and stored in gallbladder. So that Gallbladder stores *pita* (Bile), hence the organ can be considered as *pittasaya* and stone formed can be considered as *Pittasaya Ashmari*. Another interesting factor Why *Acharya Susruta* has not consider it as a major factor is that while discussing about the *Samprapti of kukshi shoola* due to the *nidana* the aggravated *vata* invades *the agni* then the undigested food stays for long time without digestion then the patient will not feel comfort in any position, breaths with difficulty, and often has pain. So, when you compare with the pain at the hypocondric region, this *kukshi shoola* can be consider because of its symptoms. He has considered it as a pain So it might be a cause *Acharya Susruta* has not mentioned it as a major form of disease. There is no specific *nidana* has been mentioned in any *ayurvedic* texts regarding the *pittasaya Ashmari*. So, a try has been made to attempt with *doshas* related *Nidana* such as *guru anna* and *panna*, *ahita ahara* and *vihara*, *ati prayoga of kapha vrudhhi ahara* and *vihara*. Due to the *nidana sevana* the *kapha* gets accumulates first which produces symptoms like *aalsya*, *Gaurav*, *mandhoshmata*. Already there will be presence of *kapha in pittasaya*. now the mixture of *kapha* and *pitta* in the *pittasaya* leads to the formation of biliary sludge causing the

obstruction in the passage of *vayu*. Hence the *vata* gets vitiated by its *rukshadi gunas* and makes *ruksha* in the *pittasaya* and forms *vartaswarupa* which formed as *pittasaya Ashmari*.

CONCLUSION

The *Accha Pitta* can be considered as bile on the basis of similarity in location, function and abnormality. This *Accha Pitta* is generated from liver and stored in gall bladder; hence the gall bladder is considered as *Pittashaya*. The most important factor in gall stone formation is bile super saturation with cholesterol which can be correlated with *Vikrit Kaphasanchiti* in *Pittashaya* as per *Ayurveda*. The phenomenon of deficiency of anti-nucleating factors and accelerated nucleation of cholesterol monohydrate crystal is somewhat similar to *Kapha-pitta Samsarga*. The third mechanism i.e. gall bladder hypo motility can be correlated with *Margavarodhajanya Vataprakopa*.

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Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Meenakshi Verma & Anuruddha Gupta: Review Article Of Pittashmari W.S.R To Cholelithiasis. International Ayurvedic Medical Journal {online} 2020 {cited April, 2020} Available from: http://www.iamj.in/posts/images/upload/3272_3278.pdf