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Regularizing the Altered Values of Liver Function Test (LFT) by Ayurvedic Aids of Healing the Liver Disease in Relation to *Yakrit Vikara*: A Case Study

¹Acharya Manish, ^{*2}Dr. Gitika Chaudhary, ³Dr. Richa, ⁴Dr. Poonam and ⁵Dr. Tanu Rani

¹Director, Meditation Guru, Jeena Sikho Lifecare Limited, India.

^{*2}Senior Consultant, General Surgeon, BAMS, PGDIP, PGDGS, MS (Ayurveda), Jeena Sikho Lifecare Limited, India.

³Senior Research officer, BAMS, PGDIP, CICR, CAIM, CMW, Jeena Sikho Lifecare Limited, India.

⁴Consultant, BAMS, Jeena Sikho Lifecare Limited Hospital, Rohini, Delhi, India.

⁵Research Associate, BAMS, Jeena Sikho Lifecare Limited, India.

Abstract

Number of liver disease cases increasing rapidly over the years both in alcoholic and non-alcoholic people due to their unhealthy lifestyle. Liver diseases can be correlated with *Yakrit vikara* in *Ayurveda*. This presenting case study is about a 42 year old male patient had been suffering from the liver disease. He visited to Jeena Sikho Lifecare Limited Hospital, Rohini, Delhi with complains of liver disease like nausea, vomiting, bloating etc. He had brought his investigation reports which revealed abnormal values of LFT like SGOT, SGPT, Total bilirubin etc. After taking history it was understood that, he was not eating and sleeping on time properly due to his business schedule. It leads to disturbed digestion and thus it affects liver physiology. Then he underwent *Ayurvedic* therapeutics along with it he suggested for changes in diet and lifestyle. Treatment includes liver tonics and blood purifiers like tablet Liv DS, Amlapitta Nashak etc. After treatment, just within 52 days LFT readings successfully showed a drastic change in normalizing the values.

Keywords: Liver disease, *Yakrit vikara*, Nausea, Vomiting, SGOT, SGPT, Liver tonic.

Introduction

Liver is the largest gland in human body which located in the upper right quadrant [1]. It performs various function including chemical reactions, filtering the blood, detoxification, production of bile etc. It plays a key role in digestion and metabolism as well [2]. Therefore any pathogenic changes in the liver affect the metabolism and causes health issues. Liver disease comprises wide-ranging spectrum of disorders. Pathogenesis of liver includes acute and chronic conditions like viral hepatitis, liver cirrhosis, metabolic liver disease, fatty liver, ascites etc. Several types of liver disease are curable, but some are not. Liver diseases can be broadly classified in to 2 types –

- i). Alcoholic liver disease (ALD)
- ii). Non-alcoholic fatty liver disease.

Both are leading causes of chronic liver disease. It can lead to cirrhosis, liver related death and hepato-cellular carcinoma [3]. By *ayurvedic* perspective liver disorders can be compared with *Yakrit vikara*. *Sushrutacharya* gave synonyms to *Yakrit* as *Raktashya* and *Raktdhara kala* [4]. Means it is a storehouse of blood. According to *Vachaspathyam* literature *Nirukti*

(literal meaning) of *Yakrit* is be like “*Yam Sanyamam karoti iti Yakrit*” means which controls the actions (Body functions) [5]. and that’s why liver is known for controlling various functions in the body like metabolism, bile production, chemical reactions etc. *Acharya Sushruta* said that *Yakrit* (Liver) is made up of *Rakta dhatu* (Blood) during embryonic stage [6]. According to *ayurveda* liver disorders are associated with *Raktavaha srotas*. Because *Raktavaha srotasa* has 3 *moolsthanas* (root places). One of them is *Yakrit* and other two are *pleeha* (spleen) and *raktvahi dhamnya* (portal blood vessels) [7, 8]. Particularly *Pitta dosha dushti* causes *rakta dhatu dushti* and *raktavaha sroto dushti*. This *raktavaha srotodushti* again causes pathological changes in its *moolsthana* means liver, spleen plus portal blood vessels and vice versa. In *ayurveda* *Yakrit vikaras* are not mentioned specifically in *Brihat-trayis*. But *Yakrit dushti* is given in *Chikitsasthan Udar nidan adhyaya* by *Charakacharya* [9]. *Acharya Sushruta* and *Acharya Vagbhata* also mentioned the same.

Globally chronic liver diseases are contributing to significant morbidity and mortality. To prevent chronic conditions of liver early detection and line of treatment is required. This

presenting article is a case of 42 year old male patient who had been suffering from liver disease. His haematological parameters had revealed increase in SGOT (Serum Glutamic Oxaloacetic Transaminase), SGPT (Serum Glutamate Pyruvate Transaminase), total bilirubin, both direct and indirect bilirubin and a minor reduction in globulin level. *Ayurvedic* diagnosis of this case as *Yakrit vikar* was did on the basis of *ayurvedic* parameters like *Asthvidha parikshan*, *Dashvidha parikshan* etc. By *ayurvedic* intervention patient get cured just within 40 days. He got symptomatic relief and investigation values also reversed to normal.

Case Report

A male patient of age 42 years old had come to the JEENA SIKHO LIFECARE LIMITED HOSPITAL, ROHINI, DELHI, on date 13/09/2024. He was having symptoms of acidity like nausea and vomiting, abdominal discomfort due to bloating and headache. He had also complained of sometimes constipated or sometimes elevated motion. Severity of bloating was more. He also said that his sonographic reports showed the impression of fatty liver. But he did not have ultrasound reports. He was already investigated for LFT (Liver Function Test) and KFT (Kidney Function Test) on 12/09/2024. KFT report showed normal standards but LFT report showed altered values than normal as follows:

Table 1: LFT investigation 12/09/2024

Values of	Increased Value	Normal Range
Total Bilirubin	2 mg/dL	0.2 – 1.2 mg/dL
Direct Bilirubin	0.98 mg/dL	0.0 – 0.30 mg/dL
Indirect Bilirubin	1.02 mg/dL	0.2 – 1.0 mg/dL
SGOT (AST)	84.30 U/L	0 – 35 U/L
SGPT (ALT)	110.60 U/L	5 – 45 U/L
Globulin	2.42 gm/dL	2.50 – 3.5 gm/dL

History Taking

i). **Medical History:** Patient had no history of diabetes

mellitus, hypertension or any other medical history.

ii). **Family History:** No any history of genetic liver disease

iii). **Habits:** Taking 2/3 cups of tea a day

iv). **Occupation:** Business

v). **Diet History:** He was not having lunch and dinner on time due to his business schedule. He used to have *Paratha's* with butter (wheat *roti* or bread stuffed with veggies), *lassi* (curd with sugar), spicy food and vegetables etc. His schedule of eating and sleeping was not proper.

Examination of Patient

It includes general examination, *Ashtavidha parikshan* (8 fold examination) and local examination as follows:

Table 2: General examination

Parameter	Remark
Height	5.7 ft
Weight	64 kg
BP	130/70 mm Hg
Pulse	66/min

Table 3: *Ashtavidha parikshan*

Factor	Remark
<i>Nadi</i> (Pulse)	<i>Pitta Vata</i>
<i>Mala</i> (Stool)	<i>Badhata</i>
<i>Mutra</i> (Urine)	<i>Ishatpita</i> (Normal)
<i>Jivha</i> (Tongue)	<i>Saam</i> (Mild coated)
<i>Shabda</i> (Speech)	<i>Spashta</i> (Clear)
<i>Sparsh</i> (Touch)	<i>Anushna Sheet</i>
<i>Drika</i> (Eyes)	<i>Prakrita</i>
<i>Prakriti</i> (Appearance)	<i>Madhyama</i>

Local Examination: Patient had tenderness over the upper right quadrant of abdomen. His abdomen was rigid in touch due to bloating.

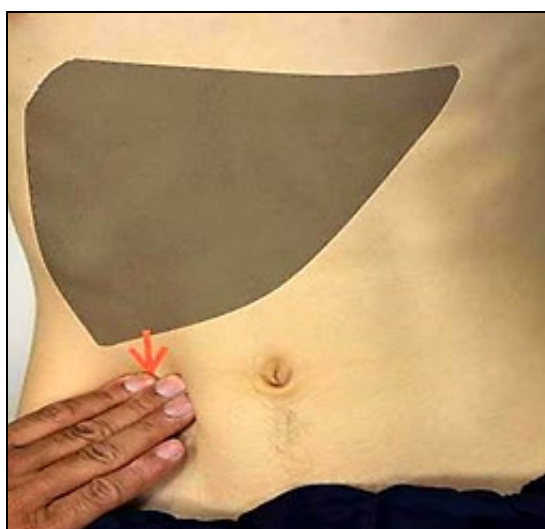


Fig 1: Palpation of liver^[10]



Fig 2: Tenderness in abdomen^[11]

After taking history and doing all examination he was diagnosed as *Yakrit vikara* (liver disease). Afterward he advised for *Ayurvedic* therapeutics including *patthya-apathya* (do's and don'ts) and diet plan. Course 1 of *ayurvedic* medicines was started on 13/09/2024. After that follow up

was taken till 04/12/2023.

Ayurvedic Chikitsa (Treatment):

Shaman aushdhi (palliative drugs) were started to the patient from day one. Courses of medicines given to the patient,

directions of their use along with dose are as follows in table no. 4

Table 4: Ayurvedic formulations

Course no. and Date	Formulations	Dose and Time
Course 1 13/09/2024	Cap. Liv DS	1 Cap BD after food (<i>Adhobhakte</i> with <i>Koshna jala</i>)
	Yakrit shothahar vati	1 Tab BD after food (<i>Adhobhakte</i> with <i>Koshna jala</i>)
	Cap. Amlapitta nashak	1 Tab BD Before food (<i>Pragbhakte</i> with <i>Koshna jala</i>)
	Syrup GIT stimulator	1 and ½ tablespoon full BD (<i>Adhobhakte</i> with <i>Samamatra Koshna jala</i>)
Course 2 04/10/2024	Cap. Liv DS	1 Cap BD after food (<i>Adhobhakte</i> with <i>Koshna jala</i>)
	Syrup GIT stimulator	1 and ½ tablespoon full BD (<i>Adhobhakte</i> with <i>Samamatra Koshna jala</i>)
	Yakrit shothahar vati	1 Tab BD after food (<i>Adhobhakte</i> with <i>Koshna jala</i>)
	Tab. Amlapitta nashak	1 Tab BD Before food (<i>Pragbhakte</i> with <i>Koshna jala</i>)
	Syp. Blood purifier	3 tsf BD (<i>Pragbhakte</i> with <i>Samamatra Koshna jala</i>)
	Tab. Alokik shakti	1 Tab BD (<i>Pragbhakte</i> with <i>Koshna jala</i>)
Course 3 No date given	Cap. Liv DS	1 Cap BD after food (<i>Adhobhakte</i> with <i>Koshna jala</i>)
	Yakrit shothahar vati	1 Tab BD after food (<i>Adhobhakte</i> with <i>Koshna jala</i>)
	Sootshekhar ras	1 Tab before food (<i>Pragbhakte</i> with <i>Koshna jala</i>)
	Syrup GIT stimulator	1 and ½ tablespoon full BD (<i>Adhobhakte</i> with <i>Samamatra Koshna jala</i>)
	Tab. Amlapitta nashak	1 Tab before food (<i>Pragbhakte</i> with <i>Koshna jala</i>)

Dietary and Lifestyle Regimens

Samanya pathya-apathya's (general do's and don'ts) were advised as shown in table number 5 to maintain normal physiology of body.

Table 5:

Pathya (Do's)	Apathya (Don'ts)
Eat properly on time	Don't have spicy food
Drink lukewarm water at morning 9.00 am	Avoid day sleeping
Wake up early and go to bed on time	Nothing to eat after 7.00 pm evening
Exercise and meditate regularly	Avoid <i>vegdhara</i> (don't suppress natural urge)
Always eat fresh and homemade food	Stay away from dairy products, junk foods
Eat all types of fruits and vegetables, Must have millet diet, <i>Mudga</i> (green gram)	Avoid <i>Masha</i> (black gram), sugar, salty and sour taste food
Always eat easy to digest food	Always avoid stale food

Together with it DIP (Discipline and Intelligent) diet schedule was suggested to him. This diet is evidence based diet which proved to reverse the disease caused by unhealthy lifestyle. [12] Quantity of fruits and salad was decided by formula as given below. This DIP diet plan is mentioned below in the image.

Quantity of fruits: Patient's weight in grams X 10 = fruits in grams

Quantity of salad: Patient's weight in grams X 5 = salad in grams

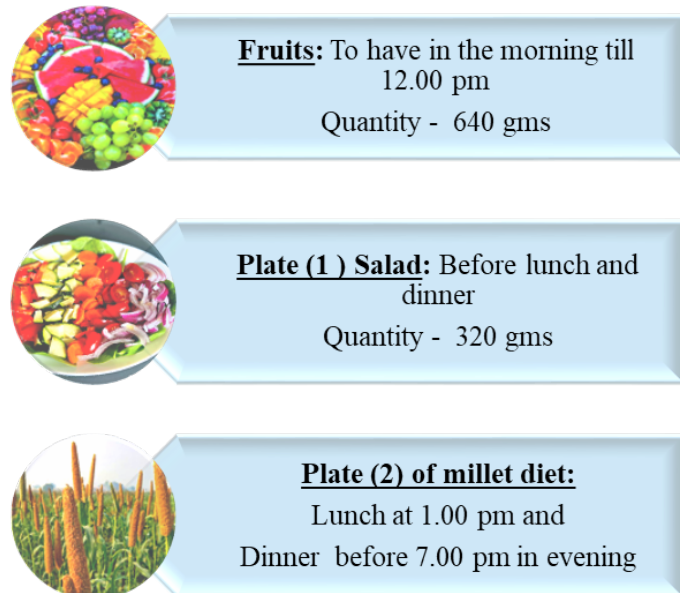


Fig 3: DIP DIET Schedule

Results

First follow up of patient had been taken after one month on date 13/10/2024. In the 1st follow up there was absence of acidity, absence of white coating over tongue. Severity of gases reduced to little extent but not completely get off. The stomach was starting to clean properly. He mentioned other complains of body ache and sometimes pain in anal region.

Second follow up of patient was done on 04/12/2024. In this follow up patient gave the information of relieving all the previous symptoms. And there were no any presence of another symptom.

Outcome: Ayurvedic management of this patient involved treating underlying cause, planning of DIP diet, following *Pathya-Apathya* (lifestyle regimen) and oral medications. It was focused on pacifying aggravated *dosh-dushya* (pathogenic factors) through formulations made up of *Dravyas* (Medicinal herbs) and *Ras oushdhi* which aids for detoxification and have *rasayan* (tonic) effect on liver. After the starting of treatment, follow up was taken and symptoms were subsiding. Altered values of LFT were reversed to normal just within 1 month of medication. Symptoms had not been subsided completely after a month but reduced to some extent. Hence treatment was continued. Subsequently there was complete remission of symptoms within 22 days of 1st follow up. Accordingly, all health issues regarding liver disease get cured in addition to haematological parameters of LFT also reversed to normal just within 52 days. Following table number 6 and 7 shows you progress in follow up and reversal of LFT values respectively –

Table 6: Progress in follow up

Sign & symptoms	1 st follow up – 13/10/2024	2 nd follow up - 04/12/2024
Acidity (nausea vomiting)	Absent	Absent
Motion	Clear	Clear
Bloating	Lesser than before but not completely declined	Absent
Local tenderness	Reduced	Absent
Other symptoms	Body ache	Body ache absent

Table 7: Reversal of LFT values

Values of	Before treatment 12/09/2024	After treatment 11/10/2024
Total Bilirubin	2 mg/dl	0.81 mg/dL
Direct Bilirubin	0.98 mg/dL	0.30 mg/dL
Indirect Bilirubin	1.02 mg/dL	0.51 mg/dL
SGOT (AST)	84.30 U/L	21.95 U/L
SGPT (ALT)	110.60 U/L	23.54 U/L
Globulin	2.42 gm/dL	2.89 gm/dL

Hematological Reports

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E-mail: sangam-xraylab@gmail.com

MR. MANOJ KUMAR
(Lab Incharge)

Name of Patient : 40 Years/Male
Age/Gender : 40 Years/Male
Referral By : Dr. SELF
Sample Type/ID : Serum/437776
Client Panel : DL322-S.SANGAM X RAY LAB
Referral By Lab : Self

Reg. No : 0012409120239
Collected On : 12-Sep-2024 04:26 PM
Received On : 12-Sep-2024 06:26 PM
Reported On : 12-Sep-2024 06:33 PM
Report Status : Final Report

BIOCHEMISTRY

Test Name Results Unit Bio.Ref.Interval

LFT, LIVER FUNCTION TESTS

BILIRUBIN TOTAL, Serum 2.0 mg/dL 0.2-1.2
BILIRUBIN (Direct) 0.98 mg/dL 0.0-0.30
BILIRUBIN (Indirect) 1.02 mg/dL 0.2-1.0
SGOT (AST), Serum 84.30 U/L 0-35
SGPT (ALT), Serum 110.60 U/L 5-45
ALKALINE PHOSPHATASE, Serum 87.30 U/L 53.0-128.0
GAMMA G.T., Serum 24.30 U/L 5.0-55.0
TOTAL PROTEIN, Serum 7.02 g/dL 6.4-8.3
ALBUMIN, Serum 4.6 g/dL 3.5-5.2
Globulin 2.42 g/dL 2.50 - 3.5
A/G Ratio, Serum 1.50 Ratio 1.0 - 2.3
AST/ALT Ratio, Serum 0.76 Ratio 0-5

CLINICAL COMMENT:
People with acute Hepatitis often have very high levels of ALT, while those with chronic have moderately raised ALT. ALT is the best test for detecting hepatitis. People with liver, heart and other muscles in the body. When liver, heart or muscles are damaged they release ALT into the blood. High ALT levels are found mainly in the liver and can be used to confirm results if you have high ALP levels. Both ALP and GGT are higher when there is liver or biliary disease. ALP is found in the liver and bones. If ALP levels are increased and levels of some of the other LFT substances are high it can be assumed that liver disease is present. TOTAL PROTEIN measure albumin and all other proteins in blood. Including antibodies made to help fight disease. ALP is coming from the liver. TOTAL PROTEIN measure albumin and all other proteins in blood. Including antibodies made to help fight disease. ALBUMIN is the main protein made by the liver and low levels may mean the liver is damaged or the albumin is being lost through damage to kidneys. Reference ranges are from Tietz fundamental of clinical chemistry 8th ed (2000). Reference ranges may be altered in laboratory. Note: The result obtained relate only to the sample given/ received & tested. A single test result is not always indicative of a disease, it is to be correlated with clinical data for interpretation.

*** End Of Report ***

DR. ANSHU KUMAR SINGH
MD, in Microbiology

Report 1: Before treatment

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Road, Bhitoli Ind. Area, Delhi-110016

LAB REPORT

NATIONALITY: Indian
Registered ON: 11/Oct/2024 02:04PM
Sample Collected AT: DL723 ORGANIC DIAGNOSTIC
Sample Coll. Date: 11/Oct/2024 02:07PM
Gender: Male
Dr. Self
Receiving ON: 11/Oct/2024 07:57PM
Reported ON: 11/Oct/2024 03:27PM

Age: 42 Y
After Doctor: Dr. Self

Test Name RESULT UNIT REF. RANGE

Liver Function Test (LFT) - Serum

Bilirubin Total 0.81 mg/dL 0.1-1.2
BILIRUBIN, DIRECT 0.30 mg/dL <0.3
Bilirubin, Indirect 0.51 mg/dL 0-0.9
SERUM PROTEINS
Total Protein 7.50 g/dL 5.70 - 8.20
Albumin 4.61 gm/dL 3.2-5.5
Globulin 2.89 gm/dL 2.5-3.4
A/G Ratio 1.60 Ratio 0.9-2.0
SGOT (AST) 21.95 U/L 0-45
SGPT (ALT) 23.54 U/L 0-49
ALP (Kinetic Method) 100.4 U/L 30-120
Gamma Glutamyl Transferase (GGT) 24 U/L 0.0-60.0

*** End Of Report ***

DR. NISHITHA KUMAR

Report 2: After treatment

Discussion

As seen in introduction this article is all about liver disease that means *Yakrit vikara* in *ayurveda*. Liver diseases are easy to treat if diagnosed early. But for this precise diagnosis of disease and identifying exact pathological factors is vital. In this patient haematological parameter's like SGOT, SGPT, Total bilirubin, direct bilirubin and indirect bilirubin were in excess of normal range. Also globulin, a type protein also

showed a little decrease in value than normal. This altered LFT parameters are not indicative of only liver disease. There are so many conditions in which these parameters get altered. So it is necessary to diagnose the disease accurately by taking proper history, examining the patient well and observing all the symptoms. Appropriate analysis of disease helps to treat the disease fruitfully as early as possible.

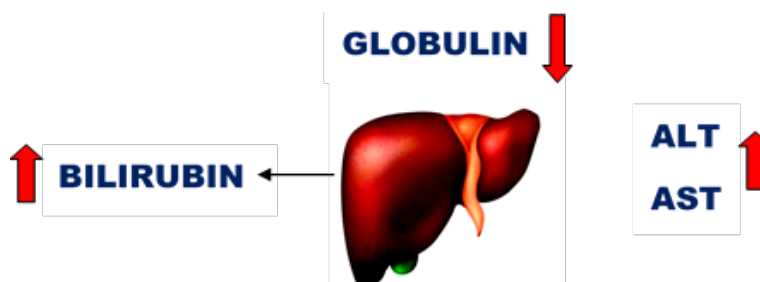
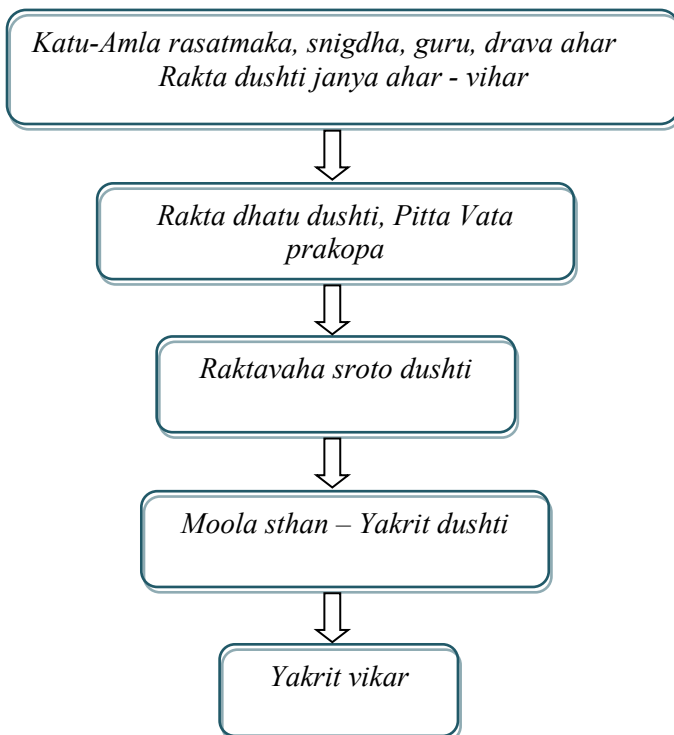


Fig 4: LFT altered factors

Diagnosis of Liver Disease or Yakrit Vikara:

There can be so many reasons in elevating SGOT and SGPT levels like alcohol consumption, diabetes, some medications, gall bladder inflammation, liver disease etc. Likewise raised levels of bilirubin in the blood can be caused by number of conditions like liver disease, hemolytic anemia, gallstones, etc. Low globulin levels can indicate a number of health issues such as kidney disease, inflammatory bowel disease, anemia, liver disease, malnutrition etc. This male patient had no history of alcoholism. Also he did not have any medical history like diabetes, hypertension etc. He had symptoms of nausea, vomiting, abdominal discomfort, bloating and headache. On local examination it was observed that he had tenderness in the right upper quadrant of abdomen where liver locates. After seeing *asthvidha parikshan* it was concluded that his digestion and metabolism is disturbed. Because his tongue showed a white coating which is called as *Sama jivha* and it is a sign of disturbed digestion. Along with it he had unclear and/or elevated motions. These all symptoms and finding are of the first day when he visited to the hospital. Following the all sign and symptoms together with LFT parameters this case was diagnosed as Liver disease (*Yakrit vikara*).

Raktavaha srotodushti occurs due to *rakta-pitta dushti janya aahar vihar*. It is mentioned in *Charak samhita* like intake of *Vidahi anna panani* (food & drinks having hot potency), *Snigdha* (oily), *Ushna* (hot), *Drava* (liquid) food consumption along with exposure to *Aatap* (sunlight) and *anal* (fire) [13]. *Samprapti* (how disease progresses) occurred in this case of diagnosis is as follows:

**Ayurvedic Therapeutics:**

Patient was treated through studying LFT values, symptoms, lifestyle and chiefly *Samprapti ghatak* (vitiation factors) contributed in *Yakrit vikara*. SGOT and SGPT are blood tests that measure the levels of AST (Aspartate aminotransferase) and ALT (Alanine aminotransferase) enzymes respectively which found in liver cells. These enzymes are released into the blood stream when liver cells are damaged or inflamed. Higher levels of bilirubin blood may mean that liver is not

clearing bilirubin properly. Liver makes a protein globulin. Low levels of globulin may increase the risk of infections and other diseases. Because globulins performs many important functions like fighting infection, blood clotting, transporting nutrients also plays a key role in liver and kidney functions. These all changes in the blood lead to symptoms of nausea, vomiting, weakness etc. Tenderness in the upper right quadrant of abdomen is may be due to inflamed liver. Liver cell damage also causes disturbed digestion as it plays a significant role in digestion and metabolism. It again leads to acidity, disturbed bowel and bloating.

As mentioned in *Samprapti* this case involves vitiation of *Pitta –vata dosha* and *rakta dhatu* (blood). Then it causes harm to *moolasthan* of *Raktavaha srotas* i.e. *Yakrit* (liver). So the choice of herbal preparations was based on all the above criteria. But at the start treatment should be started with *Nidan parivarjana* (quit etiological factors) [14]. In the perspective of *ayurveda* avoiding of etiological factors is the primary and most imperative step. Thus the focus of treatment in this case was be like –

- i). **Nidan Parivarjana:** patient was told to quit all the things due to which he had vitiation of *dosh dushya*. And those things were like unhealthy lifestyle, not having food on time, eating spicy and oily food, no proper time of sleeping. These all things were quitted by the patient.
- ii). **Samprapti Bhanga:** it means breaking of pathogenic process. For this *pittashamak* (antacids), *pitta shodhak* (bile purifier) and *rakta dushti nashak* (blood purifiers) medicines were administered.
- iii). **Drugs Which Help to Remove Raktavaha Srotas Dushti:** for this *vata dosha* pacifying formulations were given. Because *srotas* are defined as channels which originates from vacant spaces (hollow organs) spread throughout the body and purveys material to body parts [15]. *Acharya charaka* mentioned *prakrit karma* of *vata dosha* in *Vata kalakaliya adhyaya* of *Sutrasthana* [16]. He mentioned that *prakrit Vata dosha* sustains all functioning of body (“*Vayuhu Tantra Yantra Dharah*”) and it forms and regulates all the minute & large body channels (“*Sthulaanu Srotasam Bhetta*”). So to regulate liver function on cellular level regulation *Vata dosha* is essential. For this *anulomak aushadhi* were given.
- iv). **Rasayan Chikitsa:** here *yakrit balya aushadhi* were prescribed. Means the drugs which acts as liver tonic.

On the basis of all these things *ayurvedic* preparations were prescribed. Along with this, these formulations possesses *Deepan* (boosts appetite) and *Pachan* (proper digestion and metabolism) properties which is needed in the liver disease. Following are the prescribed *ayurvedic* formulations mentioned with their ingredients and indications.

1. Cap. Liv DS

Ingredients: *Bhumyamalki* (*Phyllanthus niruri*), *Kasmard* (*Cassia occidentalis*), *Hinsra* (*Capparis sepiaria*), *Punarnava* (*Boerhavia diffusa*), *Guduchi* (*Tinospora cordifolia*), *Kakmachi* (*Solanum nigrum*), *Arjun* (*Terminalia arjuna*), *Zabuk* (*Tamarix gallica*), *Vidang* (*Embelia ribes*), *Chitrak* (*Plumbago zeylanica*), *Kutaki* (*Picrorhiza kurrooa*), *Haritaki* (*Terminalia chebula*), *Bhringraj* (*Eclipta prostrata*)

Indications: Liver disease, GIT, GERD, loss of appetite

2. Yakrit Shothahar Vati

Ingredients: *Punarnava* (*Boerhavia diffusa*), *Marich* (*Piper nigrum*), *Pippali* (*Piper nigrum*), *Vidang* (*Embelia ribes*),

Devdaru (*Cidrus deodara*), Kushtha (*Saussurea lappa*), Haridra (*Curcuma longa*), Chitrak (*Plumbago zeylanica*), Haritaki (*Terminalia chebula*), Bibhitaki (*Terminalia bellirica*), Aamalki (*Emblica officinalis*), Danti (*Baliospermum montanum*), Chavya (*Piper retrofractum*), Indrayava (seeds of *Holarrhena antidysenterica*), Pippali mula (root of *Piper longum*), Musta (*Cyperus rotundus*), Krushn jeerak (*Carum carvi*), Kayphal, Kutaki (*Picrorhiza kurroa*), Trivruttha (*Operculina turpethum*), Shunthi (*Zingiber officinale*), Karkatshringi (*Pistacia integerrima*), Ajmoda (*Apium graveolens*), Mandoor bhasma

Indications: Liver dysfunction, spleen disease, anti-inflammatory, renal dysfunction, jaundice, liver failure, diuretic, oedema, anemia

3. Cap. Amlapitta Nashak

Ingredients: Yashtimadhu (*Glycerriza glabra*), Pudina (Mint leaves), Hingu (*ferula asfoetida*), Chitrak (*Plumbago zeylanica*), Jeerak (*Cuminum cyminum*), Vidang (*Embelia ribes*), Ajmoda (*Apium graveolens*), Marich (*Piper nigrum*), Pippali (*Piper longum*), Shunthi (*Zingiber officinale*), Aamalki (*Emblica officinalis*), Bibhitaki (*Terminalia bellirica*), Haritaki (*Terminalia chebula*), Shankh bhasma

Bhavna Dravyas: Yashtimadhu (*Glycerriza glabra*), Vidang (*Embelia ribes*), Marich (*Piper nigrum*), Shunthi (*Zingiber officinale*), Lavang (*Syzygium aromaticum*)

Indications: Indigestion, acidity, abdominal discomfort, nausea, vomiting

4. Syrup G1T Stimulator

Ingredients: Kutaj (*Holarrhena antidysenterica*), Ushir (*Vetiveria zizanioides*), Draksha (*Vitis vinifera*), Moha (*Madhuca longifolia*), Maricha (*Piper nigrum*), Chavya (*Piper retrofractum*), Haridra (*Curcuma longa*), Chitrak (*plumbago zeylanicum*), Musta (*Cyperus rotundus*), Vidanga (*Embelia ribes*), Puga, Lodhra (*Symplocos racemosa*), Patha, Amalki (*Emblica officinalis*), Chandan (*Santalum album*), Kushtha (*Saussurea lappa*), Lavang (*Syzygium aromaticum*), Tagar (*Valeriana wallichii*), Jatamansi (*Nordostachys jatamansi*), Twak (*Cinnamomum zeylanicum*), Bruhat Ela (Black cardamom), Tejpatra (*Cinnamomum tamala*), Priyangu (*Callicarpa macrophylla*), Nagkehsar (*Mesua ferra*), Gambhari (*Gmelina arborea*), Trivruttha (*Operculina turpethum*), Manjishtha (*Rubia cordifolia*), Yavasa (*Alhagi camelorum*), Kirattikta (*Swertia chirayta*), Vata twak (*Ficus bengalensis* bark), Udumbar (*Ficus hispida*), Shati (*Curcuma zedoaria*), Patola patra (*Trichosanthes dioica* leaves), Kanchanar (*Bauhania variegeta*), Madhu (Honey)

Indications: Indigestion, liver disease, GERD, acidity

5. Tab. Alokik Shakti

Ingredients: Keshar (*Crocus sativus*), Loha bhashma, Shudhdha Kuchala (*Strychnos nux-vomica*), Swarna makshik bhasma, Aswgandha (*Withania somnifera*), Mukta bhasma, Shukti bhasma, Shatavari (*Asparagus racemosus*), Shankhapushpi, Pippali (*Piper longum*), Erandkarkati (*Carica papaya*), Tulsi (*Ocimum sanctum*), Pudina (Mint leaves), Lavang (*Zeylanicum aromaticum*), Twak (*Cinnamomum zeylanicum*), Patra (*Cinnamomum tamal*), Laghu Ela, Shunthi (*Zingiber officinale*), Bruhat ela (black cardamom), Haridra (*Curcuma longa*), Ajmoda (*Apium graveolens*)

Indications: Anemia, immunity booster, medhya, Dhatu kshaya

6. Blood Purifier

Ingredients: Khadir (*Acacia catechu*), Bakuchi (*Psoralea corylifolia*), Devdaru (*Cidrus deodara*), Haridra (*Curcuma longa*), Darvi (*Berberis aristata*), Triphala (*Terminalia chebula*, *Terminalia bellirica*, *Emblica officinalis*), Manjistha (*Rubia cordifolia*), Sariva (*Hemedesmus indicus*), Amragandhi haridra (*Curcuma amada*), Kutaki (*Picrorhiza kurroa*), Kirattikta (*Swertia chirayta*), Dhamasa (*Fagonia indica*)

Indications: skin disease, itching, rashes, intestinal worms, leprosy, acne.

Mode of Action According to Modern Point of View:

Above mention herbal hepato-protective preparations have properties like hepatocellular regeneration, anti-oxidant, enzyme and metabolic correction, digestion regulating, immune-modulating, anti-inflammatory, anti-pyretic action.

- As studied earlier AST and ALT enzymes leak out in blood stream when there is liver injury or inflammation. Many herbs in the above formulations have wound healing and anti-inflammatory properties that helps to repair liver cell damage. For example *Aamalki*, *Haritaki*, *Arjuna*, *Udumber*, *Yashtimadhu* etc.
- Bilirubin levels increases when the liver is inflamed or when body has more toxins. To excrete toxins liver excretes more bilirubin to detoxify the body. *Guduchi*, *Bhringraj*, *Kutaki*, *Trivruttha*, *Haridra* etc. herbs detoxify the body. These herbs also help to lower the lipid level.
- Liver tonics are needed to repair and rejuvenate the liver cells. *Aamalki*, *Bibhitaki*, *Haritaki*, *Guduchi*, *Yashtimadhu*, *Pippali*, *Jeeraka* etc are some liver tonic herbs.
- Blood purifiers are useful to detoxify the blood and reduce the overload of liver. This group includes *Shunthi*, *Chandan*, *Ushira*, *Vidanga*, *Devdaru*, *Kushth* etc.
- Drugs which boost appetite and regulate digestion are included in the formulations because liver disease disturbs the digestion and metabolism. For this *Musta*, *Maricha*, *Pippali*, *Shunthi*, *Chavya*, *Chitrak*, *Bhumyamalki* etc. herbs are useful.
- When unhealthy liver reverses to its normal condition, globulin production also increases to normal.

Further Scope of Study

To a greater extent data collection of various acute and chronic conditions of liver disease with *ayurvedic* treatment is needed to give evidence based data. This verified data will be helpful for all to deal with liver disease on global level.

Conclusion

The outcome of this case highlights that early and accurate diagnosis, adoption of a healthy lifestyle, and timely administration of appropriate *Ayurvedic* formulations can effectively reverse liver dysfunction within a short period of time. The therapeutic response was evident both clinically and biochemically.

Subjectively, the patient showed a progressive decline in gastrointestinal and systemic complaints. By the first follow-up (13/10/2024), acidity and nausea/vomiting had subsided, bowel movements became clear, bloating was markedly reduced, and local tenderness lessened. By the second follow-up (04/12/2024), bloating and tenderness had completely disappeared, and body ache was also absent, indicating near-complete resolution of symptoms.

Objectively, liver function tests also normalized within a month of treatment. Total Bilirubin reduced from 2 mg/dL to 0.81 mg/dL, Direct Bilirubin from 0.98 mg/dL to 0.30 mg/dL, Indirect Bilirubin from 1.02 mg/dL to 0.51 mg/dL, SGOT (AST) from 84.30 U/L to 21.95 U/L, SGPT (ALT) from 110.60 U/L to 23.54 U/L, while Globulin levels improved from 2.42 gm/dL to 2.89 gm/dL.

These results strongly suggest that *Ayurvedic* therapeutics possess significant potential to restore liver health by reversing both symptoms and hematological parameters rapidly, safely, and affordably without adverse effects. Moreover, such interventions play a crucial role in preventing the progression of acute liver dysfunction into chronic liver disease, thereby ensuring long-term hepatoprotection.

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