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## **Effect of Exercise and Restricted Diet in Alcoholic Fatty Liver A Case Study**

### **Case Study**

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### **Abstract**

The incidence of patients with fatty liver has recently increased in India, due to increase in over use of alcohol intake, fatty diet with no exercise. Fatty liver may occasionally progress to liver cirrhosis. In this study, I Have studied the effects of restricted diet and exercise versus no treatment in-patient with fatty liver. A fourty two-year-old male patient was having alcoholic fatty liver. He was having only pain and tightness in the right hypochondriac region, with no other symptoms like nausea, vomiting weight loss, fatigue etc. On examination, liver was two fingers palpable with mild tenderness. On ultrasound imagination, he was diagnosed as Fatty liver- grade IInd. Liver biochemical tests such as aminotranseferase were normal. A detailed history according to Ayurvedic method was taken. Patient was having history of drinking alcohol 180 ml per week from last ten years with non-veg food once a week and no heavy physical activity. Patient is a lab technician. Patient followed a program of restricted diet and morning exercise (fast walking three kilometers per day) for a trial period of 3 months. Oily food, non-vegeterian food like red meat was avoided. Drinking alcohol was stopped completely. After three months, on examination liver was not palpable, no tenderness. Ultrasound report showed normal liver. Means there is no fatty liver, Grade IInd. Results indicate that restricted diet as oily food, meat containing fat, etc. and exercise therapy, such as walking, are useful means of improving liver tissues related to fatty liver.

**Key words:** *Exercise, diet, Alcohol, fatty liver, Restriction*

### **Introduction:-**

Liver is the largest gland in the human body. It performs multiple functions, one of which is the metabolism (processing) of fats, carbohydrates, proteins and minerals received through food. (4)

What is mean by fatty liver disease?

Fatty liver disease is a condition in which excess fat accumulates in the liver. When a fat deposition is more than 5% - 10% of the liver weight. Fatty liver by

itself is a benign condition and may cause no harm. However when the fat constitutes more than 10% of the liver's weight then problems can occur & it has an adverse effect on overall health. Excess fat causes liver inflammation and damages liver cells.

The number of patients with fatty liver has increased in India, due to increase in over use of alcohol intake, fatty diet, sedentary life style (no exercise), etc.

Fatty liver may occasionally progress to liver cirrhosis. (3)

In this study, I Have studied the effects of restricted diet and exercise versus no treatment in-patient with fatty liver.

Fatty liver is not described in ayurveda only Ekrutdalyuder is described as type of udararoga. But its causes are similar to Medovaha srotus dusti.

*Avyayamadivaswanamedhyanam  
chatibhakshanat |  
Medovahini dushyanti varunyachati  
sevanat || Cha.vi,5/16 ( 1)*

#### **Causes of Fatty Liver (4)**

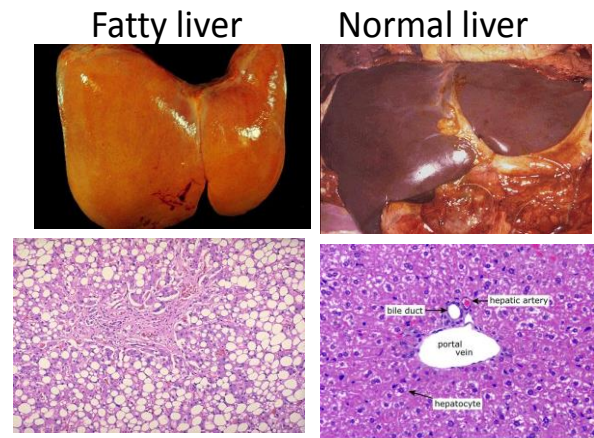
##### **Causes of Alcoholic Fatty liver**

- Obesity, unhealthy diet and consuming alcohol regularly in moderate or heavy amounts increases the risk for FLD. It can even occur after a short period of heavy drinking (acute alcoholic liver disease).
- Other factors that may influence chances of developing alcoholic fatty liver disease include:
- Hepatitis C (which can lead to liver inflammation)
- An overload of iron
- Obesity
- Diet, etc.

##### **Causes of Nonalcoholic fatty liver disease (4)**

- Over-weight or obese
- Viral hepatitis
- Iron over load
- Medications
- Rapid weight loss
- Starvation /re-feeding syndrome
- Reye's syndrome
- Auto-immune disease
- Malnutrition
- Overgrowth of bacteria in small intestines

- Acute fatty liver of pregnancy
- Hereditary
- Lack of physical activity
- Diabetes Mellitus
- Hepatotoxins (Chloroform, poisons)
- Chronic illness (tuberculosis)



**Image 1: Fatty Liver & Normal Liver**

##### **Pathogenesis of Alcoholic Fatty liver:-**

Alcohol contains mainly ethanol, it is oxidized into acetaldehyde in the presence of alcohol dehydrogenase enzyme in the gastric mucosa. Acetaldehyde converted into acetic acid to acetate. Large amount of fatty acids is synthesised from acetate in the liver cells. This excess produced fat is deposited in the liver, which is called as 'Fatty Liver'. On the other hand, the rate at which fat gets broken down in the liver can also slow down causing fatty cells to bulid up. (4)

##### **Ayurvedic Pathogenesis:-**

The qualities of alcohol are laghu (light), ushna (hot), tikshna (sharp), suksma (subtle), amla (sour), vyavaye (pervading all of the body), aasukari (swift), ruksha (rough), vikasi (expansive), and visada (drying). All these qualities are the opposite to qualities of Ojas. Ayurveda makes clear that alcohol quickly and easily reaches the liver. Alcohol vitiates Pitta in the liver. Vitiated Pitta

makes Sthanvaigunya in the liver. So the Medodhatwagni is decreased due to that excessive abnormal medodhatu is produced & accumulated in the liver. (1)

#### **Types of Liver Disease (4)**

There are two types of Fatty Liver Disease –

- 1) Alcoholic Liver Disease (ALD)- caused by alcohol abuse
- 2) Non-Alcoholic Liver Disease (NAFLD) in non-alcoholics

#### **Grades of Fatty Liver:- (5)**

There are three grades of fatty liver.

- Grade - I when the echogenicity is just increased.
- Grade – II when the echogenic liver obscures the echogenic walls of portal vein branches.
- Grade - III when the echogenic liver obscures the diaphragmatic outline

If the patient avoids a drinking of excessive alcohol and fatty diet, then Fatty liver is reversible conditions. If it is, continued liver cells damaged and produce fibrous tissue results into cirrhosis.

#### **Materials and Methods:-**

It is a single case observational study. A forty two-year-old male patient was having alcoholic fatty liver. He was having pain and tightness in the right hypochondriac region, with no other symptoms like nausea, vomiting weight loss, fatigue etc. On examination, liver was two fingers palpable with mild tenderness.

On ultrasound examination, he was diagnosed as Fatty liver- Grade- IInd. Liver biochemical tests such as amino transeferase were normal.

A detail history according to Ayurvedic method was taken. Patient was having history of drinking alcohol 180 ml per week from last ten years with non-vegetarian food once a week and no heavy physical activity. Patient has central obesity .Patient is a lab technician.

#### **Exercise & Diet Restrictions:-**

Patient followed a program of morning exercise (fast walking three kilometers per day) for a trial period of 3 months. Oily food, non-vegetarian food (red meat) was avoided. Alcohol drinking was completely stopped. According to Ayurveda, Nidanparivarjana is suggested in this patient.

#### **Inclusion criteria:**

Patient of Alcoholic Fatty Liver of age between 20 to 60 years of male & female gender

#### **Exclusion criteria:**

Patient of nonalcoholic fatty liver, hereditary history, age below 20 & above 60 years.

#### **Results:-**

After three months, on examination, Liver was not palpable; there was no tenderness in right hypochondriac region.

Ultrasound report showed normal liver. It means there is no fatty liver in the patient

**Image 2:** Sonographic picture of Fatty Liver before treatment & after Treatment  
Normal Liver

Before Study- Fatty Liver



After study - Normal



#### Discussion:

Exercise increases Jatharagni (Fire in the stomach) as well as Medodhatvagni (Fat metabolizing Fire), so the Medadhatu (Fat) is metabolized properly & converted in to Mansadhatu (muscle). (Triglycerides are converted into lipoprotein.)

Due to restriction of fatty food, there is control on excessive medadhatu (Fat) formation.

According to Ayurveda Nidan parivarjan of fatty food & alcohol is done in this patient. Due to Nidan parivarjan (restriction of cause of disease) Fatty liver is converted into normal liver.

Weight loss is the most effective way to cure a fatty liver. Physical activity

is an additional key factor to burn the fat in the body and liver, as it replaces the fats with muscles.

Thus, Nidan-Parivarjan plays an important role in preventing as well as treating the disease.

#### Conclusions:-

Results indicate that restricted diet like oily food, meat containing fat etc. and exercise therapy, such as walking are useful means of improving liver tissues related to fatty liver.

#### References

1. Rajeshwar datta shastri, Yedunandan Upadhyaya, Charak Samhita,,Chaukhambha bharati academy,Varanasi,reprint2001,713p
2. Yedunandan Upadhyaya, Madhavan Nidanam, Chaukhambha Sanskrit San,Varanasi 28<sup>th</sup> edition.2056,38p
3. World Health Organization (2004). Global Status Report on Alcohol 2004. Geneva. ISBN 92-4-156272-2.
4. Harsh Mohan, Text book of Pathology, 5<sup>th</sup> ed, Jaypee brothers,2005,44,45p
5. J.B .Walter & I.C Talbot,General pathology,7<sup>th</sup> ed,Elsevier.2011,churchil livingstone, an imprint of Elsevier,89-90p
6. Anthony S.Fauci, DennisL Harrison's Principles of internal Medicine,17<sup>th</sup> ed,Graw Hill Medical, 2008,1973,1982p

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