



Fatty Liver

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Fatty liver, also known as "NASH" or non-alcoholic steatohepatitis (STEE-ah-toe-heppa-tight-is), is a condition in which increased fat cells are present in the liver. The fat cells within the liver may cause inflammation, or may be present without any inflammation. If inflammation occurs, scarring (fibrosis) and even cirrhosis may occur. Fatty liver is not necessarily a disease, unless inflammation occurs with the fat. Limited treatment options exist for reduction of fat within the liver.

What is fatty liver?

Fatty liver is an increased accumulation of fat within the liver. These fat cells nestle between the liver cells, and at times break open and cause irritation to the liver cells. The amount of irritation in the liver can lead in some few cases to scarring of the liver. This can rarely lead to cirrhosis of the liver over time.

Why the liver accumulates fat is largely unknown. It occurs in women more often than in men, and may be associated with various medical conditions.

What diseases can be associated with fatty liver?

Many medical conditions can be accompanied by fatty liver. The most common cause of increased fat within the liver is from drinking alcohol. If fatty liver is detected, all alcohol, even modest social drinking, should be avoided.

NASH, or non-alcoholic steatohepatitis, is found most commonly in people who are obese, but 51% of people with NASH are not grossly overweight.

Other causes of fatty liver include use of medication such as steroids (prednisone), tetracycline, amiodarone for heart rhythm disturbances, and tamoxifen for breast cancer. Environmental toxins such as carbon tetrachloride and organophosphates, found in industrial sites and pesticides respectively, may cause fatty liver.

Low thyroid function, known as hypothyroidism, can lead to increased storage of fat within the liver. Some people with elevated cholesterol can also have increased fat within the liver. Diabetes, both the kind requiring insulin and the kind with diet or oral medication control is a common cause of fatty liver.

Although obesity causes fatty liver, malnutrition and starvation due to a diet low in protein with inadequate carbohydrate intake can also cause a fat accumulation within the liver.

It is important when evaluating fatty liver to exclude alcohol ingestion as a cause. The person with fatty liver must also have no positive blood tests suggesting a different liver disease, such as viral Hepatitis B or C, or autoimmune hepatitis, in which the immune system cause damage to the liver. These causes of fat within the liver have specific treatment available to decrease the inflammation.

What are the symptoms of fatty liver?

People with NASH are usually asymptomatic, as in this process fat accumulates slowly within the liver. This slow increase does not cause pain, nor does the condition cause jaundice (a yellowing of the eyes and skin), pruritus (a generalized itching) or signs of liver disease.

On very rare occasions does a person have more rapid accumulation of fat, causing the liver to expand and swell, and stretch the outside fibrous covering (capsule) of the liver. When the capsule stretches, pain occurs. Although the liver itself has no nerves, the overlying capsule has nerves sensitive to stretch.

How is fatty liver diagnosed?

Commonly, people have a routine physical examination have liver blood tests drawn, which may reveal increased liver enzymes. Liver tests such as SGOT (also report as AST) and SGPT (or ALT) measure levels of enzymes made by the liver to help it carry out one of its crucial functions in clearing toxins. These liver enzymes are released when liver cells die, and all people have a low level of these enzymes in their bloodstreams at all times as the liver cells naturally die and the liver regenerates.

However in any liver condition which causes irritation and increased liver cell death, the blood levels of liver enzymes become elevated over normal values. If these liver tests remain elevated for greater than six months at a time, further evaluation is needed. Liver biopsy is often required after additional blood testing.

Increased fat within the liver can also be seen on various x-ray studies. CT scan, MRI scan, or ultrasound can all show an increased amount of fat within the liver. However, these scans cannot determine the amount of inflammation within, or scarring of, the liver. Again, liver biopsy is required to determine how severe the fat accumulation is, and the degree of scarring.

A liver biopsy remains an essential part of the diagnosis of fatty liver. This is a simply outpatient procedure, in which a needle is inserted into the liver to get a small portion of liver tissue. When the specimen is sliced thin and viewed under a microscope, we may see the actual amount of fat within the liver, and whether the cell death and inflammation within the liver has caused any fibrosis or cirrhosis to occur.

What is the likely outcome with fatty liver?

Most people with increased fat within the liver have no changes or progression in their liver condition over time. Some have just an increased amount of fat on their initial biopsy, and no changes occur over their lifetime. Liver enzyme levels such as SGOT and SGPT may remain persistently modestly elevated.

Some fatty livers proceed to a condition called steatohepatitis, in which there are increased inflammatory cells within the liver due to the irritation from the fat cells within the liver.

On rare occasions, fatty liver can progress on to cirrhosis. Long term follow up studies closely watching several people with fatty liver for as long as 7 to 16 years with repeated liver biopsies failed to reveal any livers proceeding on to cirrhosis with this condition. However, some people with what is called "cryptogenic" cirrhosis (cirrhosis of uncertain cause) were felt to have initially had fatty liver as their cause.

Because of this uncertain outcome, we routinely recommend repeat liver biopsy in three to five years to determine if your fatty liver has progressed to form scar tissue.

How do you treat fatty liver?

Fatty liver, while a great deal of concern to people whose physicians have just identified it, has an excellent prognosis.

It is essential to stop any offending drugs, chemicals, or even modest amounts of alcohol. If you are a diabetic, tight blood glucose control should be a goal. High cholesterol levels need to be lowered.

If modestly overweight, a gradual weight loss with a restricted diet and exercise has been shown in studies over three months to improve the weight, liver tests and fat to a significant degree. This restricted diet should be accompanied by moderate daily exercise, such as either walking or jogging. It is important that this weight loss be gradual, as malnutrition or starvation can also lead to fatty accumulation within the liver. It is important that you decrease your fat intake while increasing the carbohydrate or protein intake. A visit with a registered dietician may often help in this slow gradual weight loss and maintenance.

With fatty liver, observation is the mainstay of treatment. If your liver tests worsen or persist abnormal, repeat liver biopsy may be suggested in three to five years to determine that the liver condition is stable and is not progressive.

If you have fatty liver:

Try to *identify possible causes*. Testing for thyroid disorders or diabetes may be needed. Treat any elevated cholesterol. Review toxin exposures and medications. Be self-aware about your weight.

Avoid liver toxins such as social alcohol drinking and Tylenol (acetaminophen) use. Check all prescriptions or over the counter medications, dietary supplements and vitamins with your doctor.

Start a slow *weight reduction* program with daily moderate exercise.

Have a liver biopsy and plan to repeat that biopsy in about five years to look for progression of this condition.

Remember, fatty liver disease is a condition, not a disease. The finding of fat within your liver often will not alter your well-being or lifespan at all.

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