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Perspective

Scar Tissue Replacement Therapy in Liver Fibrosis Condition

Yaoxin Chao*

Department of Internal Medicine, Hebei Medical University, Shijiazhuang, China

DESCRIPTION

Liver fibrosis is a condition where scar tissue replaces healthy liver tissue due to chronic inflammation or injury. Liver fibrosis can impair the normal functions of the liver, such as detoxification, metabolism, and synthesis of proteins and hormones. Liver fibrosis can progress to cirrhosis, which is a severe form of liver damage that can lead to liver failure or liver cancer. Tuberculosis (TB) is an infectious disease caused by bacteria called *Mycobacterium tuberculosis*. TB mainly affects the lungs, but can also spread to other organs, such as the liver. TB can cause granulomas, which are small nodules of inflamed tissue, in the liver. These granulomas can interfere with the blood flow and bile ducts in the liver, leading to liver fibrosis. The exact mechanism of how TB causes liver fibrosis is not fully understood, but it may involve several factors, such as:

- The immune response to the TB bacteria, which can produce inflammatory cytokines and oxidative stress that damage the liver cells and activate the fibrogenic cells.
- The direct invasion of the TB bacteria into the liver tissue, which can cause necrosis and inflammation of the hepatocytes and bile ducts.
- The side effects of Anti-Tuberculosis Drugs (ATDs), which can induce hepatotoxicity and liver injury in some patients.

The diagnosis of liver fibrosis due to TB can be challenging, as there is no specific test or biomarker for this condition. The diagnosis may rely on a combination of clinical features, laboratory tests, imaging studies, and liver biopsy. Some of the signs and symptoms that may suggest liver fibrosis due to TB are:

- Jaundice (yellowing of the skin and eyes)
- Ascites (fluid accumulation in the abdomen)
- Portal hypertension (high blood pressure in the portal vein that carries blood from the digestive organs to the liver)
- Variceal bleeding (bleeding from enlarged veins in the esophagus or stomach)
- Hepatic encephalopathy (confusion and mental changes due to high levels of toxins in the blood)

Some of the laboratory tests that may indicate liver fibrosis due to TB are elevated levels of liver enzymes (such as Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) and bilirubin in the blood. Reduced levels of albumin and clotting factors in the blood. Ultrasound can measure the size and texture of the liver and detect any nodules or masses. Elastography can measure the stiffness or elasticity of the liver tissue using sound waves. Magnetic Resonance Imaging (MRI), which can provide detailed images of the liver structure and function using magnetic fields. Liver biopsy is considered the standard for diagnosing liver fibrosis due to TB. It involves taking a small sample of liver tissue using a needle and examining it under a microscope. Liver biopsy can reveal the presence and extent of granulomas, inflammation, necrosis, and fibrosis in the liver. The choice and duration of ATDs for TB treatment may vary depending on the drug susceptibility of the TB bacteria, the hepatic function of the patient, and the risk of drug-induced hepatotoxicity. Some examples of anti-fibrotic agents that may be used for treating liver fibrosis due to TB are:

- Pentoxifylline, which can inhibit TNF-alpha production and reduce inflammation and fibrosis
- Pirfenidone, which can block TGF-beta signaling and inhibit collagen synthesis
- Losartan, which can antagonize angiotensin II receptor and reduce vascular resistance and portal hypertension.

CONCLUSION

In general, the prognosis of liver fibrosis due to TB is poor, as it can lead to irreversible liver damage and increased mortality. However, some studies have reported that successful TB treatment can improve liver function and reduce fibrosis in some patients. Therefore, timely diagnosis and appropriate treatment of TB infection and liver fibrosis are essential for improving the outcomes and quality of life of these patients. The prevention of liver fibrosis due to TB involves early detection and treatment of TB infection, especially in patients with underlying liver diseases or risk factors. It also involves avoiding or minimizing the exposure to hepatotoxic drugs or substances, such as alcohol, acetaminophen, or herbal remedies. Moreover, it involves maintaining a healthy lifestyle, such as eating a balanced diet, exercising regularly, and avoiding smoking.

Correspondence to: Yaoxin Chao, Department of Internal Medicine, Hebei Medical University, Shijiazhuang, China, E-mail: xin@chao.com

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