

# Liver tumors associated with metabolic syndrome differ from other tumors

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Liver cancer in patients whose only risk factor is metabolic syndrome has distinct forms and structures compared to other liver tumors. These findings are in the March issue of *Hepatology*, a journal published by John Wiley & Sons on behalf of the American Association for the Study of Liver Diseases (AASLD).

Cancer of the liver, also known as hepatocellular carcinoma, is the fifth most common type of cancer in the world. It is increasing in incidence, largely due to the spread of hepatitis C. Its growing prevalence may also be related to the rise of obesity and type-2 diabetes, which are associated with non-alcoholic fatty liver disease (NAFLD). However, liver cancers associated with NAFLD have been poorly described.

Researchers, led by Valerie Paradis of Beaujon hospital in Paris, decided to analyze a series of liver cancers which arose in patients whose only risk factor for chronic liver disease was metabolic syndrome. They compared their findings to the characteristics of hepatocellular carcinomas that developed in the setting of other chronic liver diseases.

Their retrospective analysis included 128 patients in their hospital who had undergone surgery to remove a liver tumor between 1995 and 2007. Of these, 81 patients had an overt cause of chronic liver disease (CLD), like hepatitis B or hepatitis C. Thirty-one patients had features of the metabolic syndrome (MS) as their only risk factor. And sixteen patients had no identifiable risk factors.

"Most hepatocellular carcinoma associated with features of metabolic syndrome as the only risk factor for chronic liver disease develop in non-fibrotic liver," the authors report. They found that just over 35 percent of liver tumors in these patients occurred in bridging fibrosis or cirrhosis, compared to 75 percent in the patients with chronic liver disease.

"Our results suggest that well-recognized multistep progression, i.e. fibrosis-cirrhosis-HCC, may not be the main carcinogenic pathway in the context of metabolic syndrome," they write. They suggest that the metabolic syndrome itself could have a direct cancer-causing effect, perhaps through the effects of insulin, lipid peroxidation or free radical oxidative stress.

They noted that most tumors arising in the context of the metabolic syndrome were well differentiated - nearly 65 percent compared to 28 percent in the patients with chronic liver disease. These tumors were more similar to those in patients with tumors from unknown causes, which also had better differentiation and a low prevalence of significant fibrosis.

Interestingly, the researchers found that among the patients with metabolic syndrome, five cases of liver cancer were associated with liver cell adenoma (a benign liver tumor).

"Our results suggest that a significant percentage of hepatocellular carcinoma that developed in the context of metabolic syndrome without significant fibrosis arose from malignant transformation of liver cell adenoma," they report.

More information: The article is available online at Wiley Interscience ([www.interscience.wiley.com](http://www.interscience.wiley.com)).

Source: Wiley

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