

UNIROYAL

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Dr. John Stafford
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Dear John:

On page 35 of your August 2 compilation of angiosarcoma cases, you question whether the Robintech plant in Painesville, Ohio (1973) is the same as Allied. There were two PVC plants in Painesville, one owned by Uniroyal, and one originally owned by Allied and later sold to Robintech which sold it to Georgia Pacific several years ago. The Uniroyal PVC plant was closed at the end of 1975, but we still make nitrile rubber at the same location. The Georgia Pacific plant has been modified to make suspension polystyrene.

You deserve a great deal of credit for keeping this information up to date. This information combined with the epidemiological update planned by MCA in the U.S. will go far to clarify the risk.

Best wishes,

Walt

Walter D. Harris, Ph.D.
Corporate Industrial Toxicologist

WDH/mcw

cc: B. R. Leach
J. D. Forbes
file (2)

URL 15417

Progression of vinyl chloride induced hepatic fibrosis to angiosarcoma of the liver

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ABSTRACT Two vinyl chloride monomer (VCM) workers, who developed non-cirrhotic portal fibrosis and portal hypertension, died from angiosarcoma of the liver five and ten years later respectively, despite withdrawal from occupational exposure. We suggest that non-cirrhotic portal fibrosis caused by exposure to VCM is potentially premalignant and that those workers who already have the condition should be carefully monitored.

Since the original communication by Creech and Johnson¹ there have been several further case reports of vinyl chloride monomer (VCM) induced angiosarcoma of the liver. A commoner hepatic lesion is non-cirrhotic portal fibrosis² leading to portal hypertension. It has been suggested that this lesion may be a precursor to angiosarcoma formation,³⁻⁵ but there has been only one report of a patient with documented hepatic fibrosis developing angiosarcoma at a later date.⁶ We describe two further cases.

Case reports

CASE 1

A 60-year old white man initially presented in 1969 to the dermatology department with a skin eruption. Examination at that time showed anaemia, thrombocytopenia, hepatosplenomegaly, and occult faecal blood loss. He had an occupational history of exposure to VCM at high concentration for seven years while working as a polycleaner and a blowdown recovery operator. After two haematemeses, barium studies and splenic venography confirmed portal hypertension and oesophageal varices, and he underwent an end-to-side portocaval shunt. At laparotomy the liver looked nodular, but operative liver biopsy showed non-cirrhotic portal fibrosis only. Over the next four years the patient developed chronic portosystemic encephalopathy and maturity onset diabetes mellitus that was treated with oral hypoglycaemic agents. In May 1980 he presented with worsening mental deterioration, hepatic foetor, asterixis, and an enlarging liver. Liver function test

results showed a normal serum bilirubin with a raised alkaline phosphatase (201 IU/l) and γ -glutamyl transpeptidase (83 IU/l). Radioisotope liver scan showed a small liver with no filling defects and needle liver biopsy showed a well-pronounced micronodular cirrhosis with no evidence to tumour. He responded to protein restriction and lactulose and was discharged. Within a week of discharge he was readmitted with an endoscopically confirmed bleeding duodenal ulcer. After this, he lapsed into hepatic coma and died. Necropsy showed multiple malignant tumours in the liver (wt 1130 g), one of which was haemorrhagic. Histologically, a great variety of liver cell lesions were present, some resembling angiosarcomas, some hepatocarcinomas, and some adenomas. There were also atypical sinusoidal cells and fibrosis in the non-tumorous parts of the liver.

CASE 2

A 49-year-old man with a 12-year history of exposure to vinyl chloride monomer while working as a spray drier bagger, premix operator, and paste charging operator was, during a factory survey of process workers in 1974, found to have thrombocytopenia. This was later shown to be due to hypersplenism and presinusoidal portal hypertension. He was otherwise well and drank five pints of beer a night. Liver function test results were normal apart from a raised γ -glutamyl transpeptidase level of 82 IU/l. Varices were shown by barium studies and endoscopy, and liver biopsy showed fatty change and slight non-cirrhotic portal fibrosis. Two years later the patient developed insulin dependent diabetes mellitus, but otherwise remained well until October 1979 when he presented with a large haematemesis. Endoscopy confirmed oesophageal

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