



The “mosaic pattern” in hepatic sinusoidal dilatation

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The “mosaic pattern” describes the appearance of the liver on contrast-enhanced CT and MR in cases of hepatic sinusoidal dilatation [1, 2]. This sign refers to mottled, heterogeneous, and reticular enhancement of the liver resembling a mosaic (Fig. 1). It appears during the arterial and/or portal venous phase, and is most pronounced in the periphery of the liver. Parenchymal enhancement becomes homogeneous on the late phase (Fig. 2).

The mosaic enhancement can be explained by sinusoidal dilatation and decreased portal inflow, usually as a consequence of hepatic venous obstruction, increased venous pressure, and hepatic congestion. Causes of hepatic sinusoidal dilatation with venous outflow obstruction are varied, including heart failure, pericardial disease, Budd-Chiari syndrome, and sinusoidal obstruction syndrome (SOS) [1, 2]. However, hepatic sinusoidal dilatation with the “mosaic pattern” can occur in a wide array of conditions *without* venous outflow obstruction. Differential diagnoses include acute inflammatory/infectious diseases (pancreatitis, cholecystitis, pyelonephritis, inflammatory bowel disease), conditions with decreased portal venous inflow (portal vein thrombosis, congenital portosystemic shunts), oral contraceptive use (debated), peliosis, presence of neoplasm (even without hepatic metastases), intake of hormones, and drugs [1, 2]. In cases of nonobstructive sinusoidal dilatation, the mosaic pattern might be explained by activation of interleukins and vascular endothelial growth factors, or by areas of parenchymal atrophy or reduced portal flow with hyperarterialization [1, 2].



Fig. 1 Image of mosaic. Public domain image (https://cdn.pixabay.com/photo/2016/12/16/17/32/butterfly-1911854_1280.jpg); Accessed 23/04/2019

In conclusion, the “mosaic pattern” of liver parenchymal enhancement should be recognized as a sign of sinusoidal dilatation, usually in association with venous outflow blockage. But radiologists should be aware that this finding has a broad range of differential diagnoses.

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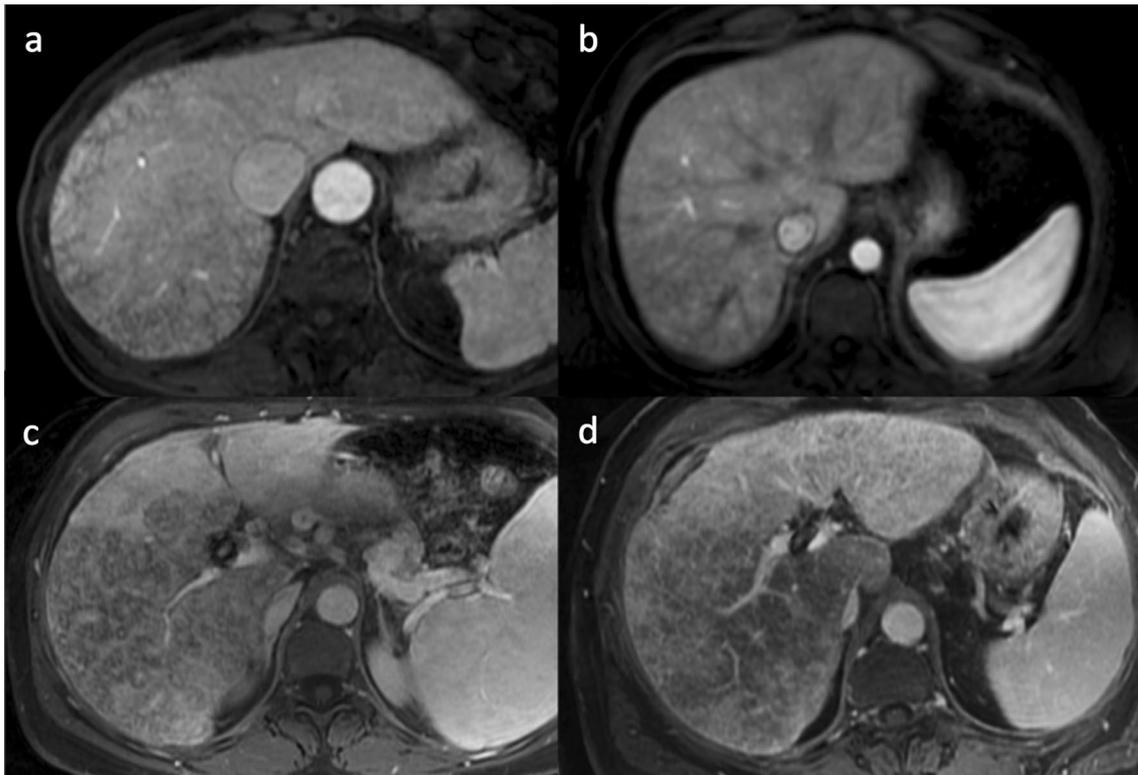


Fig. 2 Axial arterial and portal phase MR images showing different causes of mosaic pattern: heart failure (**a**), constrictive pericarditis (**b**), Budd-Chiari Syndrome (**c**), and drug abuse in patient with alcohol-related cirrhosis (**d**)

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interests.

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

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