MR imaging-guided intravascular procedures: initial demonstration in a pig model

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With use of an open 1.5-T magnetic resonance (MR) imager and a tracking catheter, the authors successfully placed the catheter into the left or right sacral artery in pigs. The tracking catheter comprised a 5.3-F percutaneous transluminal angioplasty catheter with a small copper radio-frequency coil in its tip. With use of the coil as an antenna, the catheter tip position was projected in real time onto MR angiography road maps in two planes. Guidance of placement of the catheter with the MR angiography road maps allowed successful embolization, balloon occlusion, and transjugular intrahepatic puncture of the portal system. Specialized catheters can be tracked in vivo to allow MR guidance in intravascular interventional procedures.

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