

LETTERS, TECHNIQUES AND IMAGES

SUCCESSFUL LITHOTRIPSY UNDER FLUOROSCOPY WITHOUT CHOLANGIOGRAPHY AND CONFIRMATION: ABSENCE OF REMNANT STONES USING GADOLINIUM CHELATE COMBINED WITH INTRADUCTAL ULTRASOUND IN A PATIENT ANAPHYLACTIC TO IODINE-BASED CONTRAST AGENT

A 78-year-old man presented to our hospital with epigastric pain. Magnetic resonance imaging revealed a common bile duct stone. Considering his history of life-threatening adverse reaction to an iodine contrast agent, we decided to use gadopentetate dimeglumine as an alternative. The patient and his family gave written informed consent for the use of gadolinium during endoscopic retrograde cholangiography (ERC). Premedication was not carried out.

After lithotripsy under endoscopic retrograde cholangiopancreatography (ERCP) without using contrast media, intraductal ultrasonography (IDUS) was carried out, which did not show remnant stones. No contrast media was used until the duodenoscope was removed. Cholangiogram was obtained via nasobiliary catheter using a meglumine gadopentetate (Magnevist; Bayer Healthcare, Osaka, Japan). No remnant stones were detectable, although the cholangiogram was not optimal (Fig. 1). There were no adverse reactions. The patient recovered uneventfully and was discharged.

Until now, in the English literature, 15 cases undergoing ERCP using gadolinium as contrast media have been reported,^{1–4} including therapeutic ERCP.^{3,4} In these reports, ERCP procedures were successfully carried out without

adverse reaction. Adequate visualization of extrahepatic and proximal intrahepatic bile ducts was achieved in 13/14 (93%) of the reported cases (Table 1). However, gadolinium may not be optimum for visualization of pancreatic duct structures.¹

Earlier, we reported the utility of IDUS during lithotripsy.⁵ In the current case, we could assess small residual stones after lithotripsy in the extrahepatic bile duct using IDUS without using contrast media. However, IDUS could not visualize the entire intrahepatic bile duct. Therefore, gadolinium cholangiography, although not optimum, is valuable in assessing residual stones lodged in the intrahepatic bile duct.

In conclusion, gadolinium is a reasonable alternative to iodine-based ERCP contrast in patients with severe iodine allergy. Combination of IDUS may be useful to recoup the inferior image quality of gadolinium contrast.

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Table 1. Visualized structure of endoscopic retrograde cholangiopancreatography using gadolinium chelate in 16 cases

Author	Year	Contrast medium	Amount	Age (years)	Sex	Contrast Peripheral		
						CBD	IHBD	MPD
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Good	Good
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Good	Good
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Good	Good
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Poor	Poor
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Poor	
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Poor	
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Poor	
Dorta <i>et al.</i> ¹	1997	Meglumine gadoterate	Unknown	Unknown	Unknown	Good	Poor	Good
Vehmas & Markkola ²	1998	Meglumine gadopentetate	20 mL	46	F	Good	Good	
Maluf-Filho <i>et al.</i> ³	2005	Meglumine gadopentetate	15 mL	78	F	Good	Good	
Lawrence & Cotton ⁴	2009	Gadodiamide hydrate	15 mL	65	M	Good	Poor	
Lawrence & Cotton ⁴	2009	Gadodiamide hydrate	Unknown	45	F	Good	Good	Good
Lawrence & Cotton ⁴	2009	Gadodiamide hydrate	Unknown	29	M	Good	Good	Good
Lawrence & Cotton ⁴	2009	Gadodiamide hydrate	Unknown	34	F	Good	Poor	
Lawrence & Cotton ⁴	2009	Gadodiamide hydrate	Unknown	60	M	Poor	Poor	
Present case	2010	Meglumine gadopentetate	15 mL	78	M	Good	Good	

CBD, common bile duct; IHBD, intrahepatic bile duct; MPD, main pancreatic duct.



Fig. 1. Gadolinium cholangiography. Cholangiogram was obtained via nasobiliary catheter using gadolinium chelate. No remnant stones were seen, although the cholangiogram was not of high quality.

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