


## Optimized MRI Protocol for Focal Lesions in the Cirrhotic and the Non Cirrhotic Liver

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### Recommended Sequences

Sequences				
Name/Type	Acquisition Min.Sec	Plane	Respiratory	Comment
TrueFISP	01.00	Tra/Cor/Sag	BH	Localizer; when no Gd iv
T1 GRE i/o	02.00	Tra	BH	Steatos/fat
T2 FSE nonFS	02.00	Tra	RT (BH)	Anatomy
DWI	03.00	Tra	FB/RT/BH	b=50,100,500
MRCP 3D	03.00	Cor (+tra/sag)	RT (BH)	thin + MIP
T1 3D GRE FS	00.20	Tra	BH	only native
T1 3D Gd dyn.	05.00	Tra	BH	with Gd dynam.
T1 3D Hep.bil.	20-120	Tra	BH	hep.bil. Phase

### Liver and Biliary MRI – Recommended Protocols

Biliary stone	Biliary stricture	
	first line	liver center
		TrueFISP
T1 GRE i/o	T1 GRE i/o	T1 GRE i/o
T2 FSE nonFS	T2 FSE nonFS	T2 FSE nonFS
	DWI	DWI
MRCP 3D	MRCP 3D	MRCP 3D
	T1 3D Gd dyn.	T1 3D Gd dyn.
		T1 3D Hep.bil.

### Liver and Biliary MRI – Recommended Protocols

Metastasis		
Mini	Midi	Comprehensive
TrueFISP		TrueFISP
T1 GRE i/o	T1 GRE i/o	T1 GRE i/o
T2 FSE nonFS	T2 FSE nonFS	T2 FSE nonFS
DWI	DWI	DWI
		MRCP 3D
	T1 3D Gd dyn.	T1 3D Gd dyn.
		T1 3D Hep.bil.

- low clinical suspicion
- added to existing protocol for met. screening
- renal impairment
- frail patient

### Liver and Biliary MRI – Recommended Protocols

Unclear lesion in non-cirrhotic	
Mini (hemangioma)	Recommended
	TrueFISP
T1 GRE i/o	T1 GRE i/o
T2 FSE nonFS	T2 FSE nonFS
DWI	DWI
	MRCP 3D
T1 3D Gd dyn.	T1 3D Gd dyn.
	T1 3D Hep.bil.

### Liver and Biliary MRI – Recommended Protocols

Cirrhotic liver		
Surveillance	HCC?	Comprehensive
		TrueFISP
T1 GRE i/o	T1 GRE i/o	T1 GRE i/o
T2 FSE nonFS	T2 FSE nonFS	T2 FSE nonFS
DWI	DWI	DWI
		MRCP 3D
	T1 3D GRE FS	T1 3D GRE FS
	T1 3D Gd dyn.	T1 3D Gd dyn.
		T1 3D Hep.bil. Gd

Michael P Federle, Dept of Radiology, Stanford, California, USA  
Professor and Associate Chair for Education, (2008 - present)



Walter B. Cannon Medal, The Society of Gastrointestinal Radiologists (2010)  
Teaching Division of the Year 2008, Department of Radiology, University of Pittsburgh  
Mentorship Award (First Recipient), University of Pittsburgh School of Medicine (2007)