NORTH SHORE MAGNETIC IMAGING CENTER
A joint venture of Addison Gilbert, Beverly and Salem Hospitals and AtlantiCare Medical Center
WINTER 2000

CHRONIC MESENTERIC ISCHEMIA

A Case Report: Evaluation by MRA

By: Steven Defossez, MD, Medical Director
North Shore Magnetic Imaging Center, Inc.

Clinical History : Ms. S., a 60 year old female, presents with a history of intermittent abdominal bloating and pain. She has a history of significant cardiovascular disease. There is suspicion for chronic mesenteric ischemia.

MR Angiography: A 3D time of flight MR angiogram was obtained during a single breath hold, utilizing an intravenous bolus power injection of a gadolinium based contrast agent.

Findings: The MR angiogram demonstrates a severe stenosis of the proximal superior mesenteric artery. The celiac artery and IMA are patent in this patient. However, due to her continuing clinical symptoms, radiological intervention was performed.

Interventional Angiography: A limited digital subtraction angiogram confirms a severe stenosis of the proximal SMA. An SMA percutaneous transluminal angioplasty was performed, and a stent was placed across the stenosis. The patient's abdominal pain improved on the table.

continued on page 2

HIGH FIELD UNITS UPGRADED

Major upgrades on the Center's 2 General Electric Signa 1.5 Tesla scanners were completed in the Fall of 1999. The high field scanners were upgraded to the Horizon LX platform. These major upgrades have resulted in faster scanning times, increased resolution and higher image quality on both units. Also, the bore size is at the same diameter (**60 cm**) for each magnet. The 2 scanners now perform at the same level which makes scheduling easier and more efficient. What all of this translates into is improved patient care in the areas of comfort and imaging capabilities.

continued from page 1

Discussion: While acute mesenteric ischemia should be considered a surgical emergency, and MRA is generally not indicated in these acutely ill patients, chronic mesenteric ischemia is well evaluated by MR angiography. With the advent of faster scanning techniques, breath hold imaging and power injected gadolinium based agents, high resolution MR angiograms can be obtained in most patients. Patients who are suspected of having chronic mesenteric ischemia are often thin, and hence are ideal candidates for high resolution surface coil MR angiography. Prior to the advent of MR angiography for chronic mesenteric ischemia, these patients typically underwent a series of multiple radiologic evaluations including plain films, fluoroscopy, ultrasound and CT. Only when these tests fail to identify the cause of recurrent pain, was the patient considered appropriate for an invasive diagnostic procedure such as catheter angiography.

Since MR angiography requires only a peripheral intravenous angiocath, and no arterial catheterization, patients suspected of chronic mesenteric ischemia can be evaluated initially with MR angiography as the first diagnostic test. It should be noted that gadolinium based contrast agents are not nephrotoxic. Hence, this study can be performed in patients with renal insufficiency. Patients on dialysis should be scheduled to have dialysis shortly after the MR angiogram is performed as gadolinium is extracted by dialysis. This technique is also useful for the evaluation of renal artery stenosis, and the renal arteries are routinely simultaneously evaluated during mesenteric MR angiography.

FAST TAKE

1. Mesenteric MR angiography is for patients with chronic symptoms.
2. Patients suspected of acute mesenteric ischemia should be considered surgical emergencies and are in general are not candidates for out patient mesenteric MR angiography.
3. Only a peripheral IV line and gadolinium based contrast is required.
4. MR contrast is not nephrotoxic and can be performed in patients with renal insufficiency.
5. The renal arteries can be evaluated simultaneously for concommitant renal artery stenosis.

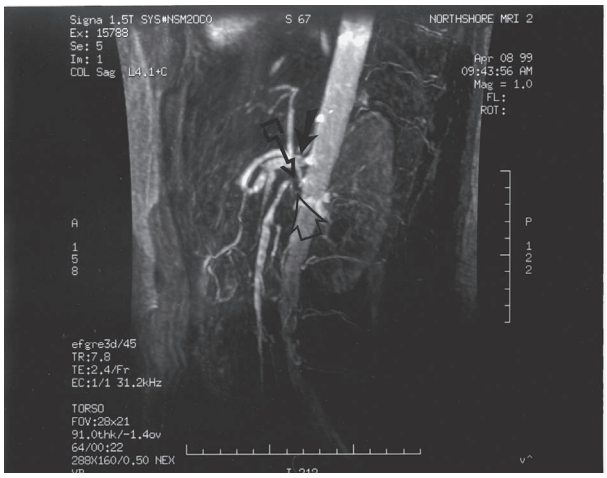

Figure A

A sagittal 3D TOF gadolinium enhanced MRA demonstrates a severe stenosis at the origin of the superior mesenteric artery (opene arrows). The celiac axis is widely patent (black arrow).

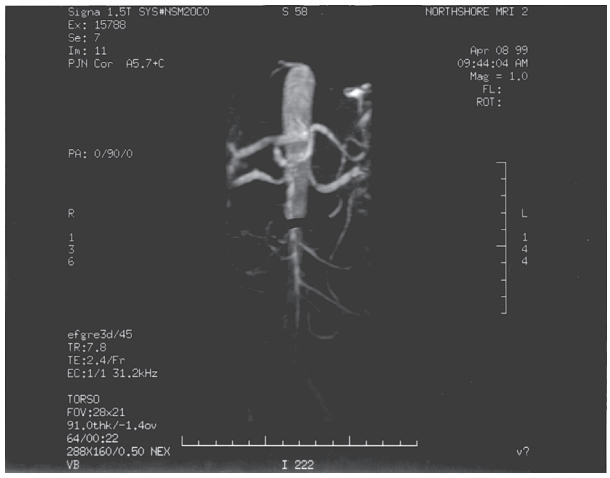

Figure B

AP view of the MR angiogram demonstrates a patent inferior mesenteric artery.

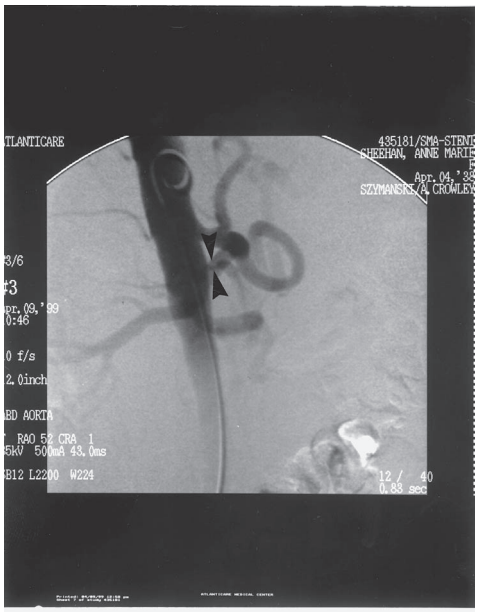

Figure C

RAO digital subtraction catheter angiogram confirms a severe stenosis at the origin of superior mesenteric artery.

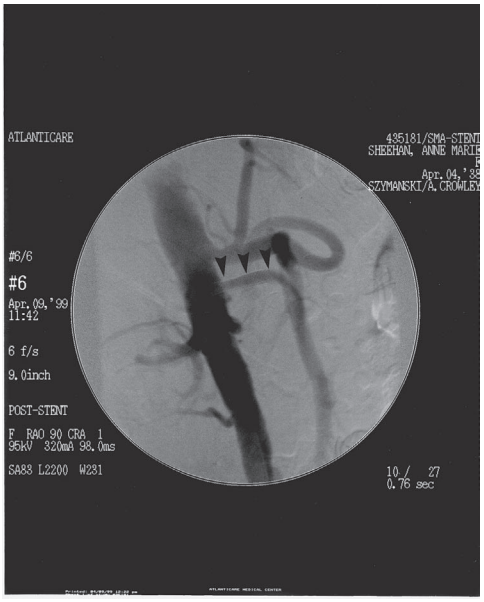

Figure D

Digital subtraction angiogram status post successful angioplasty and stent placement. The stent is seen at the proximal SMA (arrow heads).

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PEABODY, MA
PERMIT NO. 40

NORTH SHORE MAGNETIC IMAGING CENTER
A joint venture of Addison Gilbert, Beverly and Salem Hospitals and AtlantiCare Medical Center
68 Prospect Street, Peabody, MA 01960

DIRECTIONS :

NORTH SHORE MAGNETIC IMAGING CENTER
68 Prospect Street, Peabody, MA 01960
1-800-540-8960 / 978-532-8960
Fax: 978-532-0633 Billing 978-532-9325

FROM ROUTE 128: Take exit 25B (Middleton) to Rte. 114. At the 4th set of lights, take a left up Prospect Street. We are the 2nd building on the right, halfway up the hill.

FROM ROUTE 1: Take the exit for Route 114 / Peabody. After 1.9 miles, take a right up Prospect Street. We are the 2nd building on the right, halfway up the hill.

COMMENTS...

Any comments about this newsletter can be directed to Mary Ellen Tobey at (978)532-8960.