

Interventional Radiology Coding Case Studies

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Week of April 16, 2018

Pre-Y90 Hepatic Angiogram, GDA Embolization & MAA Administration

1. SUPERIOR MESENTERIC ARTERY ANGIOGRAM.
2. CELIAC ARTERY ANGIOGRAM.
3. SELECTIVE AND SUBSELECTIVE ANGIOGRAPHY OF THE HEPATIC ARTERIES INCLUDING COMMON, PROPER, RIGHT AND LEFT HEPATIC ANGIOGRAMS.
4. COIL AND PLUG EMBOLIZATION OF THE GASTRODUODENAL ARTERY. ATTEMPTED CATHETERIZATION OF THE RIGHT GASTRIC ARTERY.
5. 3D CONE BEAM CTs OF THE ABDOMEN SEPARATELY PERFORMED WITH INJECTIONS INTO THE RIGHT HEPATIC ARTERY AND SUBSEQUENTLY INTO THE LEFT HEPATIC ARTERY.
6. SPLIT -DOSE ADMINISTRATION OF TECHNETIUM-99 MAA INTO THE LEFT AND RIGHT HEPATIC ARTERIES FOR Y-90 PLANNING.

CLINICAL HISTORY: This is a 53-year-old male originally diagnosed with rectal cancer in September 2015 and treated with neoadjuvant chemoradiation, low anterior resection and adjuvant chemotherapy with FOLFOX until August 2016. In October 2016 the patient was diagnosed with liver metastases and received 4 cycle of FOLFOX from December 2016 to February 2017. He subsequently had ablation of a left liver metastasis and right portal vein embolization in February 2017 all in preparation for a right hepatic lobe resection. The patient was unable to have resection of his right hepatic lobe due to extent of disease including compromise of hepatic venous outflow.

INFORMED CONSENT: The patient's diagnosis, treatment plan/procedure, risks and benefits treatment alternatives, complications, and prognosis with and without treatment were explained to the patient and/or patient's family in plain language. Informed consent was obtained and we were asked to proceed with the procedure. A verbalized timeout was performed before the procedure with the required team present. The patient's name, date of birth, procedure, site, and equipment, as well as pertinent labs, medications, and allergies were reviewed.

SEDATION: The moderate conscious sedation was supervised by the operating physician(s) using fentanyl and Versed for 1 hour and 43 minutes. The patient was independently monitored by the IVR nurse. There were no complications.

Fluoroscopy Time: A total of 15.8 minutes of fluoroscopic x-ray time were utilized to perform this procedure.

CONTRAST: A total of 135 mL of intravenous contrast LOCM 300-399 MG/ML was used during the procedure.

All elements of a maximal sterile barrier technique were utilized during this procedure including cap, mask, sterile gown, sterile gloves, large sterile sheet, hand hygiene, and 2% chlorhexidine for cutaneous antisepsis.

Ultrasound guidance was used during the procedure. Ultrasound was initially used to establish and assess the patency of the artery to be punctured. The artery was then punctured using real-time sonography. A needle entry into the artery was visualized with ultrasound. Permanent ultrasound images were obtained.

TECHNIQUE: After accessing the right common femoral artery under ultrasound guidance using the micropuncture technique, exchange was made for a 5-French sheath over a Bentson guidewire and eventually a 5-French Cobra catheter was directed up into the abdominal aorta and used to select the superior mesenteric artery. A superior mesenteric artery angiogram was performed.

Subsequently, the celiac artery was selected and a celiac artery angiogram was performed. Through the 5-French Cobra catheter, a Progreat microcatheter and Fathom microwire were advanced and used to select the common hepatic artery and then the gastroduodenal artery. Gastroduodenal angiogram was performed. This followed by coil embolization of the gastroduodenal artery with two 4 mm x 14 cm 0.018 MicroNester coils. Finally, a Micro Vascular Plug-5 was used to occlude the gastroduodenal artery at its origin. The Progreat microcatheter and Fathom microwire were then used to select the proper hepatic artery and a proper hepatic artery angiogram was performed. Multiple attempts were made to catheterize the right gastric artery arising from the proper hepatic artery which was not successful given small size and orientation. Subsequently, the right hepatic artery was selected and a right hepatic angiogram was performed. This was followed by 3D Cone Beam CT of the liver with selective contrast administration into the right hepatic artery. The catheter was then pulled back and using the Fathom wire the left hepatic artery was selected. A left hepatic artery angiogram was performed. This was followed by a 3D cone beam CT of the liver after selective injection of contrast into the left hepatic artery. Finally, technetium-99 MAA was administered as a split dose with one-third of the dose being administered to the left hepatic artery and two-thirds of the dose being administered to the right hepatic artery. The catheter and wire were removed. The sheath was pulled and pressure held to achieve hemostasis. A bandage was placed over the site. The patient left the interventional radiology suite in stable condition.

DISCUSSION:

Superior Mesenteric Artery Angiogram: The superior mesenteric artery is widely patent. No evidence of vascular supply to the right hepatic lobe via branches from the superior mesenteric artery.

Celiac Artery Angiogram: The celiac artery as well as common hepatic and splenic arteries are widely patent. Downstream branches are also widely patent. Hepatic arterial anatomy is conventional.

Subsequent intraprocedural images demonstrate selective angiography of the gastroduodenal artery followed by coil and microvascular plug embolization. Final post-embolization images demonstrate no evidence of flow into the gastroduodenal artery.

Subsequent selective angiography of the proper hepatic artery demonstrates filling of a tiny branch which extends medially and likely represents the right gastric artery. Right and left hepatic artery branches are patent.

Proper hepatic angiogram demonstrates the right gastric artery arising from the proper hepatic artery. Right gastric artery could not be catheterized. Selective angiogram is performed of the left and right hepatic arteries which demonstrate no evidence of extrahepatic supply from these locations.

3D Cone Beam CT with Selective Injection into the Right as well as into the Left Hepatic Arteries: The 3D Cone Beam CT images with selective injection into the right hepatic artery demonstrate no evidence of extrahepatic vascular supply. The majority of the patient's tumor is supplied by the right hepatic artery. A small amount of tumor extending into segment 4 receives contribution from the left hepatic arterial supply. Images from the selective injection in the left hepatic artery demonstrate no extra hepatic perfusion from the left hepatic artery territory.

IMPRESSION: Coil embolization of the gastroduodenal artery. Conventional hepatic arterial anatomy with split-dose technetium-99 MAA administration to the right and left hepatic arteries.

PLAN: The patient will have a liver/spleen SPECT scan immediately and then return in approximately 2 weeks for SIR-Spheres administration.

Interventional Radiology Coding Case Studies CPT Codes

Week of April 16, 2018

Pre-Y90 Hepatic Angiogram, GDA Embolization & MAA Administration

Procedure Codes:

- 36245 (59) Catheterization of SMA
- 36247 Catheterization of GDA
- 36248 Catheterization of right hepatic artery
- 36248 Catheterization of left hepatic artery
- 37242 Embolization of GDA
- 75726 (59) SMA angiogram
- 75726 (59) Celiac Angiogram
- 75774 (59) Proper hepatic angiogram
- 75774 (59) Right hepatic angiogram
- 75774 (59) Left hepatic angiogram
- 76937 Ultrasound Guided Vascular Access
- 76377* 3D imaging (3D cone beam CT)
- 99152 Initial 15 minutes of moderate sedation
- 99153 x6 Each additional 15 minutes of moderate sedation
- Q9967 x135 LOCM 300-399 MG/ML
- J2250 Injection, midazolam hydrochloride, per 1 mg (Versed)
- J3010 Injection, fentanyl citrate, 0.1 mg
- A9540 Technetium tc-99m MAA, diagnostic, per study dose, up to 10 millicuries

**Note there are differences of opinion on whether or not code 76380 may be reported for cone beam CT.*

Diagnosis Codes:

- C78.7 Secondary malignant neoplasm of liver
- Z85.048 Personal history of other malignant neoplasm of rectum, rectosigmoid junction, and anus

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Comments:

- Code 36245(59) is reported for catheterization of the superior mesenteric artery. Modifier (59) is appended so it does not bundle with code 36247. Code 75726 (59) is assigned for imaging of the SMA.
- Code 75726 (59) is also assigned for imaging of the celiac artery. Catheterization of the celiac is bundled with catheterization of the hepatic arteries.
- The catheter was placed into the GDA (36247) in the celiac artery family then was placed in the left hepatic artery and right hepatic artery, both third order vessels. Since two additional branches in the family were catheterized, the left hepatic (36248) and the right hepatic (36248) the add-on code is assigned for each. Code 36247 may only be assigned one time per family, therefore 36248 is assigned for catheterization of the additional branches.
- After code 75726 is assigned for the celiac imaging, code +75774(59) is assigned for each additional vessel imaged within the same family – proper hepatic, right hepatic and left hepatic. The GDA imaging is not coded because findings are not documented for that vessel and it appears it could be performed to aid in placing the coils.
- Modifier -59 is appended to the imaging codes because there are NCCI edits with code 37242. Tc99-MAA was injected into the hepatic vessels for Y90 planning. No treatment was administered.
- Although the patient has a malignant neoplasm of the liver, that liver tumors are not being directly targeted, therefore code 37242 is assigned for the embolization.
- Documentation requirements met for ultrasound guidance for vascular access. (+76937)
- Code 76377 is assigned for the 3D imaging with findings.
- One hour and 43 minutes of moderate conscious sedation noted, billed in 15 minute increments. (99152, 99153)
- *Supplies are billed by the facility performing the procedure and should not be assigned for professional fee coding.*

Note: Some payers require the -X[EPSU] modifiers instead of modifier -59.

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Applicable Coding Rules:

Catheterization Coding

➤ Non-Selective Catheterization

- ❖ Code 36140 is assigned when an upper or lower extremity vessel is accessed and the catheter is not moved beyond the puncture site.
- ❖ Code 36160 describes a direct translumbar puncture into the aorta and the catheter is not moved beyond the aorta.
- ❖ Code 36200 is assigned when the catheter is advanced from the vessel punctured into the aorta. Code 36140 is bundled into code 36200.

➤ Selective Catheterization

- ❖ When the initial access is via either the upper or lower extremities, selective catheterization codes are utilized when the catheter is moved beyond the aorta or vessel punctured.
- ❖ The visceral vessels are below the diaphragm, therefore codes 36245-36248 are utilized to describe catheterizations of these vessels.
- ❖ Code for the highest order vessel selected, the most distal catheter placement, and always code selective catheterization over non-selective catheterization as non-selective catheterization codes are bundled with selective catheterization codes.
- ❖ Code each vascular family separately. If one family requires a lesser order catheterization code from the other, append modifier -59 to the lesser order code.
- ❖ Only one 36245, 36246 or 36247 may be assigned per vascular family. Use add-on code +36248 for additional second or third order branches catheterized in the same vascular family.

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Applicable Coding Rules (continued):

Visceral Angiography Coding

- Code 75726 describes selective imaging of the visceral vessels. Selective imaging requires the catheter to be in the vessel for the contrast injection. Different imaging codes are used for the adrenal arteries and renal arteries.
 - ❖ Code 75726 is assigned one time per vascular family for the initial vessel selectively catheterized and imaged.
- Add on code +75774 is used for imaging of additional branches from an additional selective catheterization after the base imaging code has been assigned for a particular family.

Instruction to Use Code +76937

- Add on code +76937 may be utilized when the services described by the code are not otherwise bundled into other components reported during the same session.
- All ultrasound guidance requires permanently recorded images of the site to be localized and a documented description of localization process, however +76937 has some additional documentation requirements. To assign code +76937, all of the following requirements must be met:
 - ❖ Ultrasound evaluation of potential access sites,
 - ❖ Documentation of selected vessel patency,
 - ❖ Concurrent real time ultrasound visualization of vascular needle entry,
 - ❖ Permanent recording and reporting.
- The American College of Radiology (ACR) has stated that the radiologist is not required to dictate that permanent images are stored, however permanently stored images should be retrievable in the event of an audit.

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Applicable Coding Rules (continued):

Instruction to Use Code 76377

- Misuse of code 76377 is quite prevalent, therefore it is imperative that all documentation requirements are adhered to when assigning this code. Be sure to check with your local Medicare Administrative Contractor (MAC) for Local Coverage Determination (LCD) requirements for this code.
- When 3D rendering is utilized, it must be medically necessary. Generally speaking 3D rendering is utilized when additional imaging is necessary for surgical planning or for complete depiction of an abnormality from a two dimensional study (*ACR Radiology Coding Source November/December 2005*). Furthermore, the additional imaging must provide additional information to aid in making a diagnosis and managing the care of the patient.
 - ❖ Palmetto GBA, one of the MACs, states the following in its LCD: *“Routine use of 3D add-on codes may be a flag for records-based medical review.....A radiologist may order 3D imaging only when it is clearly essential to interpret a case at hand and answer questions with clear clinical impact and necessity.” (Palmetto GBA, Policy L28229 3D Interpretation and Reporting of Imaging Studies)*
 - ❖ In addition to adhering to the above requirements, language mentioning the specific diagnostic findings noted from the 3D rendering should be clearly documented.

Embolization Coding Rules

Catheterization Codes

- When performing embolization procedures the catheter must be manipulated through the arterial or venous system to perform the procedure. Catheterization codes should be assigned in accordance with the rules for reporting selective catheterization.
 - ❖ The NCCI Manual Chapter 5 states: *“For vascular embolization procedures (CPT codes 37241- 37244) physicians may separately report selective catheterization CPT codes. However, physicians should not separately report nonselective catheterization CPT codes for these procedures.”*

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Applicable Coding Rules (continued):

- Remember in the lower extremities, the external iliac and common femoral are considered one vessel for coding purposes and in the upper extremities the subclavian and axillary are also considered one vessel for coding purposes.
- It is important to note that the site of the embolization alone is not the sole factor in determining catheterization selectivity. There may be instances when it is necessary to place the catheter beyond the vessel that is the site of the embolization. Remember, catheter selectivity is based on the most distal catheter placement.

Diagnostic Angiography

- An initial diagnostic angiogram may be reported when performed. If a prior diagnostic angiogram has been performed, diagnostic angiography should only be reported separately in accordance with guidelines established for reporting with transcatheter procedures.
 - ❖ The NCCI Manual Chapter 5 states: *“Angiography may be a separately reportable procedure with modifier 59 only if it satisfies guidelines for diagnostic angiography included in the “Vascular Embolization and Occlusion” section of the CPT Manual, national Medicare guidelines, and local Medicare Administrative Contractor guidelines.”*

Embolization Codes (37241-37244)

- Embolization codes 37241-37244 are assigned based on the presenting clinical indication.
- Code 37241 for **venous** embolization and occlusion other than hemorrhage or tumor is assigned for the following clinical indications:
 - ❖ Venous malformations
 - ❖ Capillary hemangiomas
 - ❖ Varicoceles
 - ❖ Visceral (gastric/esophageal) varices
 - ❖ Incompetent ovarian vein for pelvic congestion syndrome

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Applicable Coding Rules (continued):

- ❖ Patent perforators siphoning flow from extremity venous bypass grafts
 - For embolization of hemodialysis access see code +36909
- ❖ Vascular malformations primarily lymphatic (microcystic lymphatic malformation)
 - For treatment of a lymphocele with a sclerosing agent, see code 49185 for sclerotherapy.
- Code 37242 for **arterial** embolization and occlusion other than hemorrhage or tumor is assigned for the following clinical indications:
 - ❖ Arteriovenous (AV) malformations
 - ❖ Arteriovenous fistulas (congenital or acquired)
 - ❖ Aneurysms
 - ❖ Pseudoaneurysms
 - ❖ Embolizations performed prior to another planned interventional procedure
 - Prophylactic embolizations
 - ❖ For head and neck arterial embolizations, see codes 61624 & 61626.
- Code 37243 for vascular embolization of occlusion for **tumors, organ ischemia, or infarction** is assigned for the following clinical indications:
 - ❖ Benign or malignant tumors of liver, kidney, uterus or other organs
 - When chemoembolization is performed codes 96420 and 79445 (Y-90) may be reported as appropriate.
 - *CPT Assistant November 2013*, states that when two distinct liver lesions are treated, the lesions are considered two separate operative fields (right lobe and left lobe), therefore 37243 may be assigned two times.

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Applicable Coding Rules (continued):

- ❖ Organ infarction or ischemia
- ❖ Tissue ablation
- 37244 for vascular embolization for **arterial or venous hemorrhage or lymphatic extravasation** is assigned for the following clinical indications:
 - ❖ Gastrointestinal (GI) bleed
 - ❖ Trauma induced hemorrhage of viscera and pelvis
 - ❖ Post partum hemorrhage
 - ❖ Bronchial embolization for hemoptysis
 - ❖ Chylorus effusion of thoracic duct
- When a patient presents with two clinical indications, such as a GI bleed due to a ruptured aneurysm, the code selection is based on the most immediate indication. Code 37244 is coded over 37242 when there is a GI bleed due to a ruptured aneurysm.

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