

Interventional Radiology Coding Case Studies

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Pre-SIR-Spheres Embolization

PROCEDURE:

1. Selective celiac artery catheterization and diagnostic arteriogram (1st order)
2. Superselective common hepatic artery catheterization and diagnostic arteriogram (2nd order)
3. Superselective left artery hepatic catheterization and diagnostic arteriogram (3rd order)
4. Single phase cone beam CT with 3D rendering and image post-processing on an independent workstation (3rd order)
5. Superselective right gastric artery catheterization, diagnostic arteriogram, prophylactic coil embolization of the right gastric artery with follow-up angiogram (3rd order +)
6. Selective superior mesenteric artery catheterization and diagnostic arteriogram (1st order)
7. Superselective replaced right artery hepatic catheterization and diagnostic arteriogram (2nd order)
8. Single phase cone beam CT with 3D rendering and image post-processing on an independent workstation (2nd order)
9. Administration of Tc-MAA into the replaced right hepatic artery for nuclear medicine shunt study
10. Right common femoral arteriogram and closure device with ExoSeal

HISTORY: Hepatocellular carcinoma.

DESCRIPTION: Informed consent was obtained from the patient prior to the procedure. During this process, the procedure and potential alternatives were explained along with the intended outcome and benefits. The risks of the procedure, including the possibility of an unsuccessful procedure, as well as the risk of not doing the procedure were discussed. The patient was given the opportunity to ask any questions regarding the procedure and appeared competent to make medical decisions. A signed consent form which documents this discussion was placed in the medical record.

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Time-out performed in the room. The right groin was prepped and draped in usual fashion. Ultrasound-guided vascular access:

Ultrasound guidance was used for vascular access. This included ultrasound evaluation of the right common femoral artery, documentation of vessel patency, and real-time visualization of vascular needle entry into the right common femoral artery. An image was permanently recorded. The right common femoral artery was widely patent and was successfully accessed.

Using ultrasound and fluoroscopic guidance, the right common femoral artery was accessed with a micropuncture set. The micropuncture sheath was exchanged for a 5F vascular sheath over an 035 Bentson wire using routine interventional technique. The sheath was hooked to heparinized flush.

Over a guidewire, a 5 French C2 catheter was advanced into the abdominal aorta used to select the celiac artery. Diagnostic celiac arteriogram was performed which diagnosed variant hepatic arterial anatomy. Over an 035 Glidewire, the C2 catheter was advanced into the common hepatic artery where a diagnostic common hepatic arteriogram was performed which confirmed a variant hepatic arterial anatomy and also delineated the origin of the *right gastric artery at the left hepatic artery*.

Over the guidewire, the C2 catheter was advanced into the left hepatic artery where a diagnostic left hepatic arteriogram was performed to determine extent of disease and vascular supply to the hepatocellular carcinoma. A cone beam CT was performed from this location to confirm the tumor location, vascular supply, and identify collateral pathways to the stomach/small bowel from the planned treatment site.

A 3 French Renegade microcatheter was advanced into the right gastric artery over an 016 Fathom guidewire where and arteriogram was performed to confirm location. The right gastric artery was coil embolized with two figure 8 pushable coils under continuous fluoroscopic guidance followed by 2 Gelfoam torpedoes. Post embolization arteriogram was performed confirming static embolization.

Microcatheter system was removed. The 5 French catheter was retracted to the aorta and used to select the superior mesenteric artery. A superior mesenteric arteriogram was performed to determine the origination of the right hepatic artery. This indeed was from the superior mesenteric artery. The microcatheter system was reconnected and advanced into the replaced right hepatic artery where a replaced right hepatic diagnostic arteriogram was performed to determine extent of disease and vascular territory in preparation for Y90 therapy. A cone beam CT was performed from this location to confirm the tumor location, vascular supply, and identify collateral pathways to the stomach/small bowel from the planned treatment site. At this point, nuclear medicine prepared the MAA injection. 5 mCi technetium labeled MAA was injected into the replaced right hepatic artery.

The microcatheter and C2 catheter were removed. The right common femoral arterial sheath was aspirated and flushed. A right common femoral arteriogram was performed through the sheath to

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confirm access above the femoral bifurcation. After confirming that this was indeed the case, the sheath was removed and hemostasis achieved using 5 French ExoSeal device. A sterile dressing was applied. The patient tolerated the procedure well and was transferred to recovery in stable condition. He will then undergo nuclear medicine shunt study.

FLUOROSCOPY TIME: 12.0 minutes.

CONTRAST: 200 ml Ultravist 300.

RADIOPHARMACEUTICAL: 5.0 mCi Tc-MAA administered into the replaced right hepatic artery.

MEDICATIONS: 4 mg of Versed and 200 micrograms of Fentanyl was administered.

FINDINGS:

Celiac: Normal trifurcation into left gastric, common hepatic, and splenic artery. The common hepatic and then divides into gastroduodenal and left hepatic artery. The right hepatic artery does not arise from the celiac system.

Common Hepatic: Bifurcation into gastroduodenal and left hepatic artery. The right hepatic artery does not arise from the celiac system. The right gastric artery arises as the first leftward branch of the left hepatic artery.

Left Hepatic: The right gastric artery arises from the proximal left hepatic artery. There is a mass in the medial segment of the left hepatic lobe which was not seen on the prior MRI and looks to be tumor thrombus in the portal vein.

Cone beam CT: Confirms hepatocellular carcinoma in the left hepatic lobe which appears to invade the left portal vein.

Right Gastric: Unremarkable right gastric artery. The proximal right gastric artery was coil embolized to its origin. Post embolization angiogram demonstrates stasis.

Superior Mesenteric: Superior mesenteric angiography shows a replaced right hepatic artery to the right half of the liver. There is tumor in the right hepatic lobe. Delayed images and portal venous phase showed diminished flow in the left portal vein consistent with tumor thrombus.

Replaced Right Hepatic: There is extensive tumor blush in the right hepatic lobe which is more extensive than delineated on the MRL

Cone beam CT: Confirms extensive hepatocellular carcinoma in the right hepatic lobe.

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Right common femoral arteriogram shows no significant atherosclerotic disease. The puncture site is above the bifurcation and below the inguinal ligament, suitable for closure device.

IMPRESSION: Successful diagnostic hepatic angiography, prophylactic coil embolization of the right gastric artery, and MAA injection for shunt calculation performed as above in preparation for SIRT therapy to the right hepatic artery.

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Interventional Radiology Coding Case Studies CPT Codes

Week of December 17, 2018

Pre-SIR-Spheres Embolization

Procedure Codes:

- 37242 Prophylactic coil embolization gastric artery
- 36246 (59) Catheterization replaced right hepatic artery
- 36247 Catheterization left hepatic artery
- 75726 (59) Celiac angiogram
- 75726 (59) Superior mesenteric angiogram
- 75774 (59) Common hepatic artery angiogram
- 75774 (59) Left hepatic artery angiogram
- 75774 (59) Replaced right hepatic artery angiogram
- 76937 Ultrasound guidance for vascular access
- 76377 3D Rendering
- Q9967 x200 LOCM 300-399 MG/ML
- J2250 x4 Injection, midazolam hydrochloride, per 1 mg (Versed)
- J3010 x2 Injection, fentanyl citrate, 0.1 mg
- A9540 Technetium tc-99m macroaggregated albumin, diagnostic, per study dose, up to 10 millicuries
- G0269 Placement of Exoseal (hospital billing)

Diagnosis Codes:

- C22.0 Hepatocellular carcinoma

Comments:

- Code 37242 is assigned for the embolization, because it is a prophylactic coil embolization of the gastric artery. The liver tumor was not treated in this particular session.
- Note the angiography identified variant hepatic arterial anatomy with the origin of the right gastric artery off of the left hepatic artery.
- Code 36246(59) is reported for catheterization of the replaced right hepatic artery. This is a second order vessel off of the superior mesenteric. Lesser order catheterizations are bundled.

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Comments (continued):

- Code 36247 is assigned for catheterization of the left hepatic artery, a third order vessel in the celiac family. The lesser order catheterizations are bundled.
- Code 36248 is not appropriate, because two separate vascular families were catheterized.
- Code 75726 is assigned for the celiac angiogram. The common hepatic angiogram and left hepatic angiogram are each reported with add on code +75774 for additional imaging performed in a separate vessel in the same vascular family.
- Code 75726-59 is assigned for the superior mesenteric angiogram. This code is used again because this is a separate vascular family. Add on code +75774 is reported for angiography of the replaced right hepatic, an additional vessel in this particular vascular family.
- Code 76937 is assigned for ultrasound guided vascular access of the femoral artery.
- Code 76377 is assigned for 3D imaging.
- Sedation time is not documented in report.
- *Supplies are billed by the facility performing the procedure and should not be assigned for professional fee coding.*

Applicable Coding Rules:

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.** A prophylactic coil embolization may be performed to prevent complications during Y-90 embolizations. These embolizations are assigned to code 37242 when the tumor is not treated in the same session as the coil embolization. If the tumor is treated during the same session, only code 37243 is assigned.
 - ❖ 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 code 96420 *Chemotherapy administration, intra-arterial; push technique* may be assigned.

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Applicable Coding Rules (continued):

- When Y-90 is administered, code 79445 *Radiopharmaceutical therapy, by intra-arterial particulate administration* 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.
- ❖ 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.
- When a stent is placed to provide latticework for deployment of embolization coils (for aneurysm), the embolization code is reported and not the stent code.
- **Multiple Vessels.** Embolization codes are not assigned per vessel, rather they are assigned once per operative field.

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Applicable Coding Rules (continued):

- **Operative field.** Only one embolization code should be reported for each operative field. An operative field refers to the area immediately surrounding and directly involved in a treatment/procedure. Embolization procedures performed at a single setting that include multiple surgical fields such as for a patient with multiple trauma and bleeding from the pelvis and the spleen, may be reported with multiple embolization codes.
 - ❖ The following are considered one operative field: multiple vessels feeding a bladder tumor, multiple vessels in the same extremity, multiple vessels for endoleak, multiple hemodialysis side branches, bilateral uterine arteries.
 - ❖ The following are considered two or more operative fields: bilateral organs, bilateral arteriovenous malformations, bilateral testicular veins (varicocele), bilateral ovarian veins (pelvic congestion), intracranial aneurysms (two or more), multiple bleeds (spleen, pelvis).
 - 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.
- Administration of Heparin, Nitroglycerin, etc. during the procedure is not coded separately.

RS&I Codes

- **Bundled Components.** All RS&I work is bundled into the surgical code for embolization. This work includes the following services: contrast injections, angiography/venography, roadmapping, and fluoroscopic guidance for the intervention, vessel measurement, and completion angiography/venography.
- Code 75898 is not utilized with codes 37241-37244 for completion angiograms to check the results of the embolization.

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