Hepatic artery pseudoaneurysm embolization

A departmental audit of technical success and clinical outcomes

Background: With the increasing frequency of percutaneous biliary interventions and liver transplantations, hepatic artery pseudoaneurysm (HAPA) is now the most commonly reported visceral artery aneurysm. Due to the high mortality rates associated with open surgical ligation, transcatheter embolization is being used increasingly for the treatment of HAPAs. The purpose of this audit is to determine the technical success and mortality rate of HAPA embolization and compare these findings to results in the literature.

Audit Target: Technical success should be achieved in 100% of cases. The 30-day mortality rate should be less than or equal to 11% (based on the results from a large study of the treatment of HAPAs).

Method: All cases of HAPA embolization in a given timeframe are identified using PACS. This is performed by searching by procedure name (for example, "hepatic artery embolization"), then isolating the applicable cases by reviewing the imaging and procedure note. Clinical notes and previous imaging are also reviewed. The date of the procedure, 30-day mortality, aneurysm size, aneurysm location, and demographic information are recorded. The underlying cause of the pseudoaneurysm, location within the hepatic arterial system, and embolic agent used are also noted.

Intervention / Action Plan: Departmental education sessions are arranged based on audit results and with the development of new embolization techniques. Morbidity and mortality rounds allow for discussion of risks and benefits of endovascular treatment, technical approaches, and problem-solving strategies.

Resources Required: This departmental audit requires access to PACS for identification of cases using specific procedure names, and access to clinical information from the electronic medical record.

Time Required to Perform the Audit: As HAPA embolization is a relatively uncommon procedure, a timeframe of up to 5 years may be required to identify 10 cases or more. Review of imaging and clinical notes may require up to 2 hours. Intervention may require weeks to months depending on audit findings and availability of staff.

References:

1. Tulsyan N, Kashyap VS, Greenberg RK, Sarac TP, Clair DG, Pierce G, Ouriel K. The endovascular management of visceral artery aneurysms and pseudoaneurysms. J Vasc Surg 2007;45:276-83.
2. Belli AM, Markose G, Morgan R. The role of interventional radiology in the management abdominal visceral artery aneurysms. Cardiovasc Intervent Radiol 2012;35:234-43.
3. Spiliopoulos S, Sabharwal T, Karnabatidis D, Brountzos E, Katsanos K, Krokidis M, Gkoutzios P, Siablis D, Adam A. Endovascular treatment of visceral artery aneurysms and pseudoaneurysms: long-term outcomes from a multicenter European study. Cardiovasc Intervent Radiol 2012;35:1315-25.
4. Berceli SA. Hepatic and splenic artery aneurysms. Semin Vasc Surg 2005;18:196-201.
5. Chadha M, Ahuja C. Visceral artery aneurysms: diagnosis and percutaneous management. Semin Intervent Radiol 2009;26:196-206.