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Partial Splenic Artery Embolization as a Nonsurgical Alternative for Hypersplenism: A Review

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Abstract

Hypersplenism is a common complication of chronic liver disease that can cause significant cytopenias. It occurs in more than 50% of patients with liver cirrhosis and portal hypertension, representing an unfavorable prognostic factor. Partial splenic artery embolization (PSE) has emerged as a less invasive alternative to splenectomy, providing hematologic improvement particularly in platelet count, while preserving splenic immune function. This interventional angiographic technique was introduced in the 1970s by Maddison. Embolization is considered effective when infarction of at least half of the splenic volume is achieved. The main consequence is significant increase in platelet count. At the same time, inconsistent increases in hemoglobin and leukocyte count have also been reported. The procedure involves fluoroscopy-guided catheterization of the splenic artery and temporary or permanent embolization of selected arterial branches using embolic agents such as gelfoam, polyvinyl alcohol particles, acrylic polymers or platinum coils. The hematologic benefits of PSE are comparable to those of splenectomy, but with a lower complication rate. Post-procedural complications are generally mild and transient, and their frequency is directly proportional to the infarcted splenic volume. Severe complications, although less frequent, include splenic abscess, portal vein thrombosis, gastrointestinal bleeding and pleural effusions. PSE may also be applied in certain hematological conditions, although yet not standardized, as well as in splenic trauma. Further studies are required to expand the indications of the technique, to clarify its role in controlling variceal gastrointestinal bleeding and potentially integrate it into therapeutic guidelines.

Keywords: splenic artery embolization, thrombocytopenia, surgical intervention