

# Advancements in Diagnosis and Treatment of Gastric Arteriovenous Malformations: A Comprehensive Review

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## Introduction

Gastric Arteriovenous Malformations (AVMs) are rare vascular abnormalities that can occur in the stomach. They involve abnormal connections between arteries and veins, leading to the formation of tangled blood vessels. These AVMs can cause symptoms such as gastrointestinal bleeding, iron deficiency anemia, abdominal pain and even life-threatening hemorrhage in severe cases. In recent years, there have been several advancements in the diagnosis and treatment of gastric AVMs, aimed at improving patient outcomes and reducing the risk of complications. However, in some adults, this anatomical variant persists. In certain cases, adults with the thyroid ima artery may present unique challenges related to hyperthyroidism. For example, individuals with Graves' disease, a condition characterized by overactive thyroid function, may experience thyroid storm, a severe and potentially life-threatening exacerbation of hyperthyroidism [1,2].

## Description

Esophago Gastro Duodenoscopy (EGD) remains the primary diagnostic modality for gastric AVMs. It allows direct visualization of the abnormal blood vessels, assessment of bleeding severity, and targeted biopsy or therapeutic interventions. Chromoendoscopy: This technique involves the application of special dyes during endoscopy to enhance the visualization of abnormal blood vessels and improve diagnostic accuracy. EUS can help evaluate the depth of AVM involvement, assess adjacent structures, and guide therapeutic interventions. These imaging modalities can provide detailed vascular mapping and aid in preoperative planning. Endoscopic interventions are the first-line treatment for gastric AVMs, especially in cases of active bleeding or high-risk lesions. Using devices like clips, bands, or electrocautery to achieve hemostasis and control bleeding. Injection of sclerosing agents into the AVM to induce thrombosis and vessel occlusion. Laser ablation can be used to destroy abnormal blood vessels and promote hemostasis. Endoscopic resection: Surgical removal of small AVMs can be performed via endoscopy. This minimally invasive procedure involves the injection of embolic agents into the arteries supplying the AVM, causing vessel occlusion and cessation of bleeding. In cases where endoscopic therapies or TAE are unsuccessful or not feasible, surgical resection of the AVM may be necessary. This approach is typically reserved for large, complex, or high-risk lesions. Although no specific, medical treatment exists for gastric AVMs, certain medications such as proton pump inhibitors and iron supplements may be prescribed to manage associated symptoms and complications.

**Radiofrequency Ablation (RFA):** RFA is a newer endoscopic technique that uses thermal energy to ablate abnormal blood vessels. It has shown promise in the treatment of gastric AVMs, particularly smaller lesions. Cryotherapy involves freezing the AVM with liquid nitrogen or argon gas, leading to tissue necrosis and vessel destruction. It is another emerging endoscopic approach for managing gastric AVMs. These advanced endoscopic techniques allow en bloc resection

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of larger AVMs with better visualization and lower recurrence rates. Blood tests may be conducted to check for anemia or other abnormalities that could indicate gastrointestinal bleeding. Imaging techniques like angiography, Computed Tomography Angiography (CTA) or Magnetic Resonance Angiography (MRA) may be employed to visualize the blood vessels in the stomach and identify the presence of AVMs. Endoscopy: Upper gastrointestinal endoscopy is a key diagnostic tool for gastric AVMs. It involves the insertion of a flexible tube with a camera (endoscope) into the esophagus and stomach to directly visualize the AVMs and assess their characteristics [3].

The selection of vessels for embolization depends on the individual patient's vascular anatomy and the therapeutic goals. Each case requires careful assessment and consideration of the best approach to achieve the desired outcomes. Consulting with an interventional radiologist or a qualified healthcare professional experienced in thyroid embolization is crucial in making appropriate treatment decisions based on the specific circumstances of the patient. Gastric Arteriovenous Malformations (AVMs) are abnormal tangles of blood vessels that form in the stomach. These malformations can lead to various symptoms such as gastrointestinal bleeding, iron deficiency anemia, and abdominal pain. Diagnosis and treatment of gastric AVMs typically involve a combination of imaging studies, endoscopy, the doctor will begin by taking a detailed medical history and performing a physical examination to assess the patient's symptoms and overall health [4-6].

## Conclusion

Overall, these advancements in diagnosis and treatment have expanded the therapeutic options available for gastric AVMs. They offer less invasive approaches, improved success rates in achieving hemostasis, and reduced morbidity and mortality associated with these challenging vascular lesions. However, the choice of treatment depends on factors such as the size and location of the AVM, severity of bleeding and patient characteristics and should be tailored to individual cases..

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## Conflict of Interest

The Author declares there is no conflict of interest associated with this manuscript.

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