

Angiodysplasia of the Caecum Treated by Embolization with PVA (Polyvinyl Alcohol)

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Abstract

Background: Angiodysplasia of the caecum is a common vascular abnormality that causes gastrointestinal bleeding, especially in elderly patients. Characterized by abnormal, dilated blood vessels, angiodysplasia can lead to intermittent or acute haemorrhage. Embolization with Polyvinyl Alcohol (PVA) particles is a minimally invasive technique gaining popularity for managing bleeding from caecal angiodysplasia when endoscopy fails or is not possible.

Objective: To evaluate the use of PVA embolization in the treatment of caecal angiodysplasia, focusing on its effectiveness in controlling gastrointestinal bleeding and its advantages and risks compared to other treatment options.

Results: PVA embolization has shown high success rates in controlling gastrointestinal bleeding associated with caecal angiodysplasia. The procedure is minimally invasive, with most patients experiencing significant improvement in symptoms and a reduction in recurrent bleeding episodes.

Conclusion: Embolization with PVA is an effective and minimally invasive treatment for caecal angiodysplasia, particularly in patients who do not respond to or are not candidates for endoscopic therapies.

Keywords: Angiodysplasia, Caecum, Polyvinyl Alcohol, Embolization, gastrointestinal bleeding KTop of Form

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INTRODUCTION

Angiodysplasia is a vascular malformation that can lead to gastrointestinal bleeding, particularly in elderly patients. While this condition can occur anywhere in the gastrointestinal tract, it is commonly found in the colon, with the caecum being a frequent site of involvement. Angiodysplasia is often characterized by abnormal, dilated blood vessels that are prone to rupture, causing intermittent or acute bleeding.¹ Traditional management includes endoscopic techniques, but in cases where endoscopic interventions are not successful or feasible, embolization has become an effective alternative. Polyvinyl alcohol (PVA) is a commonly used embolic agent in this context, offering a minimally invasive and highly effective solution.²

CASE REPORT

A 55-year-old male patient was admitted for evaluation of lower gastrointestinal bleeding. He had multiple episodes of lower gastrointestinal bleeding. He had past history of below knee amputation and sepsis. The colonoscopy showed mild bleeding at caecum. CT abdomen angiography showed contrast leak at venous & delayed phase in caecum. Patient was taken for endovascular treatment. Selective superior mesenteric arteriogram revealed vascular tufts at the ileocecal region. For better demonstration, a selective injection into the ileo-colic artery was performed. Abnormal tortuous, dilated vessels were seen originating from the ileo-colic artery, with early venous opacification in the late arterial phase. Subsequently embolized with 150-250micron PVA particles.

Post-embolization ileo-colic arteriography demonstrated selective occlusion of the feeding branches with no filling of the angiodysplastic malformation. Following the embolization, the patient's general condition remained normal and no further episodes of bleeding. The patient had an uneventful recovery and discharged.

DISCUSSION

Angiodysplasia refers to the presence of abnormal blood vessels in the gastrointestinal tract. These vessels, typically venous, are dilated and lack the normal structure of healthy vasculature. Over time, they become fragile and prone to rupture, which can lead to gastrointestinal bleeding. In the

caecum, where blood flow is particularly abundant due to the proximity to major blood vessels, these lesions can result in significant bleeding episodes.³ The cause of angiodysplasia is not completely understood, though it is believed to be associated with aging, degenerative vascular changes, and sometimes underlying medical conditions like renal failure or aortic stenosis.

The clinical presentation of caecal angiodysplasia includes occult gastrointestinal bleeding, anemia, melena or hematochezia, recurrent episodes of gastrointestinal bleeding. In severe cases, the bleeding can be acute and life-threatening, necessitating prompt intervention. The diagnosis is often confirmed through imaging studies, such as colonoscopy or angiography. Colonoscopy is often the first-line diagnostic tool, allowing direct visualization of the vascular malformations.⁴ CT angiography or MRI angiography techniques can identify the blood vessels involved and provide detailed information on the extent of the lesion, which is crucial for planning embolization. Selective arteriography is used when angiographic embolization is considered, as it allows precise identification of the bleeding source. Treatment of caecal angiodysplasia aims to control bleeding and prevent recurrence.⁵ Endoscopic Therapy is the preferred first-line treatment for patients with accessible lesions. Embolization is useful in case of failed endoscopic therapy or have lesions that are difficult to access, embolization with embolic agents such as Polyvinyl alcohol (PVA) is a viable option. Surgical intervention is reserved for cases where other treatments have failed or when the bleeding is severe and uncontrollable. Embolization with PVA is an interventional radiology technique that involves the selective occlusion of blood vessels supplying the angiodysplastic lesion. Polyvinyl alcohol particles are used as an embolic agent to block the abnormal blood vessels, effectively controlling the bleeding.⁶

The embolization procedure is performed under local anesthesia and sedation, with the patient placed in a supine position. A catheter is inserted into the femoral artery and advanced to the area of interest using fluoroscopic guidance. Once the catheter reaches the arterial supply to the caecum, contrast dye is injected to identify the exact location and extent of the vascular malformation. Once the bleeding site is localized, PVA particles are introduced through the catheter to occlude the feeding vessels.⁷ The size of the particles used depends on the specific vascular structure being targeted, with smaller particles used to block

capillary vessels and larger particles for arteries. The embolization process results in the cessation of blood flow to the abnormal vessels, effectively controlling the bleeding. Complications include non-target embolization, infection, recurrence of bleeding.⁸ Studies have shown that embolization with PVA is an effective treatment for caecal angiodysplasia, with high rates of bleeding control. Long-term follow-up is necessary to monitor for potential recurrence, but many patients experience sustained relief from symptoms after a single embolization procedure.⁹

CONCLUSION

Angiodysplasia of the caecum is a significant cause of gastrointestinal bleeding, particularly in elderly patients. While endoscopic treatment remains the first-line approach, embolization using PVA has emerged as a highly effective alternative for patients with refractory or inaccessible lesions. The minimally invasive nature of the procedure, combined with its high success rate and ability to preserve bowel function, makes it an important tool in the management of gastrointestinal

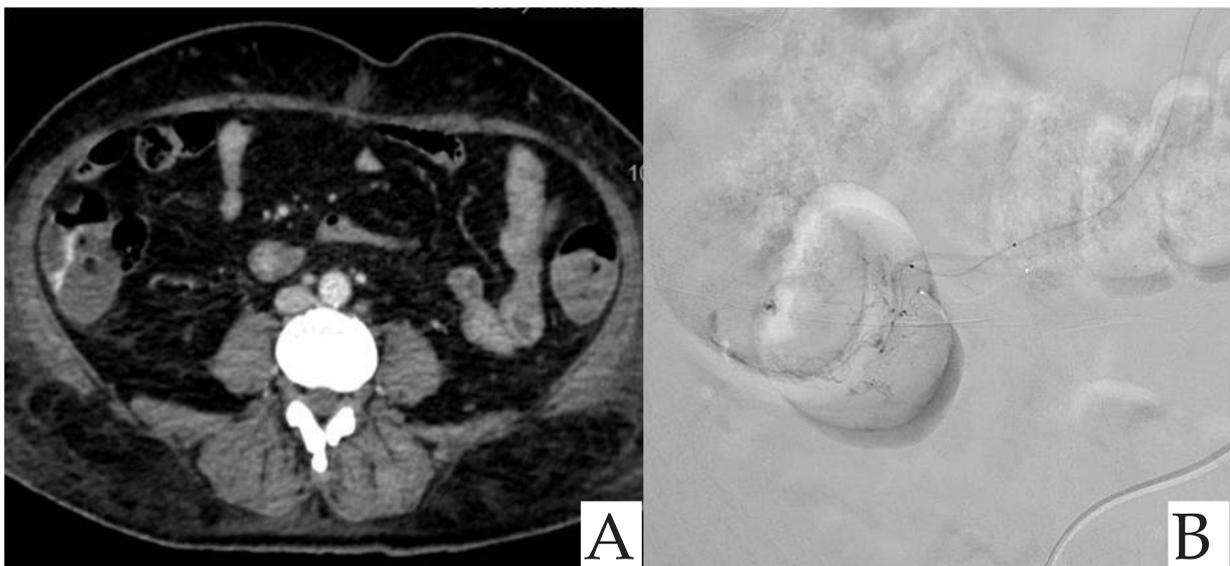


Fig. 1: 55 year old male with lower GI bleed. (A) Contrast Enhanced CT scan image in axial shows contrast leak at caecum (B) Selective arteriography from SMA shows abnormal tortuous, dilated vessels were seen originating from the ileo-colic artery suggestive of angiodysplasia

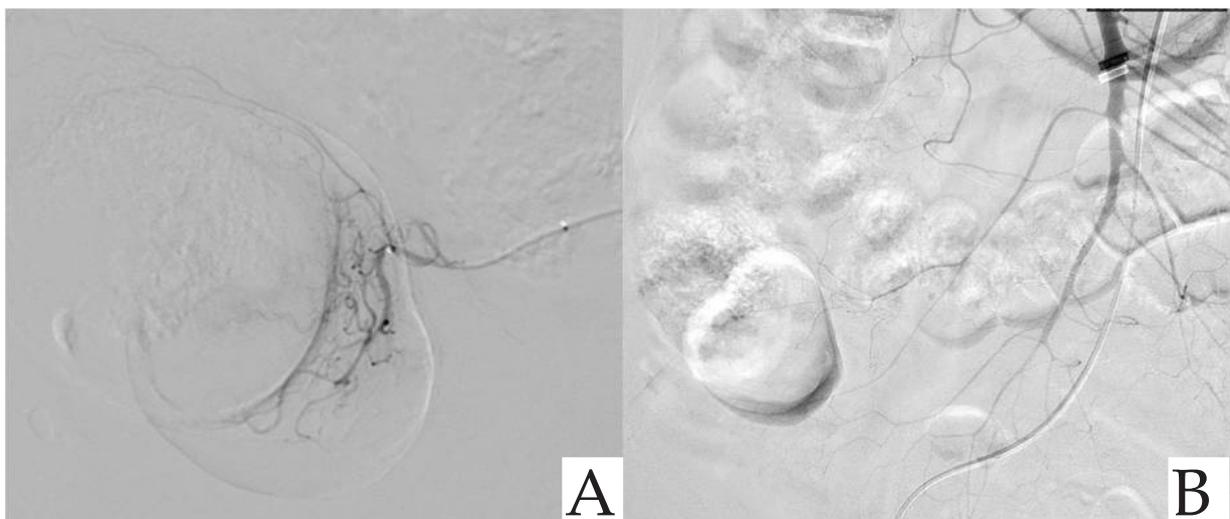


Fig. 2: Angiographic images (A) Post embolization with complete occlusion of angiodysplasia (B) Post embolization SMA angiography

bleeding from angiodysplasia.¹⁰ However, as with all interventions, careful patient selection and consideration of potential complications are essential for optimizing outcomes.

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