**SAS Journal of Medicine**
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

**Hepato-Gastroenterology I**

# Interest of Argon Plasma Coagulation in Digestive Angiodysplasia Lesions: A Study of 38 Cases

F. Nejjari[1*], I. Karam[1], S. Oualaalou[1], S. Berrag[1], T. Adioui[1], M. Tamzaourte[1]

[1]Department of Hepato-Gastroenterology I, Mohammed V Military Hospital, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat

**DOI:** https://doi.org/10.36347/sasjm.2025.v11i08.004 | **Received:** 10.02.2025 | **Accepted:** 15.03.2025 | **Published:** 12.08.2025

***Corresponding author:** F. Nejjari
Department of Hepato-Gastroenterology I, Mohammed V Military Hospital, Faculty of Medicine and Pharmacy, Mohammed V University, Rabat

**Abstract** **Original Research Article**

Digestive angiodysplasia is a vascular development abnormality of the digestive tract, which can manifest as gastrointestinal bleeding or chronic anemia. Effective therapeutic intervention is necessary to improve symptoms and limit long-term complications. The reference technique is argon plasma coagulation (APC), which allows for simple, rapid, precise, and reliable treatment with minimal side effects and complications. The objective of our study is to evaluate this technique, its effectiveness, and its potential complications. ***Materials and Methods*:** A retrospective study was conducted on 38 patients with digestive angiodysplasia treated with APC at the Gastroenterology I Department of Mohammed V Military Teaching Hospital in Rabat between November 2020 and November 2022. ***Results*:** The average age of patients was 68 years, with a male predominance (24 men, 14 women). 60% of patients presented with upper or lower gastrointestinal bleeding associated with an anemic syndrome, while 40% had isolated anemia. All patients were treated with APC, with an average of 1.5 sessions per patient. The technique was successful without any complications. Two patients experienced therapeutic failure and were placed on second-line medical treatment. ***Conclusion*:** APC is a successful technique, making it an important tool in the management of digestive angiodysplasia. It presents minimal and rare side effects and complications.

**Keywords:** Digestive Angiodysplasia, Argon Plasma Coagulation (APC), Gastrointestinal Bleeding, Anemia, Therapeutic Efficacy.



## INTRODUCTION

Gastrointestinal angiodysplasia results from an abnormal development of the vascular system of the digestive tract [1]. It often manifests as mild or severe gastrointestinal bleeding in the form of hematemesis or melena, potentially leading to hemorrhagic shock. The condition may be congenital or acquired. This rare pathology can cause chronic anemia requiring multiple blood transfusions, particularly in patients on antiplatelet or anticoagulant therapy. Argon plasma coagulation (APC) is considered the best therapeutic option according to available literature [2]. It is a preferred hemostatic method by endoscopy for treating digestive angiodysplasias, gastric lesions, and chronic hemorrhagic radiation proctitis [3]. It generally provides rapid and early symptom relief while reducing transfusion requirements.

The objective of our study is to report our series of patients with digestive angiodysplasia treated with APC and to review the literature to assess the efficacy of APC in the endoscopic management of angiodysplasia, its main indications in our context, and to evaluate its safety and complications.

## MATERIALS AND METHODS

This is a descriptive retrospective study conducted at the Gastroenterology I Department of Mohammed V Military Teaching Hospital in Rabat from November 2020 to November 2022. The study includes all patients with angiodysplasia lesions treated with an endoscopic technique based on argon plasma coagulation.

## RESULTS

We collected data from 38 patients with an average age of 68 years (range: 40-83), with a male predominance of 63% (24 men and 14 women). Most patients had associated comorbidities, particularly a history of pelvic or rectal radiotherapy in 32% of cases.

Cardiovascular history ranked second in our series, affecting 30% of cases.

- Clinically, 60% of patients presented with externalized bleeding associated with anemia, in the form of hematemesis (3 patients), melena (9 patients), and rectal bleeding (11 patients). 40% had isolated anemia.
- The average hemoglobin level before treatment was 9.3 g/dL, predominantly hypochromic microcytic anemia (78%), indicating a chronic nature, and normochromic normocytic anemia in 12% of cases, indicating acute bleeding. 30% of patients required transfusions, with an average of 2 red blood cell units per patient before treatment.
- Endoscopically, 16% of patients had upper digestive tract angiodysplasias, located in the stomach (10%) and duodenum/first jejunal loops (6%). 84% had lower digestive tract angiodysplasias, found in the small intestine (13%), jejunum (7%), ileum (6%), cecum (19%), colon (23%), and rectum (29%). 54% of patients had multiple and diffuse lesions, while 46% had minimal lesions (2 to 4 angiodysplasia lesions). 82% had small/millimetric lesions, whereas 18% had large lesions (plaques, extensive patches, wheel-spoke patterns). 13% had associated colonic polyps, and 5% had associated fundic and antral gastritis.
- Treatment was based on argon plasma coagulation for all patients. A total of 58 APC sessions were performed, with an average of 1.5 sessions per patient. Lesion healing was achieved in 36 patients, while 2 patients required second-line medical treatment (Tamoxifen and Lenalidomide) due to endoscopic treatment failure.

## DISCUSSION

Digestive angiodysplasia is a vascular malformation that can affect any part of the digestive tract. It is characterized by intramucosal capillary ectasia connected to dilated submucosal veins. These lesions, often single or multiple, appear as red, flat, and branching areas. While the pathophysiology is not fully understood, the Boley and Brandt hypothesis suggests that repeated contractions of the colonic muscular layer, which increase with age, cause partial obstruction of submucosal veins. This obstruction leads to precapillary sphincter weakening, capillary congestion, and the formation of small arteriovenous collaterals. Another theory links angiodysplasia to cardiovascular history, where chronic hypoperfusion results in mucosal ischemia [4, 5].

Gastrointestinal bleeding from angiodysplasia can present as melena or hematemesis, but it may also be asymptomatic, discovered incidentally during anemia investigations. Spontaneous bleeding cessation occurs in about 90% of cases, but recurrence risk remains, particularly in elderly patients or those with chronic kidney disease, valvular heart disease, cirrhosis, or anticoagulant/antiplatelet therapy use [6].

The diagnosis primarily relies on endoscopic exploration. During esophagogastroduodenoscopy (EGD) or colonoscopy, the typical lesion appears as a round or stellate, flat, red lesion with regular or slightly elevated irregular borders. Capsule endoscopy is a non-invasive method for small intestine evaluation when EGD and colonoscopy results are normal, detecting lesions in 55-80% of patients with nearly 100% sensitivity and a negative predictive value exceeding 80% [7].

APC remains the reference treatment due to its efficacy and precision. Other endoscopic techniques, such as YAG laser photocoagulation or electrocoagulation, are no longer used due to increased perforation risks. APC utilizes the thermal effect of an electric current applied to tissues via ionized argon gas. This inert, non-flammable, odorless, and colorless gas generates a conductive plasma that transfers electrical energy to tissues, allowing for superficial coagulation without direct contact [10, 11].

## CONCLUSION

Digestive angiodysplasia is a vascular pathology diagnosed through precise endoscopic exploration. APC is the reference treatment, providing an effective and safe approach to managing bleeding while minimizing complications. Despite therapeutic advances, a personalized approach remains essential to prevent recurrences and limit complications, especially in high-risk patients.

## REFERENCES

1. Dr F. Reinaud - ANGIODYSPLASIES: ANOMALIES DES VAISSEAUX RÉSULTANT D'UN TROUBLE DE LEUR FORMATION -Date de création 05 mai 2018, consulté le 10/10/2022, le site: https://www.concilio.com/gastro-enterologie-pathologies-tubedigestif-grele-colon-angiodysplasies.
2. Alfred- Abstracts of the 25th National Congress of Digestive Diseases / Digestive and Liver Disease 51/S2 (2019) e71–e243 e155.
3. Soua, S., El Jeri, K., Laabidi, S., Trad, N., Said, Y., Zaimi, Y., ... & Debbeche, R. (2019). Place de la coagulation au plasma argon dans le traitement des anomalies vasculaires du tube digestif. *Endoscopy*, *51*(03), 000607.
4. Boley, S. J., & Brandt, L. J. (1986). Vascular ectasias of the colon—1986. *Digestive diseases and sciences*, *31*, 26-42.
5. Rogers, B. G. (1980). Endoscopic diagnosis and therapy of mucosal vascular abnormalities of the gastrointestinal tract occurring in elderly patients and associated with cardiac, vascular, and

pulmonary disease. *Gastrointestinal endoscopy*, *26*(4), 134-138.

6. Adrien, S., Daniel, B. B., & Robert, B. (2018). La Lettre de l'Hépato-gastroentérologue, 21(2), 69 - mars-avril.
7. Pennazio, M., Santucci, R., Rondonotti, E., Abbiati, C., Beccari, G., Rossini, F. P., & De Franchis, R. (2004). Outcome of patients with obscure gastrointestinal bleeding after capsule endoscopy: report of 100 consecutive cases. *Gastroenterology*, *126*(3), 643-653.
8. Angiodysplasies-du-tube-digestif-5016-content - 07/2011, disponible sur le site : http://onclepaul.fr/wp-content/uploads/2011/07/ angiodysplasies-du-tube-digestif-5016.pdf.
9. Jules Verne—angiodysplasie du grele/ Digisante - 2023- disponible sur le site : https://www.gastrojulesverne.fr/pathologies/intestingrele/angiodysplasie/.
10. Johanns, W., Luis, W., Janssen, J., Kahl, S., & Greiner, L. (1997). Argon plasma coagulation (APC) in gastroenterology: experimental and clinical experiences. *European journal of gastroenterology & hepatology*, *9*(6), 581-587.
11. Alan- Fabricant et titulaire du marquage CE: SE de Carburos Metalicos. Av de la Fama, 1, 08940 Cornellà del Llobregat, Espagne--- Janvier 2020 – Catalogue médical - v1 83.
12. Fatima-zohra moumayez en (2015). Thèse de médecine faculté de médecine et de pharmacie de RABAT, n°21/2015 consulté sur le site : http://ao.um5.ac.ma/xmlui/handle/123456789/1/browse?value=MOUM AY EZ%2C+Fatima-Zohra&type=author.
13. Magalie Vincent, thèse de médecine, université de Limoges, publiée en 09/2011. Disponible sur le site ; http://aurore.unilim.fr/ori-oaisearch/notice/view/unilim-ori-38827?lightbox=true.
14. La Lettre de l'Hépato-Gastroentérologue - n° 4 - vol. II –septembre 1999, disponible sur le site : https://www.edimark.fr/Front/frontpost/getfiles/8606.pdf.
15. Szilagyi, A., & Ghali, M. P. (2006). Pharmacological therapy of vascular malformations of the gastrointestinal tract. *Canadian Journal of Gastroenterology and Hepatology*, *20*(3), 171-17.