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Clinical Profile, Indications, and Endoscopic Characteristics of Patients Treated with Argon Plasma Coagulation: A Retrospective Study

R. Laroussi[1]*, M. El Oufir[1], C. Jioua[1], I. Radouan[1], S. Ouahid[1], S. Berrag[1], F. Nejjari[1], T. Adioui[1], M. Tamzouarte[1]

[1]Department of Gastroenterology I, Mohammed V Military Instruction Hospital, Rabat, Morocco

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***Corresponding author:** R. Laroussi
Department of Gastroenterology I, Mohammed V of the Military Hospital Rabat-Morocco

Abstract **Original Research Article**

Background: Argon plasma coagulation (APC) is an endoscopic hemostasis technique widely used in treating bleeding digestive vascular lesions. Few Moroccan data describe the profile of patients treated with APC. ***Objective:*** To describe the clinical profile, indications, and endoscopic characteristics of patients who underwent APC treatment at the Mohammed V Military Instruction Hospital (HMIMV) in Rabat. ***Methods:*** A retrospective descriptive study including all patients treated with APC between January 2020 and December 2025 in the gastroenterology department of HMIMV. Demographic, clinical, and endoscopic data were collected from the Jamovi database. ***Results:*** A total of 199 patients were included. The mean age was 65.1 ± 12.1 years (range: 40–91), with a male predominance (57.3%). Lesions were located in the lower gastrointestinal tract in 71.9% of cases, predominantly in the rectum (55.8%). The upper gastrointestinal tract was involved in 28.1% of patients, with predominant involvement of the gastric fundus (14.1%) and gastric antrum (11.1%). The mean number of lesions per patient was 2.27 (median: 2), and the mean number of sessions was 1.96 (median: 2). Active bleeding was observed in 10.1% of cases. Adjuvant treatment was used in 2.5% of patients and a complementary maneuver in 1.5% of cases. ***Conclusion:*** APC is a technique frequently used at HMIMV for managing gastrointestinal vascular lesions, with a predominance of colorectal localizations. These results are comparable to international data reporting the efficacy and safety of APC in the management of angiodysplasias and radiation proctopathy.

Keywords: Argon plasma coagulation; therapeutic endoscopy; gastrointestinal angiodysplasia; radiation proctopathy.

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1. INTRODUCTION

Gastrointestinal hemorrhage is a frequent reason for hospitalization in gastroenterology and can be life-threatening. Among the causes of chronic or acute gastrointestinal bleeding, vascular lesions such as angiodysplasias and radiation proctopathy occupy an important place, particularly in elderly and comorbid patients.

Argon plasma coagulation (APC) is a non-contact endoscopic hemostasis technique that uses an ionized gas (argon) to transmit a high-frequency electrical current to the gastrointestinal mucosa. This method allows controlled superficial coagulation, limiting the risk of perforation. APC is currently considered the first-line treatment for symptomatic gastrointestinal angiodysplasias and bleeding radiation proctopathy.

Several studies have reported APC success rates exceeding 80% in treating bleeding associated with colonic angiodysplasias and radiation proctitis, with a mean number of sessions ranging between 1 and 3. However, data from Morocco remain limited.

The objective of this work is to describe the clinical profile, indications, and endoscopic characteristics of a large series of patients treated with APC at the Mohammed V Military Instruction Hospital in Rabat over a five-year period (2020–2025).

2. PATIENTS AND METHODS

Study Design and Setting:

This is a retrospective descriptive study conducted in the Department of Gastroenterology at the Mohammed V Military Instruction Hospital (HMIMV) in Rabat, Morocco. HMIMV is a tertiary reference university hospital catering to both civilian and military patients.

Study Period: The study period spanned from January 1, 2020, to December 31, 2025, covering a duration of five years.

Study Population:

All patients who underwent at least one session of argon plasma coagulation (APC) during the study period were included. No restrictions were applied regarding age, sex, or indication for APC.

Data Collection:

Data were extracted from the department's Jamovi database. The collected variables included demographic data (age, sex), indication for APC (coded into two groups), and endoscopic characteristics (number of treated lesions, number of APC sessions, anatomical localization of lesions, presence of active bleeding, use of adjuvant treatment, and performance of complementary maneuvers).

Statistical Analysis:

Quantitative variables were expressed as mean ± standard deviation and median with minimum and maximum values. Qualitative variables were presented as counts and percentages. Statistical analysis was performed using Jamovi software.

3. RESULTS

Demographic Characteristics:

A total of 199 patients were included in the study. The mean age was 65.1 ± 12.1 years (median: 67 years; range: 40–91 years). The gender distribution showed a male predominance with 117 men (57.3%) and 82 women (41.2%).

Indications for APC: The indication for APC was coded into two main groups:

- Group 1: 107 patients presenting with radiation proctopathy (53.8%)
- Group 2: 91 patients presenting with angiodysplasias (45.7%)

Endoscopic Characteristics:

The mean number of treated lesions per patient was 2.27 ± 1.14 (median: 2; range: 1–5). The mean number of APC sessions per patient was 1.96 ± 1.15 (median: 2; range: 1–8). These results are comparable to literature data reporting a mean number of sessions between 1 and 3 to achieve bleeding control.

Table 1: Anatomical localization of lesions treated by APC (n = 199)

Location	Count (n)	Percentage (%)
Upper Gastrointestinal Tract	**56**	**28.1**
Esophagus	4	2.0
Gastric fundus	28	14.1
Gastric antrum	22	11.1
Duodenal bulb	7	3.5
Duodenum	11	5.5
Afferent/efferent loop	5	2.5
Esophagojejunal anastomosis	1	0.5
Gastric remnant	4	2.0
Gastrojejunal anastomosis	3	1.5
Jejunum	13	6.5
Lower Gastrointestinal Tract	**143**	**71.9**
Cecum	25	12.6
Right colon	7	3.5
Transverse colon	4	2.0
Left colon	10	5.0
Rectum	111	55.8

Two patients (1.0%) presented with lesions simultaneously located in both the upper and lower gastrointestinal tracts. Rectal localization was by far the most frequent, representing 55.8% of all patients, followed by the gastric fundus (14.1%) and gastric antrum (11.1%). These findings are consistent with literature data reporting a high frequency of radiation proctopathy and gastric angiodysplasias among indications for APC.

Active Bleeding, Adjuvant Treatment, and Complementary Maneuvers:

Active bleeding was observed at the time of endoscopy in 20 patients (10.1%), whereas 165 patients (82.9%) had no active bleeding. Adjuvant treatment was administered to 5 patients (2.5%): 3 patients (1.5%) received 5-ASA enemas and 2 patients (1.0%) received corticosteroid enemas. The vast majority of patients (193 patients, 97.0%) received no adjuvant therapy. A complementary maneuver by endoclip placement was performed in 3 patients (1.5%), while 195 patients (98.0%) underwent APC alone.

4. DISCUSSION

This study describes the clinical and endoscopic profile of a large series of 199 patients treated with APC at the Mohammed V Military Instruction Hospital in Rabat over a five-year period. To our knowledge, this represents one of the largest Moroccan series reported on this topic.

The mean age of our population (65.1 years) is comparable to figures reported in the literature, notably a Tunisian study reporting a mean age of 68 years and a French study on small bowel angiodysplasias. The male predominance (57.3%) observed in our series is also consistent with published data reporting a male-to-female ratio between 1.5 and 2 in series of angiodysplasias and radiation proctopathy.

The predominance of colorectal localizations (71.9%), particularly rectal (55.8%), indicates that radiation proctopathy is a major indication for APC in our institution. This observation aligns with international data identifying radiation proctitis as a primary indication for APC, with bleeding control rates exceeding 80% after 1 to 3 sessions.

Upper gastrointestinal localizations (28.1%) predominantly involved the stomach (fundus and antrum) and jejunum. These findings align with the reported frequency of gastric and jejunal angiodysplasias. Gastric antral vascular ectasia (GAVE) and jejunal angiodysplasias represent well-established indications for APC, particularly in elderly and comorbid patients.

The mean number of sessions in our cohort (1.96) is similar to other series, including a recent Moroccan study of 38 patients (mean 1.5 sessions) and international series reporting a mean of 1 to 3 sessions. This confirms that APC frequently requires multiple sessions to achieve complete bleeding control, especially in extensive or multifocal lesions.

The low proportion of patients presenting with active bleeding (10.1%) suggests that APC is predominantly utilized in the context of chronic bleeding or iron-deficiency anemia rather than acute emergency hemorrhage. The infrequent use of adjuvant treatments (2.5%) and complementary maneuvers (1.5%) confirms that APC is generally effective as a standalone monotherapy.

5. CONCLUSION

This retrospective study conducted at the Mohammed V Military Instruction Hospital in Rabat outlines the profile of 199 patients treated with APC over a five-year period. Patients were predominantly middle-aged to elderly men, with a high proportion of colorectal localizations, particularly rectal. The mean number of sessions was approximately 2 per patient, consistent with international benchmarks. These findings confirm the vital role of APC in managing bleeding gastrointestinal vascular lesions in Morocco and highlight the importance of prospective studies to further optimize therapeutic strategies.

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