

## A Recto-Sigmoid Nitinol Stent Remodeled By Argon Plasma Procedure: A Case Report

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Received: 01 July 2024

Accepted: 12 July 2024

Published: 16 July 2024

J Short Name: JJGH

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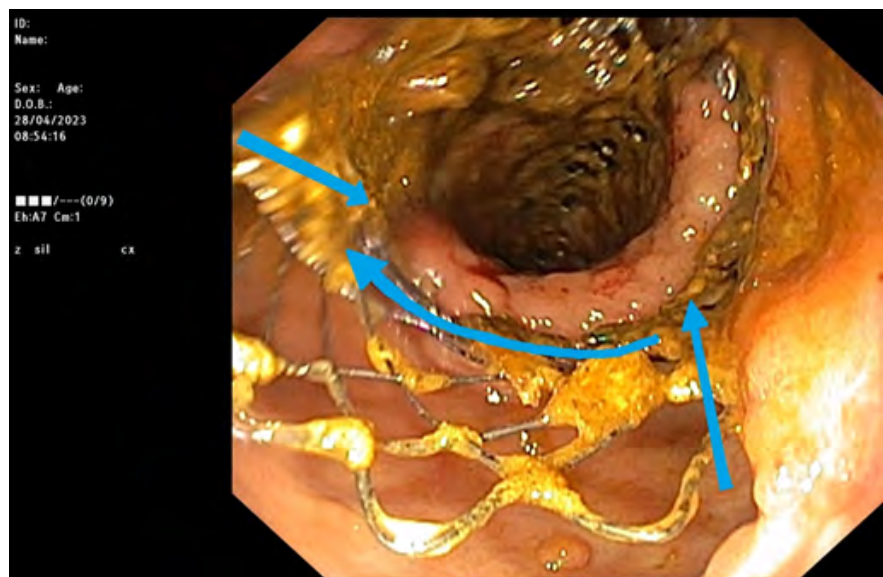
**Citation:**

Cilona Antonio. A Recto-Sigmoid Nitinol Stent Remodeled By Argon Plasma Procedure: A Case Report. J Gastro Hepato. 2024; V10(10): 1-2

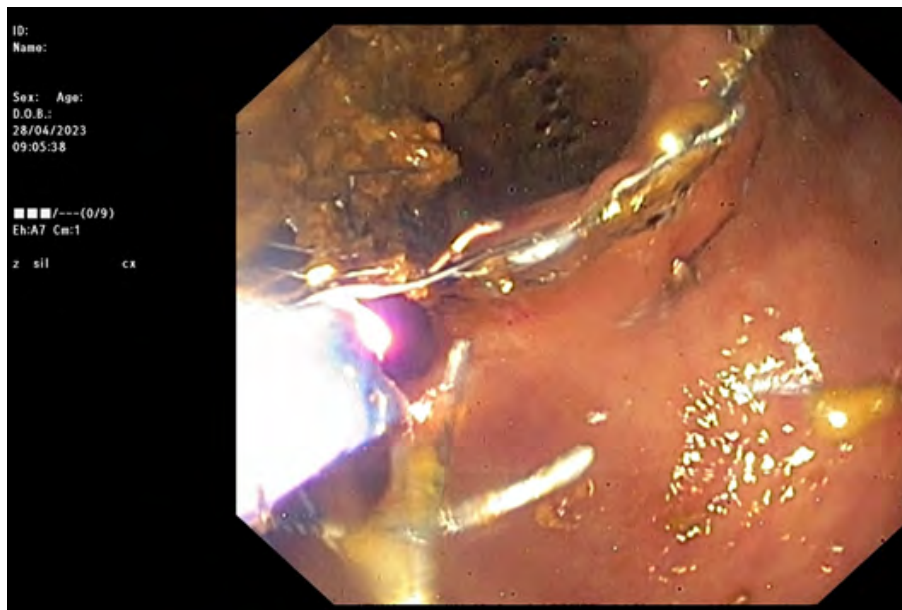
### 1. Clinical Case

An inoperable malignant rectosigmoid stenosis in a 75-years-old men was successfully managed by placing a self-expanding not-covered single-wire Nitinol stent. We intentionally left approximately 15 mm of stent distal to the stenosis to prevent pressure decubitus on the healthy wall immediately downstream of the distal end of the neoplasm, precisely at the rectosigmoid junction. Few weeks later, the follow-up endoscopy, confirmed the correct stenosis's resolution with a mild distal displacement of the stent. The patient reported normal bowel transit, but experienced slight discomfort in the rectal area.

After a few months, the rectal discomfort worsened and was poorly tolerated. A new rectosigmoidoscopy revealed contact between a portion of the stent's end and the rectal wall. We decided to cut a distal portion of the stent using Argon Plasma Coagulation (APC) procedure, as described in the literature. Employing the ERBE VIO 200-D at a power of 50 W and a flow rate of 2 L/min, the cutting was performed first sagittally, then longitudinally near the boundary with the neoplasm (Figure 1 - 2). Some fragments were removed with forceps as foreign bodies, while others remained in the rectum, and their spontaneous expulsion was facilitated by their softness. Subsequently the rectal symptoms complained by the patient improved.



**Figure 1:** Employing the ERBE VIO 200-D at a power of 50 W and a flow rate of 2 L/min, the cutting was performed first sagittally, then longitudinally near the boundary with the neoplasm.



**Figure 2:** Employing the ERBE VIO 200-D at a power of 50 W and a flow rate of 2 L/min, the cutting was performed first sagittally, then longitudinally near the boundary with the neoplasm.

## 2. Discussion

The trimming of the distal portion of self-expanding metallic stents has been previously described, primarily for biliary types [1]. Less frequent are the reported cases involving stents in rectosigmoid stenosis [2-6], which were made of Cobalt-Chromium-Nickel-Molybdenum alloys or Nitinol (Nickel-Titanium): Nitinol is part of the Shape Memory Alloys, which, in turn, are part of the even broader category of Smart Materials, meaning materials that can change their properties when subjected to specific stimuli due to their intrinsic characteristics. In literature the APC settings used varied from 70 to 90 W about the power and 0.8 to 2 L/min about the flow. In our case the Nitinol stent that we easily trimmed by a power of 50 W with a flow of 2L/min.

## 3. Conclusions

The partial trimming of the distal end of a self-expanding Nitinol stent implanted in rectosigmoid stenosis is straightforward and safe, as previously described in the literature. At present the main colonic stents are made up of a single-wire Nitinol alloy, and they are easily mouldable by APC. Furthermore, it is not mandatory to remove the fragments by forceps, as they are spontaneously expelled without any complications.

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