Successful treatment of refractory Barrett’s neoplasia with hybrid argon plasma coagulation: a case series

A 60-year-old woman with Barrett’s esophagus (Prague class C8M10) with flat high grade dysplasia underwent radiofrequency ablation (RFA) therapy. She underwent four sessions with the circumferential balloon and one treatment with the focal 90 ablation catheter for a total of five sessions. Sessions were performed every 3 months and the patient adhered to maximal acid suppression therapy. The patient returned for a sixth session (15 months from the start of therapy). Endoscopy showed a 5-cm area of salmon-colored mucosa remaining. There was also a slightly raised 2-cm island that was suspicious for residual neoplasia (Fig. 1, arrow). The decision was made to perform extensive biopsies to rule out progression of disease. Results showed intramucosal cancer in the raised area while the remaining distal Barrett’s segment was nondysplastic.

Given the presence of refractory Barrett’s mucosa, the decision was made to switch therapy to hybrid argon plasma coagulation (hAPC). The neoplastic island was removed using band ligation endoscopic mucosal resection technique; histology showed intramucosal cancer with negative margins. The EMR defect was treated with hAPC. The mucosa was raised using a submucosal injection (Erbejet, Effect 50; Erbe Elektromedizin GmbH, Tübingen, Germany) and ablated at 40W (Video 1). The remaining distal nondysplastic Barrett’s mucosa was also treated with hAPC at 60W (Fig. 2).

Follow-up endoscopy 3 months later showed minimal islands, which were retreated with hAPC (Fig. 3). Follow-up endoscopy 6 months from the start of hAPC therapy showed complete eradication of intestinal metaplasia (Fig. 4), as confirmed by histology from biopsies.

Fig. 1 Endoscopy with narrow band imaging showing a Barrett’s segment after five sessions of radiofrequency ablation. There was a raised area (yellow arrow) of intramucosal cancer.

Video 1 Endoscopic mucosal resection (EMR) of a raised Barrett’s area, hybrid argon plasma coagulation (hAPC) of the EMR defect, and hAPC of the remaining flat Barrett’s mucosa.

Fig. 2 Treatment of the Barrett’s segment that was refractory to radiofrequency ablation. a Endoscopic mucosal resection (EMR) of the raised area, and hybrid argon plasma coagulation (hAPC) of the EMR defect. b The remaining flat, nondysplastic Barrett’s mucosa also underwent hAPC.
The patient tolerated all procedures well and had no post-procedural pain. This case shows that hAPC is an option when RFA has failed. In our institution we have used hAPC to successfully treat five consecutive cases of disease that was refractory to RFA with or without cryotherapy (Table 1).

**Table 1** Information for five patient who were refractory to radiofrequency ablation with our without cryotherapy and who were successfully treated with hybrid argon plasma coagulation.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Patient age, years/sex</th>
<th>Initial Prague class and grade of dysplasia</th>
<th>Treatment prior to hAPC (no. of sessions)</th>
<th>Prague class prior to hAPC</th>
<th>CE-D achieved prior to hAPC</th>
<th>Sessions of hAPC, n</th>
<th>CE-IM achieved after hAPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60/F</td>
<td>C8M10 HGD</td>
<td>RFA (5)</td>
<td>C1M5</td>
<td>No</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>51/M</td>
<td>C7M8 LGD</td>
<td>RFA (4) Cryo (3)</td>
<td>C2M4</td>
<td>Yes</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>72/F</td>
<td>C8M10</td>
<td>RFA (4) Cryo (2)</td>
<td>C6M7</td>
<td>No</td>
<td>3</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>76/M</td>
<td>C7M7</td>
<td>RFA (4) Cryo (2)</td>
<td>C2M3</td>
<td>No</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>75/M</td>
<td>C4M5</td>
<td>RFA (3)</td>
<td>C2M3</td>
<td>No</td>
<td>2</td>
<td>Yes</td>
</tr>
</tbody>
</table>

hAPC, hybrid argon plasma coagulation; CE-D, complete eradication of dysplasia; CE-IM, complete eradication of intestinal metaplasia; F, female; HGD, high grade dysplasia; RFA, radiofrequency ablation; M, male; LGD, low grade dysplasia; Cryo, cryotherapy.

The authors

Arvind J. Trindade, Diana Wee, Praneet Wander, Molly Stewart, Calvin Lee, Petros C. Benias, Matthew J. McKinley
Division of Gastroenterology, Long Island Jewish Medical Center, Zucker School of Medicine at Hofstra/Northwell, Northwell Health System, New Hyde Park, New York, United States

Corresponding author

Arvind J. Trindade, MD
Division of Gastroenterology, Long Island Jewish Medical Center, Zucker School of Medicine at Hofstra/Northwell, Northwell Health System, 270-05 76th Avenue, New Hyde Park, NY 11040, United States
Fax: +1-718-470-5509
arvind.trindade@gmail.com

Bibliography

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The patient tolerated all procedures well and had no post-procedural pain. This case shows that hAPC is an option when RFA has failed. In our institution we have used hAPC to successfully treat five consecutive cases of disease that was refractory to RFA with or without cryotherapy (Table 1).

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Competing interests

Dr. Benias is a consultant for Medtronic. Dr. Trindade is a consultant for Olympus America and Pentax America, and has received research support from Ninepoint Medical.