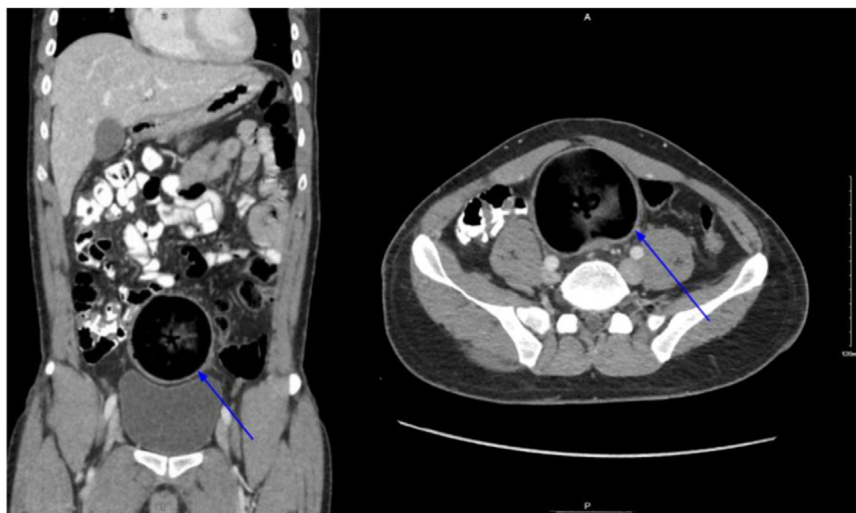


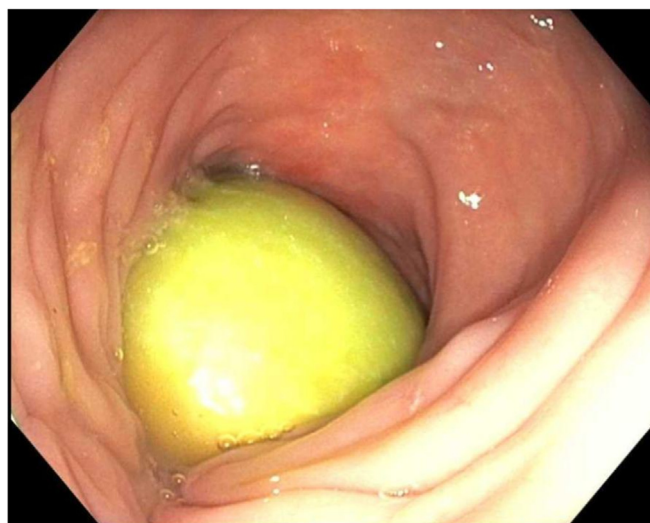
## Straight from the Big Apple: endoscopic retrieval of a whole apple from the sigmoid colon

Judah Kupferman, MD, Aaron Walfish, MD, Joshua Aron, MD, Krishna Gurrām, MD



**Figure 1.** Coronal (*left*) and axial (*right*) cuts from the patient's CT scan showing an apple (*blue arrow*) within the distal sigmoid colon.

A 37-year-old man with no significant medical history presented to the emergency department with abdominal pain. He described being intoxicated with his friends during the previous evening and did not clearly recall the exact events. However, on the day of presentation, he awoke with periumbilical pain, rectal pain, and constipation. The patient was otherwise hemodynamically stable and blood work was unremarkable. Physical examination demonstrated a rounded suprapubic mass and an otherwise benign abdomen. CT imaging showed an apple located in the sigmoid colon (*Fig. 1*). After multiple enemas were given without any improvement, the patient was prepared for endoscopic intervention.



**Figure 2.** Whole green apple found in the sigmoid colon on flexible sigmoidoscopy.

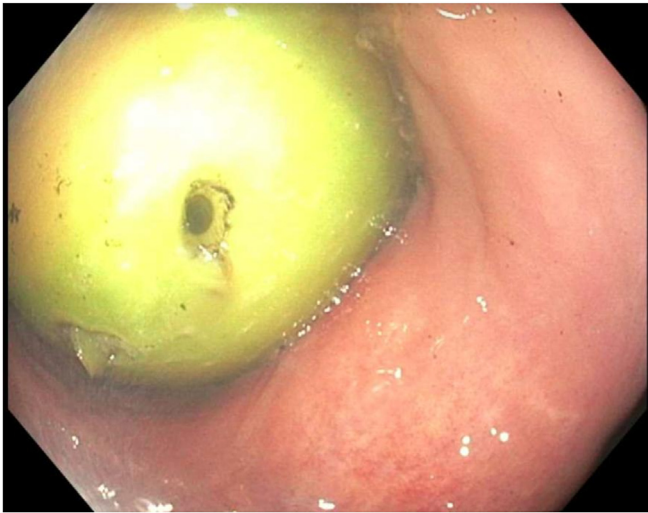
*Abbreviation:* APC, argon plasma coagulation.

Copyright © 2023 American Society for Gastrointestinal Endoscopy. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). 2468-4481

<https://doi.org/10.1016/j.vgie.2023.06.012>

Elmhurst Hospital Center, Icahn School of Medicine at Mount Sinai, Queens, New York.

Flexible sigmoidoscopy with the patient under general anesthesia demonstrated a whole green apple about 20 cm from the anal verge without evidence of mucosal injury (*Fig. 2*). Various attempts were made to pull out the apple



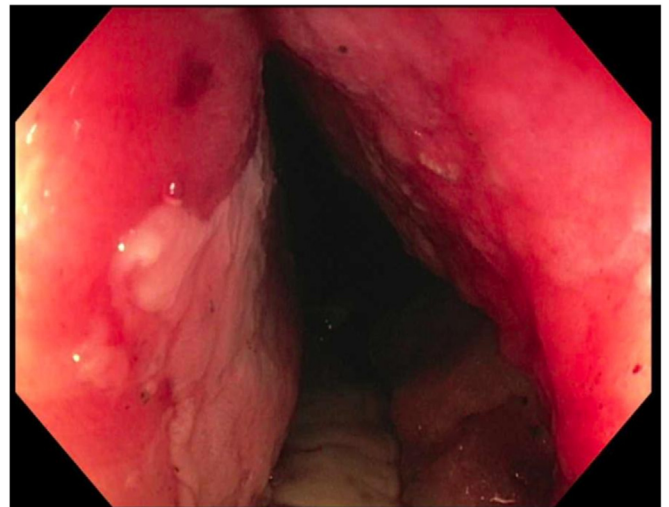
**Figure 3.** An attempt is started to make a hole through the apple's core using electrocautery.



**Figure 5.** Apple pieces that were removed from the patient.



**Figure 4.** Use of argon plasma coagulation to break through the apple's skin and core until the probe penetrated through to the opposite side of the fruit.



**Figure 6.** Inflammation and ulceration of the sigmoid colon seen on re-examination with flexible sigmoidoscopy.

in one piece. An 18-mm stone extraction balloon catheter was initially used to place a wire behind the apple. Once the balloon was inflated proximal to the apple, several attempts were made to pull it out; however, the apple simply rolled in place without advancing outward. A dual channel sigmoidoscope was then used to inflate 2 balloons upstream of the apple under fluoroscopy to pull it out, but this was also unsuccessful. A snare was then placed around the apple, but it was not sufficiently able to grasp its smooth surface.

Debulking was then done using an electrocautery knife in dry cut mode to make a hole through the center of the apple (Fig. 3). Once an outer hole was made, the catheter was traversed through the apple under fluoros-

copy. The stone extraction balloon was inserted inside the apple and inflated to help pull the contents out. Despite this, the apple still rolled in various directions without advancing. The snare was removed and a straight fire argon plasma coagulation (APC) probe with 2 L of flow at 50 W was used to drill through the soft inner core. In total, 3 APC probes were needed for almost an hour until the apple's outer skin was reached on the farther side and punctured through (Fig. 4). Argon was then suctioned out.

When the probe's location was confirmed with fluoroscopy, an 18-mm stone extraction balloon was again inflated, this time on the proximal end of the apple. The sigmoidoscope was tugged, and the apple began inching

forward. At one point, the balloon tore through the tunnel in the apple's core and enlarged it, although the apple remained fixed in place. Rat tooth forceps were used to make the apple pieces smaller. Ear, nose, and throat forceps and sponge forceps were used to try and grasp the apple once it was closer to the rectum. This method managed to break the apple pieces further, but they were still too difficult to extract.

With assistance from the surgery team, the patient was placed in a lithotomy position and external pressure was applied to the pelvis. Using sponge forceps, we were finally able to remove the apple piece by piece (Fig. 5). Once all the pieces were extracted, the sigmoidoscope was reintroduced to assess for trauma and demonstrated edematous, ulcerated mucosa in the rectosigmoid colon that was not initially present, likely because of the heat dissipated from the electrocautery and APC (Fig. 6). The patient had no blood loss and was discharged home the

next day without adverse events after passing a solid brown stool. He followed up at the surgery clinic 5 days later and reported resolution of his abdominal pain.

It is important to understand the size and restrictions of a given foreign body. Proceduralists should use APC and other endoscopic techniques like electrocautery, balloons, wires, and needle knives to remove foreign bodies. Placing a rectal tube while doing an extended APC can limit mucosal damage from argon gas. Endoscopic suture cutters and laparoscopic graspers are also helpful (Video 1, available online at [www.videogie.org](http://www.videogie.org)). The patient provided informed consent to this publication.

## DISCLOSURE

*All authors disclosed no financial relationships.*

**Read Articles in Press Online Today!  
Visit [www.videogie.org](http://www.videogie.org)**

*VideoGIE* posts in-press articles online in advance of their appearance in a monthly edition of the journal. These articles are available on the *VideoGIE* website by clicking on the "Articles in Press" tab. Articles in Press represent the final edited text of articles that are accepted for publication but not yet scheduled to appear in a specific issue. They are considered officially published as of the date of Web publication, which means readers can access the information and authors can cite the research months prior to its availability in an issue. To cite Articles in Press, include the journal title, year, and the article's Digital Object Identifier (DOI), located in the article footnote. Visit the website today to stay current on the latest research in the field of gastrointestinal endoscopy.