

## Alivio Medical Center: Magnetically Controlled Capsule Endoscopy (MCCE) Case Study

This is a case study of a 54 years of age Hispanic male with a body mass index of 28.4 presenting to a primary care healthcare provider for abdominal and gastro-esophageal reflux symptoms relative to spicy food. These symptoms persist for days following ingesting this cuisine. The patient's medical history consists of no chronic diseases/disorders. Previous medical surgeries/procedures pertain to an appendectomy at 19 and a negative H. The physical examination revealed no gastro-intestinal bleeding alarm features or weight loss. The patient did not present with complaints of dysphagia or known or suspected gastrointestinal obstruction, stenosis, or fistulas. Additionally, the patient did not have any implantable electronic devices. Following a discussion with their primary care healthcare provider in which the option of an esophagogastroduodenoscopy (EGD) or an MCCE examination was selected by the patient to evaluate for stomach lesions (to determine if further endoscopic assessment was warranted) before undergoing further endoscopic assessment. Justification for this evaluation strategy was that MCCE excluded anesthesia and reduced potential additional healthcare costs.

The MCCE was performed at the primary care provider's medical center. The patient completed the MCCE pre-test preparation protocol by withholding food ingestion post 8 P.M. the day before the procedure. The patient was instructed that a small amount of water post 8 P.M. would not interfere with the MCCE procedure. On the day of the examination, the MCCE preparation was performed at 0800: 100 ml of Simethicone diluted in 100 ml of water, ingestion of another 100 ml of water following a brief period of time, followed by another large volume of water,  $\geq 500$  ml, was ingested. Total water consumption was 1200 ml of water. A vest was positioned on the patient covering their chest region and abdominal cavity. The magnetically controlled capsule (27.8 mm x 11.8 mm) was ingested in



Figure 1: Magnetically Controlled Capsule



Figure 2: Portable data recording unit with rechargeable lithium battery unit.

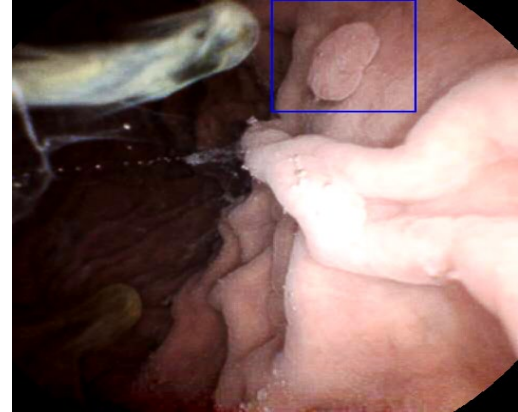


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the left lateral decubitus position with a small volume of water, approximately 20 ml. (Figure 1) The images were transmitted and collected inside a protective jacket by a data recorder. (Figure 2) The MCCE identified eight anatomical regions inside the stomach: Cardia, Fundus, Anterior Wall, Posterior Wall, Incisura Angularis, Greater and Lower Curvatures, Antrum, and Pylorus. The software automatically traversed from one anatomical region to the next by magnetically controlling the capsule orientation and location prompted by the MCCE operator. During the MCCE procedure, the patient was in three different positions: left lateral decubitus, supine, and right lateral decubitus.

The duration of the MCCE procedure was 25 minutes excluding the pre-test preparation (35 minutes). No significant stomach lesions were identified in seven of the anatomical regions. A gastric polyp and erythema were discovered in the gastric body and antrum. (Figure 4) Following the MCCE procedure, the primary care provider and the patient discussed the MCCE results. The patient was grateful for receiving the results immediately following the MCCE procedure. After discussing a medical strategy plan, the patient agreed to undergo an esophagogastroduodenoscopy (EGD) to further evaluate the stomach polyp and erythema. Moreover, the patient was appreciative of evidence justifying the economic cost for an EGD.

*Figure : Magnetically Controlled Capsule Endoscopy: Gastric Polyp and Erythema Images*



*Gastric Body: Smooth Non-Ulcerated Polyp*



*Antrum: Petechial Excoriation*