

Clinical experience in the placement of a novel motility capsule by using a capsule delivery device in critical care patients

Wireless motility capsules can be delivered to patients with impaired swallowing function or abnormal upper gastrointestinal anatomy with a net, snare, or capsule delivery device. However, few published studies report clinical application of capsule technology in critically ill patients [1]. We report the placement of a novel motility capsule (SmartPill, SmartPill Corp., Buffalo, New York, USA) in eight critically ill patients who were sedated, intubated, and mechanically ventilated.

The motility capsule we evaluated measures pH, pressure, and temperature; it is also used for assessing gastric emptying in patients with suspected gastroparesis. This motility capsule has been available in the United States since 2006 [2,3]. The motility capsule (● Fig. 1) has a relatively soft polyurethane body; consequently, a snare insertion system could damage the sensors. We used a delivery device (AdvanCE, US Endoscopy, Mentor, Ohio, USA) designed for insertion of fragile video capsules. The application device was stabilized by loading it into a regular gastric feeding tube (● Fig. 2). The capsule was placed into the cup of the device (● Fig. 3). In order to compensate for the narrowing of the hypopharynx caused by the endotracheal tube, we inserted the device into the esophagus under direct laryngoscopy and then advanced it blindly into the stomach. Once a pH change was indicated in real-time by the data recorder, the capsule was released. Its position was confirmed by abdominal radiography.

All capsules were safely deployed into the patients' stomachs. All patients underwent capsule placement without complication. There was no premature release or dislodgement from the device. There were no iatrogenic injuries or capsule retention.

Preliminary experience suggests that the AdvanCE delivery device facilitates insertion of wireless motility capsules in sedated and mechanically ventilated, critical care patients.

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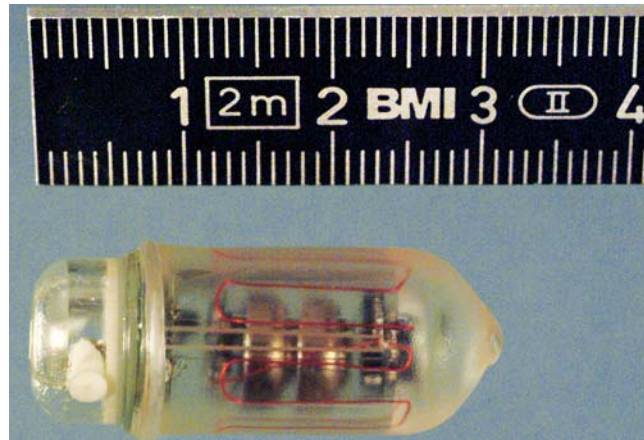


Fig. 1 SmartPill GI Monitoring System motility capsule.

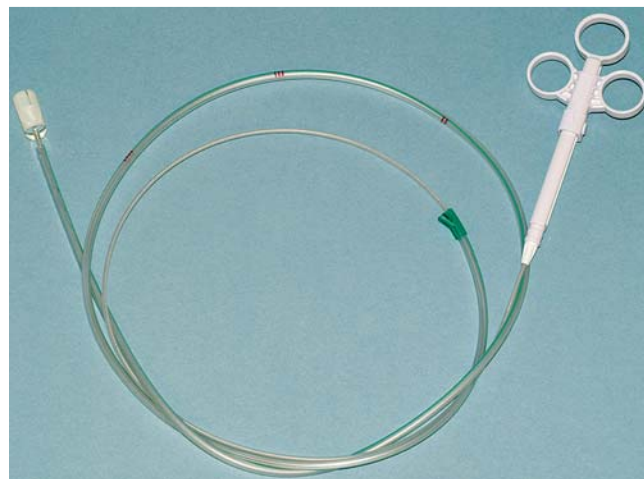


Fig. 2 AdvanCE capsule delivery device loaded into a feeding tube.



Fig. 3 SmartPill inserted into the cup holder.

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