

# Swallowing a diagnostic pill

December 4 2013

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A tiny capsule that can carry out a chemical analysis of the contents of one's stomach could identify the presence of so-called "occult" blood at very low levels. The data is automatically broadcast to an external monitoring device for detection of early stage stomach cancer by one's physician. Details of the invention and initial trials are described in a forthcoming issue of the *International Journal of Biomedical Engineering and Technology*.

Hongying Liu, Panpan Qiao, Xueli Wu, Lan Zhu, Xitian Pi and Xiaolin Zheng of Chongqing University, in China, have adapted [capsule endoscopy](#) to allow them to detect tiny quantities of blood that might be present in a patient with the earliest signs of [stomach cancer](#). The capsule is encased in non-toxic and acid-safe polycarbonate. It carries inside it a detector, power supply, and wireless transmitter. The device has a detection limit of 6 micrograms per liter of fluid and laboratory tests demonstrate its simplicity as well as its reliability. Once its task is complete the tiny pill-like device would be disposed of through the usual route without harm to the [stomach](#) or intestine. This approach thus avoids the uncomfortable and risk retrieval of such a device via the oral route.

Occult bleeding is usually first identified in patients who have given a stool sample in which blood is found. However, it is important to identify the source of such blood, whether intestine or stomach. The detection of occult [blood](#) is indicated as one method of early diagnosis and so reduction of mortality from gastrointestinal cancers given the availability and adoption of suitable treatment by the patient.

The next step is to take the patent-pending [device](#) to clinical safety testing and then to in patients. It is so far likely to prove safe to use, less invasive than other endoscopic technology and devices.

**More information:** "Preliminary study of an automatic detection capsule system for gastric occult blood" in Int. J. Biomedical Engineering and Technology, 2013, 13, 105-116

Provided by Inderscience Publishers

Citation: Swallowing a diagnostic pill (2013, December 4) retrieved 20 March 2024 from <https://medicalxpress.com/news/2013-12-swallowing-diagnostic-pill.html>

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