

Reduces Unnecessary Endoscopies as Capsule Sponge Test Revolutionizes GERD Diagnosis

Researchers in the United Kingdom investigated the effectiveness of capsule sponge testing, a minimally invasive diagnostic tool, as a triage method for patients with [gastroesophageal reflux disease](#) (GERD).



Study

In the current prospective cohort study, researchers assess capsule sponge testing as a diagnostic triage tool for GERD patients referred for non-urgent endoscopy across 11 Scottish health boards between September 2020 and April 2023. Patients were referred from their primary care physician for evaluation of reflux symptoms without alarm features such as dysphagia or weight loss. Exclusion criteria included contraindications such as liver disease, pregnancy, or previous [esophageal surgery](#).

The capsule [sponge device](#), a gelatin-coated medical sponge on a string, was swallowed by patients under supervision. After five minutes, the capsule dissolved, releasing the sponge, which was retrieved by pulling the string to collect esophageal cells. Collected samples were analyzed for trefoil factor 3 (TFF3) expression, which indicated intestinal metaplasia, cellular atypia, and p53, which is associated with malignancy.

Data were also obtained from prospectively maintained databases and electronic patient records. These data consisted of demographic information, test results, and subsequent clinical management. Upper gastrointestinal endoscopy and [biopsy](#) results were also included for cases requiring follow-up care.

Statistical analyses were performed to evaluate the relationship between biomarker results and pathology findings and to determine the safety and efficacy of the capsule sponge device as a triage method. Upper [gastrointestinal specialists](#) or trained nurses managed patients undergoing capsule sponge testing through clinical assessments, either virtually or in person.

Results

Capsule sponge testing effectively identified GERD patients who required further investigation with upper gastrointestinal endoscopy. Among the 1,305 patients tested, samples obtained from 79.6% did not express any of the [biomarkers](#), which led to the discharge of 70% of patients without additional procedures.

Of the 355 patients who underwent endoscopy, 16.6% were diagnosed with intestinal metaplasia, a precursor to Barrett's esophagus, with 88.5% of these cases correlating with positive biomarker results. Thus, the capsule sponge test was associated with high specificity, especially for the [TFF3 biomarker](#), in which positivity strongly correlated with intestinal metaplasia detected during the biopsy.

Although 10 patients with negative test results eventually presented with significant pathology, including [malignancies](#), the overall rate of missed diagnoses was low at 0.9%. Moreover, endoscopic biopsies confirmed Barrett's esophagus in 4.2% of the cohort, thus reinforcing the utility of the capsule sponge test in prioritizing high-risk cases for endoscopy.

The capsule sponge method significantly reduced unnecessary endoscopies, easing resource demands without compromising [patient safety](#). Furthermore, patients with biomarker-positive samples were more likely to have significant endoscopic findings, thus supporting the utility of the capsule sponge test in effective risk stratification.

Importantly, clinical evaluations must continue to be performed, as [capsule sponge testing](#) can produce false negatives. Follow-up in patients presenting new symptoms is also crucial.

Conclusion

Capsule sponge testing is a minimally invasive and cost-effective approach to triaging GERD patients for endoscopy that significantly reduces unnecessary procedures while identifying high-risk cases. The current real-world study also demonstrated the efficacy of this method in diagnosing Barrett's esophagus and prioritizing [healthcare](#) resources.

Although missed diagnoses occurred in rare cases, the study findings support the integration of capsule sponge testing into clinical practice when combined with thorough [clinical assessments](#) to ensure comprehensive patient care.

Source:

<https://www.news-medical.net/news/20241201/Capsule-sponge-test-revolutionizes-GERD-diagnosis-reduces-unnecessary-endoscopies.aspx>