

Upper Gastrointestinal Fluoroscopic Examination: A Traditional Art Enduring into the 21st Century

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Abbreviation: UGI = upper gastrointestinal examination

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The fluoroscopic upper gastrointestinal examination (UGI) is among the oldest radiologic imaging examinations. Its persistence attests to its noninvasive ability to provide detailed anatomic and functional information related to the esophagus, stomach, and duodenum in a cost-conscious noninvasive manner. These examinations require hands-on time and some technical expertise, yet they come with relatively low reimbursement. While endoscopy has become the first-line imaging examination for evaluation of many gastrointestinal inflammatory and neoplastic processes, not all patients are candidates. Consequently, radiologists still perform UGIs to guide clinical decision making. As recently as 2019, more than 578 800 UGIs were performed in the United States alone (data from the Centers for Medicare and Medicaid Services; Jennifer Hemingway, Harvey L. Neiman Health Policy Institute, American College of Radiology, written communication, April 28, 2021).

Recent decades have seen breakneck-speed advances in imaging technology, yet the essentials of fluoroscopic technique are little changed from a century ago. As would be anticipated, a review of contemporary radiology journal content reveals few articles about fluoroscopy. Among radiology faculty, those with advanced fluoroscopy skills typically are the most senior. The time to teach the preservation of fluoroscopy skills is now.

The ability to tailor a fluoroscopic examination to answer the clinical question is a key attribute of the UGI. Consequently, familiarity with the patient's history and the purpose of the examination is fundamental. The UGI in a patient with possible bowel perforation will be quite different from one performed for gastroesophageal reflux disease. Fluoroscopists need in-depth knowledge of the options available and which option is likely to be both safe and diagnostic. This allows adaptation of the examination to fit the clinical situation, such as when a patient has limited mobility or dementia. Understanding the reasoning behind each patient position used during a UGI permits the fluoroscopist not only to recognize pitfalls such as anatomic

TEACHING POINTS

- The UGI will be a part of standard radiology practice for the foreseeable future.
- The UGI should be tailored to answer the clinical question and suit individual clinical scenarios.
- The UGI can be complementary to cross-sectional imaging, particularly when assessment of both structure and function is warranted.

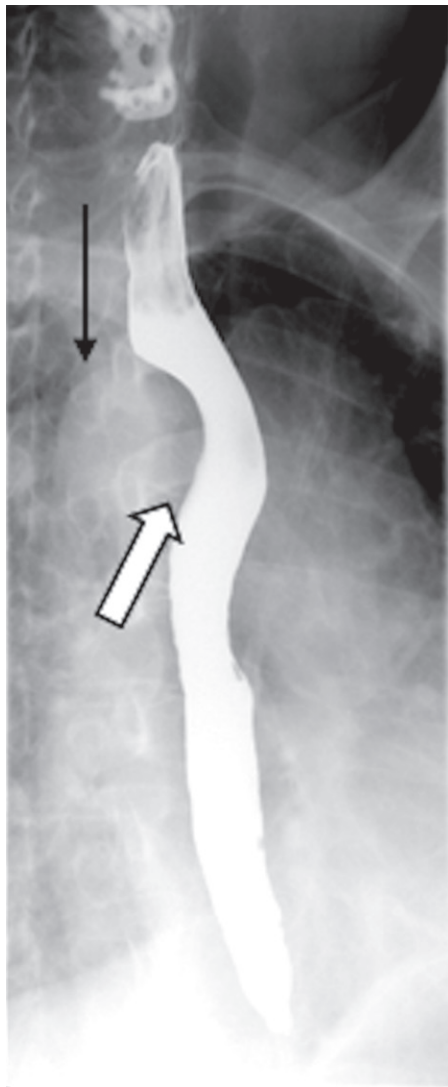


Figure 1. Upright left posterior oblique double-contrast UGI image obtained during the initial swallow in a 65-year-old man with dysphagia. There is a right-sided aortic arch (black arrow), as well as an abnormal impression on the posterior aspect of the esophagus. The findings are strongly suggestive of an aberrant left subclavian artery (white arrow), which was subsequently confirmed with CT (not shown).

variants, but also to know how to modify the procedure when the patient is unable to perform the standard maneuvers (Fig 1). While there are some historically agreed-on tenets, variation in UGI techniques occurs among and within institutions. There is no single “recipe” for an excellent-quality examination, and going beyond the basics sometimes can be pivotal in reaching

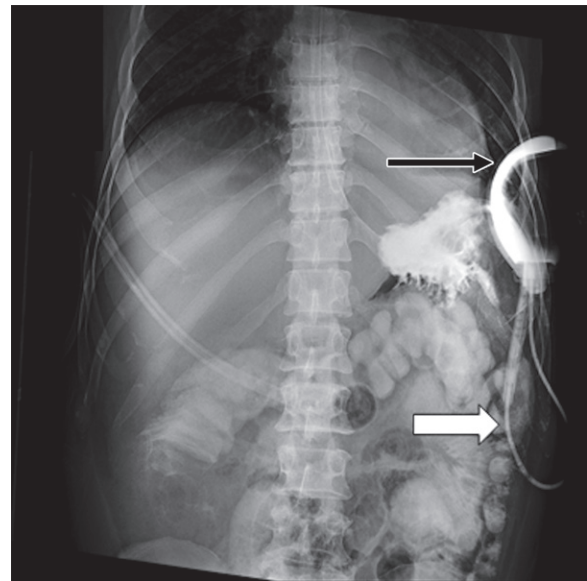


Figure 2. Supine anterior-posterior portable abdominal radiograph obtained 1 hour after a water-soluble single-contrast UGI in a 49-year-old man after gastric perforation repair. Enteric contrast agent is demonstrated within the surgical drain tubing (white arrow) and bulb (black arrow), indicating a leak.

a diagnosis. (Fig 2). The online presentation on the UGI reviews current indications, techniques, and approaches, followed by examples of normal anatomy and the types of pathologic conditions that the examination can reveal.

Our goal is to reaffirm that the UGI remains a valuable and versatile examination in contemporary radiology practice. The online presentation serves as a how-to guide for performance of fluoroscopic UGIs, detailing the basic procedure and modifications to address particular clinical scenarios.

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Suggested Readings

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