

## CONTRAST RADIOGRAPHY: STILL THE 'GOLD STANDARD' FOR ASSESSMENT OF SWALLOWING AND ESOPHAGEAL DISORDERS IN CHILDREN

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A number of congenital or acquired abnormalities of the esophagus may prevent esophagus from functioning normally, including disorders of swallowing and phonation. Symptoms most often include dysphagia, regurgitation or vomiting, feeding difficulty, present a history of aspiration. In infants, symptoms may include irritability, poor weight gain and sleep disturbance.

Despite newer cross-sectional modalities, esophagogram or an upper gastrointestinal series (UGI) is to the present day the most common and useful radiological method to image the esophagus. This relatively simple radiographic study is often sufficient to diagnose patient's underlying condition, and is able to identify a potential need for further imaging evaluation and treatment options. Since the isolated esophagogram typically focuses on the upper gastrointestinal tract between the mouth and body of the stomach, an UGI provides a more complete evaluation of the upper gastrointestinal tract extending from the mouth through the proximal jeju-

num. The latter method should be given priority wherever possible (1). Imaging of the esophagus should include an assessment of swallowing in the lateral view, especially if the patient has symptoms suggesting swallowing dysfunction such as coughing and choking and/or gagging during feeding.

In contrast to the fluoroscopic studies of the esophagus, neither CT nor MRI provides functional information of esophageal motility, and secondly, the esophagus is not able to be distended reliably to evaluate wall thickness and mucosal structure. However, cross-sectional methods have the advantage of allowing visualization of the esophageal wall and extrinsic structures or lesions.

As Dr. Ključevšek highlights in their article, for correct interpretation of the findings it is extremely important that radiologist is familiar with normal anatomy and physiology of the esophagus as well as with appearance of numerous pathological conditions (2, 3). Before starting the examination, it is also very important to be aware with the child's history of feeding, symptoms and clinical condition. It is mandatory to perform the examination as safe as possible: A marked reduction in a radiation dose has been achieved with a digital pulsed fluoroscopy and video fluoroscopy, which allows settings for pediatric technique. The equipment should provide diagnostic fluoroscopic image quality and recording capability (*radiographs, video, or digi-*

tal) (4). The equipment adapted for neonates and infants allows safer child immobilization and proper patient positioning, more accurate limitation of the field of view (2). The amount and type of contrast material given are determined by the child's age and the indications for the study, but should always be delivered in a manner that is appropriate for the patient's age. While barium is the preferred contrast medium for most studies, nonionic iodinated contrast media should be used to assess the integrity of an esophageal anastomosis, to diagnose duodenal obstruction or perforation, in neonates and critically ill patients (5).

Furthermore, as Dr Ključevšek concluded, a team work familiar with examination procedure tailored to the individual patient, taking into account the potential risk from radiation exposure and image quality necessary to achieve the clinical objective, is man-

datory to achieve the best possible diagnostic results.

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