

(* del Radiology)

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April Review

MR Arthrography of Rotator Interval, Long Head of the Biceps Brachii, and Biceps Pulley of the Shoulder¹

The rotator interval and the long head of the biceps brachii tendon are anatomically closely associated structures believed to confer stability to the shoulder joint. Abnormalities of the rotator interval may be acquired or congenital and are associated with instability of the long head of the biceps brachii tendon. Clinical and arthroscopic diag-

noses of rotator interval abnormalities and subtle instability patterns of the long head of the biceps brachii tendon are difficult. Magnetic resonance arthrography, owing to its superior depiction of ligaments with distention of the joint capsule, may be the procedure of choice, barring open surgery, for help in diagnosis of these conditions.

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May Review

Cost-effectiveness Analysis in the Assessment of Diagnostic Imaging Technologies¹

In many ways, diagnostic technologies differ from therapeutic medical technologies. Perhaps most important, diagnostic technologies do not generally directly affect long-term patient outcomes. Instead, the results of diagnostic tests can influence the care of patients; in that way, diagnostic tests may affect long-term outcomes. Because of this, the benefits associated with the use of a specific diagnostic technology will depend on the performance characteristics (eg, sensitivity and specificity) of the test, as well as other factors, such as prevalence of disease and effectiveness of available treatments for the disease

in question. The fact that diagnostic tests affect short-term, or "surrogate," outcomes, rather than long-term patient outcomes makes evaluation of these tests more complicated than the evaluation of therapeutic technologies. This article will trace the history of technology assessment in medicine, address the role of cost-effectiveness and decision analysis in health technology assessment, and describe unique features and approaches to assessing diagnostic technologies. The article will then conclude with a consideration of the limits of medical technology assessment.

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June Special Review

Multi-Detector Row CT Systems and Image-Reconstruction Techniques¹

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The introduction in 1998 of multi-detector row computed tomography (CT) by the major CT vendors was a milestone with regard to increased scan speed, improved z-axis spatial resolution, and better utilization of the available x-ray power. In this review, the general technical principles of multi-detector row CT are reviewed as they apply to the established four- and eight-section systems, the most recent 16-section scanners, and future generations of multi-detector row CT systems. Clinical examples are used to demonstrate both the potential and the limitations of the different scanner types. When necessary, standard

single-section CT is referred to as a common basis and starting point for further developments. Another focus is the increasingly important topic of patient radiation exposure, successful dose management, and strategies for dose reduction. Finally, the evolutionary steps from traditional single-section spiral image-reconstruction algorithms to the most recent approaches toward multisection spiral reconstruction are traced.

Supplemental material: radiology.rsna.org/cgi/content/full/2353040037/DC1 <<http://radiology.rsna.org/cgi/content/full/2353040037/DC1>>

(* del RadioGraphics y el Instituto de Patología de las Fuerzas Armadas)

Resúmenes enviados y publicados con autorización de la RSNA.

From the Archives of the AFIP

Lymphangiomyomatosis: Radio-logic-Pathologic Correlation¹

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Lymphangiomyomatosis (LAM) is an uncommon interstitial lung disease that exclusively affects women, usually during their reproductive years. LAM is characterized pathologically by abnormal proliferation of LAM cells in the lungs and in thoracic and retroperitoneal lymphatics. Thirty-three cases of LAM were reviewed retrospectively for clinical and radiologic findings. Twenty-eight (85%) of 33 women (aged 21-62 years; mean, 37.5 years) were symptomatic. Radiographs ($n = 32$) demonstrated reticular opacities in 21 (66%) patients, large lung volumes in 17 (53%), pleural effusion in 14 (44%), and pneumothorax in 13 (41%). High-resolution CT ($n = 15$) and conventional CT ($n = 3$) showed 2-5-mm bilateral thin-walled cysts in all patients and cysts that were 6-12 mm or larger in patients with severe lung involvement. CT depicted diffuse lung involvement by cysts in nine (50%) patients, relative sparing of lung apices in seven (39%), and relative sparing of lung bases in two (11%). Pleural effusion and pneumothorax were seen at CT in four (22%) and three (17%) patients, respectively. Four cases of tuberous sclerosis complex-associated LAM (TSC-LAM) (women aged 27-50 years; mean, 35.7 years) were similarly reviewed. Three (75%) were symptomatic. Radiographs ($n = 4$) demonstrated reticular opacities in three (75%) and large lung volumes in two (50%). All high-resolution CT ($n = 3$) and conventional CT ($n = 1$) studies showed 2-5-mm bilateral thin-walled cysts and cysts that were 6-12 mm or larger in two patients with severe lung involvement. Pleural effusion and pneumothorax were demonstrated at CT in three (75%) and two (50%) patients, respectively. LAM and TSC-LAM affect symptomatic women who often exhibit reticular opacities and large lung volumes at radiography and bilateral uniform small thin-walled cysts at CT. Large (≥ 12 mm) cysts occur in patients with severe cystic lung involvement. Pneumothorax and pleural effusion are common associated findings.

<http://radiographics.rsna.org/cgi/content/full/25/3/803>

Radiographics May/June 2005