

Clinical utility and evaluation of radiology in diagnosing sacroiliitis

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av

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- I. Geijer M, Sihlbom H, Göthlin J.H. and Nordborg E.: **The role of CT in the diagnosis of sacro-iliitis.** *Acta Radiol* 1998;39: 265-268.
- II. Geijer M, Gadeholt Göthlin G. and Göthlin J.H.: **The clinical utility of computed tomography compared to conventional radiography in diagnosing sacroiliitis.** A retrospective study on 910 patients and literature review. *J Rheumatol* 2007;34: 1561-1565.
- III. Geijer M, Gadeholt Göthlin G. and Göthlin J.H.: **Observer variation in computed tomography of the sacroiliac joints: a retrospective analysis of 1383 cases.** *Acta Radiol* 2007;48: 665-671.
- IV. Geijer M, Gadeholt Göthlin G. and Göthlin J.H.: **Clinical utility of repeated CT examinations in diagnosing sacroiliitis.** (Manuscript)
- V. Geijer M, Gadeholt Göthlin G. and Göthlin J.H.: **The validity of the New York radiological grading criteria in diagnosing sacroiliitis by CT.** (Submitted, under revision, *Acta Radiol*)



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Mats Geijer: Clinical utility and evaluation of radiology in diagnosing sacroiliitis

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Background: Radiographic confirmation of diagnosis is important in all diagnostic and classification criteria for spondyloarthropathy. The aim was to evaluate computed tomography (CT) and to compare it to radiography.

Methods: A pilot study compared radiography and CT in 40 patients with spondyloarthropathy. A study on 1425 patients examined with CT, 910 of which also with radiography, was reported in four papers. All CT examinations were reviewed and scored by two observers. The original outcomes from the radiography and CT examinations were obtained from the radiology reports.

Results: CT had a higher sensitivity for sacroiliitis than radiography, especially in early sacroiliitis. Radiography had a high rate of false negative and false positive outcomes.

The observer agreement between two observers in a large material was good, while the observer agreements between each of the observers and the original radiology reports were moderate. Intraobserver agreement for a smaller part of the material for one of the observers was moderate.

There was a change in diagnosis in three of 126 patients (2.4%) examined more than once from normal or equivocal to unilateral or bilateral sacroiliitis. Ten normal cases had changed to equivocal (7.9%). In further six patients (4.8%) the diagnosis advanced from unilateral to bilateral sacroiliitis. Four equivocal cases were classified as normal on the second study, and one case of unilateral sacroiliitis was classified as equivocal on the second study.

Mainly multiple or large erosions seem to be a valid solitary diagnostic sign. Small solitary or few erosions need supplemental evidence from other inflammatory signs such as sclerosis. Inflammatory sclerosis can frequently be distinguished from degenerative sclerosis, and can sometimes support an early diagnosis, when erosions are not apparent. A practical CT classification for sacroiliitis consisting of no disease, suspect disease, and disease is proposed.

Conclusions: The clinical utility of conventional radiography for evaluation of sacroiliitis is low with a high rate of insufficient and false reports, making radiography unsuitable for clinical use or use in population studies. CT is a robust imaging method for suspected sacroiliitis with good observer agreement, with higher rate of detection of sacroiliitis than radiography; also for early changes. There is no use for repeat CT examinations for suspected sacroiliitis. The New York criteria are unsuitable for use with CT and a new grading system for CT of sacroiliitis is proposed.

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