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CT Demonstration of Disk Regression after Conservative Therapy

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The accuracy of computed tomography (CT) in the diagnosis of herniated disk is well established [1-3]. However, its potential value in monitoring disk response to nonoperative therapy has not been widely studied. We report a case of CT documentation of disk regression in response to conservative therapy.

Case Report

A 25-year-old man had several episodes of low back pain over a 3-year period. The initial episodes were described as simple backaches, unassociated with radicular pain, and were relieved by bed rest and aspirin. One year later, the patient sought chiropractic therapy on two occasions for recurrent backache. He failed to obtain relief and, while under treatment, began to experience radiating pain to the left buttock and posterior aspect of the left thigh. These pains were exacerbated by walking, coughing, and straining. They were relieved by lying down with the back in flexion and by squatting.

Physical examination on admission revealed weakness of the extensor hallucis longus and softness of the calf musculature on the left. Straight leg raising, sitting straight leg, bowstring signs, and Deyerle sign were all positive on the left. His range of motion showed decreased flexion, and he had listing to the left which increased on forward bend. An L4-L5 herniated disk was suspected clinically and confirmed by CT (figs. 1A and 1B). The patient was managed conservatively, and in 7 weeks he was virtually asymptomatic except for mild backache, primarily on the right side. A CT scan obtained after conservative therapy revealed dramatic reduction of the disk herniation (figs. 1C and 1D).

Discussion

Conservative therapy is the initial step in the management of low back pain in general, including many cases of herniated disk [4]. A vast majority of the patients with disk herniation will improve when placed on either bed rest alone or supplemented by antiinflammatory drugs such as aspirin and epidurally injected steroids [5]. The rationale for such treatment is often hypothetical and empirical, since the precise mechanism of pain production in disk herniation is still unclear. The consensus seem to indicate that mechanical and biochemical

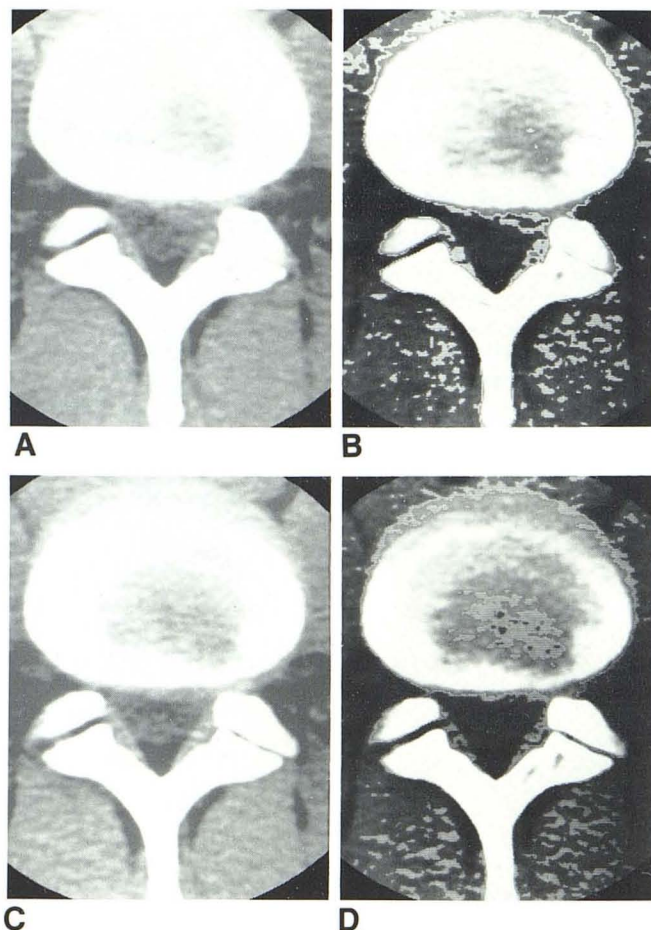


Fig. 1.—Disk regression. A, Initial CT scan demonstrates left-sided L4-L5 disk herniation. B, Blink mode of slice shown in A highlights extruded disk. C, 18-week follow-up scan at same level shows regression of herniated disk. D, Blink mode of C.

irritation of the nerve root play equally important roles in causing pain [6, 12].

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The issue of disk regression as the possible explanation for relief of pain in some patients is a matter of controversy. Some researchers believe that once herniated, the nucleus pulposus is incapable of reverting to its normal position [7]. In contrast to this belief is evidence suggesting that some types of disk herniation have the potential to regress if afforded a favorable intradiscal environment. In support of this hypothesis are several intraoperative reports of alterations in disk size with changes in torsion applied to the back [8, 9]. By decreasing intradiscal pressure, the disk tended to recede to its normal bed. On the basis of this mechanism, traction and manipulative techniques have been used to effect disk regression [10, 11]. Reduction of disk prolapse also has been documented on repeat epidurography in a limited number of patients [12]. Logically, the type of disk most likely to regress would be one that has not yet completely penetrated the anulus fibrosus—the so-called *prolapsed* intervertebral disk as opposed to the extruded or sequestered disk [13].

Further investigations are needed regarding the effect of conservative therapy on disk herniation. The noninvasive nature of CT makes it ideally suited for reexamining these patients even after they have been treated successfully, in order to determine more precisely the status of the disk after therapy. The information thus gained will be important in planning future treatment in individual cases.

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