Herniated intervertebral disk: a plea for a more uniform terminology.

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AJNR Am J Neuroradiol 1989, 10 (6) 1283-1284
http://www.ajnr.org/content/10/6/1283.citation

Editorial

Herniated Intervertebral Disk: A Plea for a More Uniform Terminology

In the original description of herniated intervertebral disk by Mixter and Barr [1], the term used was *rupture of the intervertebral disk.* However, with the passage of time, this term, although used frequently by surgeons, has become meaningless. A rupture of the disk is a common finding at autopsy when the disks are examined, but ruptures are not necessarily associated with herniation of the nucleus pulposus.

Nowadays we use a number of techniques to study the lower back, including plain films, CT, MR, and myelography, which today more often than not is followed by CT examination. At Massachusetts General Hospital, CT is done after practically 100% of the lumbar myelograms, and therefore CT myelography has become routine.

With all these diagnostic procedures, we are able to obtain a considerable amount of information as to what is happening in the intervertebral disks and the spinal canal, and we should aim at being as accurate as possible in our final diagnosis of the pathologic process that is present in each case. Disk disease is an extremely common disorder, and perhaps this has led to the variety of terms frequently used, sometimes inappropriately, or at least not in adherence with proper imaging or pathologic criteria.

The terms used frequently today are *ruptured disk, herniated intervertebral disk, herniated nucleus pulposus, protruding disk, bulging disk, prolapsed disk, extruded disk,* and, finally, *sequestered disk.*

Some of these terms can be understood without confusion, but some of the others cannot. As mentioned before, the term rupture is vague and should not be used to deal with surgical problems.

Herniated intervertebral disk or herniated nucleus pulposus is the clearest term, well understood by everyone. It can be used simply, or it can be modified to clarify a specific feature in individual cases. From the radiologic point of view, herniation can be diagnosed if the disk contour has a focal bulge or protrusion. Wherever a focal bulge of the disk is present, disk herniation can be diagnosed confidently. This does not mean that the herniation is a surgical lesion, for it actually could be small. The posterior herniation could be to the right or to the left of the midline (as it is most frequently) or in the center. The herniation could be anterolateral, where it would never affect the nerve roots, or it could be posterolateral or extraforaminal but capable of compressing the nerve roots, or it could be at the level of the foramen or neural canal.

Protrusion of the intervertebral disk is a term equivalent to bulging of the intervertebral disk. By definition this is a uniform protrusion or bulging of the disk without focality. The protrusion or bulging could involve the entire intervertebral disk as we see it. This usually is due to degeneration and a decrease in height of the disk, and the bulging could be uniform all the way around, or it could be somewhat more pronounced anteriorly or posteriorly. When the disk is degenerated, the usual slight concavity present in its posterior margin against the spinal canal tends to diminish or disappear, but may be perfectly well preserved. Thus, the terms bulging and protrusion should be used only when we are dealing with some degree of disk degeneration without a focal protrusion.

Disk prolapse is a confusing term, and I am not sure what it means. Some use it to indicate herniation. Masaryk et al. [2] defined prolapsed disks as "the result of herniation of nuclear material through a defect in the anulus producing focal extension of the disk margin." As far as I am concerned, this is precisely the definition of herniated intervertebral disk, and so, why not use that term?

When the term extruded intervertebral disk is used, it is my understanding that the surgeon and the radiologist mean that the herniation is quite large, so much so that practically the entire nucleus pulposus has herniated and thus escaped outside the anulus fibrosus. However, some wish to give a special meaning to this term. Masaryk et al. [2] defined it as

"the result of herniation of nuclear material producing an anterior extradural mass that remains attached to the nucleus of origin via a high-signal pedicle on T2-weighted images." They said further, "The lesion is no longer bounded by the outer anulus and may lie beneath or lateral to the posterior longitudinal ligaments." In other words, this is probably a rather large disk herniation, and because of its size, it probably has gone past the anulus of the disk. A herniated disk could rupture through the anulus without being particularly large, but I doubt that, with few exceptions, it could be recognized radiologically, and then probably only when MR is available. Sometimes the herniated material will rupture through the dura and be located in the subarachnoid space, but this is rare and difficult to diagnose preoperatively.

The term sequestered intervertebral disk was introduced by Masaryk et al. [2] and defined as "the result of herniation of nuclear material through a defect in the anulus that is no longer contiguous with the remaining disk." Semantically, the term sequestered is correct, in that the herniated fragment is no longer connected with the parent disk. However, why use a different term? Why not simply call this a *herniated intervertebral disk with a free fragment*? Also, the two may coexist; in other words, there is a herniation (i.e., a focal bulge), and in addition, there is a separation of a free fragment. Consequently, the diagnosis based on the results of imaging studies would be more correct if this condition were called a herniated intervertebral disk with a free disk fragment that has moved upward, downward, or backward.

Therefore, I would like to see an effort at standardizing our terminology so that we can understand one another and so that the clinicians, surgeons, and medical teams will understand what we mean without question. Thus, I would like to suggest that we use the following terminology: (1) *Protruding or bulging intervertebral disk*: This indicates disk degeneration accompanied by increase in the total diameter of the disk but without any focality. A statement that this represents degenerative disk disease should be included in the report. (2) *Herniated intervertebral disk*: This would represent any focal bulging or protrusion alone, or a focal bulging or protrusion in a disk that already is degenerated and otherwise widened throughout. We could describe the latter as degenerative disk disease with a herniation located on the right, on the left, extraforaminally, on the midline, and so forth. (3) *Herniated disk with a free or detached fragment*: This should be followed by the description of the position of the free fragment. (4) *Herniated disk with possible extrusion of disk material beyond the anulus*: This should be used when we occasionally are able to predict that the herniated material has broken through the anulus. This is usually the case when the herniated disk mass is quite large, or when it has moved far posteriorly, but sometimes it may be possible to make this statement in a case in which the amount of the herniated disk material is smaller but cannot be separated from the CSF on T2-weighted MR images.

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