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On February 12, 2008, Harvard University's Faculty of Arts and Sciences became the first in the United States to adopt an open-access policy for their academic articles. That is, the policy mandates that all scholarly articles be available through a free on-line service. This movement, which originated from the Computer Science Professor Stuart M. Shieber, intends to give their academic community more control of how their work is used and disseminated. What makes the Harvard system unique is that the authors have to choose to opt out, and on-line free access publication is the default option. Under that system, authors retain the copyright and grant "nonexclusive" rights to their university (contrary to giving "all rights" to a publisher). Thus, after being written, articles can be electronically submitted to the provost's office and/or submitted to a journal. If authors choose the first option, they will be free thereafter to send their articles to any journal that allows publication after posting on-line. This type of open access is not Harvard's original idea. The National Institutes of Health (NIH) and the European Research Council have implemented systems that request that articles emanating from publicly funded sources be posted in open-access venues. In the case of the NIH, that venue is PubMed. It is not clear if such policies actually increase or restrict the author's liberty to choose a publication venue of his or her choice.

Many view the Harvard movement as a laudable one. It supports the ideal that academic publishing creates, preserves, and disseminates knowledge instead of making money. Also, it gives the academic community some control over the dissemination and the copyrights of their articles. The concept is in keeping with many current open-access initiatives, whose intention is greater dissemination of information. Because this type of activity is free to readers (and anyone who can surf the Web), it sends an important message to publishers about the ever-increasing cost of subscriptions, which forces libraries to curtail their number of journals every year. The idea will be particularly attractive for countries whose libraries have limited economic resources. Of course, libraries and individuals still need to invest in electronic infrastructure with which to access this type of "free" article. Many feel (myself included) that under the current research journals' business models, an "all is free" system is not a sustainable one in the long run and that only systems that have selected free features will work well. Currently, many journals that publish via the HighWire Press make their articles open access after 1 or 2 years of being published (contents of *American Journal of Neuroradiology* [*AJNR*] are free after 1 year and review articles and those arising from NIH-funded studies, immediately).

The type of open-access system adopted by Harvard (and others such as the University of Oregon) has drawbacks. The most important, in my opinion, is that of bypassing the time-honored peer-review system. The imprimatur of any prestigious university should not be enough to bypass the only system that assures high-quality unbiased scientific publication. Obviously, tenure and promotion committees will have to re-evaluate their criteria for faculty who count on free on-line publications to get promoted. The Harvard policy is unclear at times in that it states that articles may be posted on-line after they have been peer-reviewed and published in other venues, which, in my opinion, is tantamount to using the resources of our journals to assure the quality of the work in their site. I wonder how many journals will accept this type of publication and how the copyright and economic issues will be resolved. Another potential problem is having 2 versions of the same article available, 1 posted free on-line and another one (presumably better) published in a peer-reviewed journal. Two versions of articles will create citation issues. Today, most of us cite articles as referenced in PubMed and other repositories of high-quality publications. How does one cite an article obtained from this or that private repository? Will these universities create their own research journals, and who will support them? How are we going to search these repositories? Because the articles in question will not appear in PubMed, perhaps these institutions will allow commercial crawlers into their Website and then we can use services such as Google Scholar to explore them. Again, if 2 versions of an article are available, which does one cite, the first or the second peer-reviewed one? If the first one is cited, the impact factor of many journals will decrease. This, in turn, will lead to a decreased number of submissions and circulation, hastening the demise of many smaller journals.

The proposed Harvard system will take over the roles of posting and distribution which, up until now, have been performed by traditional journals and their Web-based counterparts. Posting and distribution are relatively inexpensive in an electronic form, but it is unclear if other functions such as peer review, formatting, composition, hypertext linking, and PDF creation will also be provided by them. If so, who will assume the expenses of these activities? While many feel that authors should pay for them, I personally believe that this is unfair to an already underpaid academic faculty. To think that electronic publishing is free is naïve. Journals spend an average of $2500-$4000 per article published, and most of these expenses are incurred before their on-line posting. For journals published by scientific societies such as the American Society of Neuroradiology (ASNR), these costs are mostly covered by membership and nonmembership fees and advertisements, and not the authors.

Another unresolved issue is that of the types of publications to be posted in these open-access repositories. It is conceivable that from articles, it may spread to textbooks, Internet-based educational activities, abstracts for oral presentations, etc. Who will receive the royalties from these activities?

Last, I'd like to say a few words about financial issues. Free distribution of academic articles will certainly change the current business models most journals use. The new open-access model will have its greatest impact in small, subspecialty, and expensive-to-publish journals such as the *AJNR*. The *AJNR* is a profitable journal and provides subsidies to ASNR that are, in turn, used for educational activities and other services. Certainly, should the Harvard open-access initiative spread to areas such as the medical and biologic sciences, we will be forced to explore alternative financial models and opportunities. The future of academic publishing seems uncertain to many, while others see nothing to worry about. For example, nearly all scholarly physics articles are available on open-access systems and their "official" journals continue to do well. But in my mind, there is no question that smaller independent journals will be affected by the newer open-access initiatives; fortunately for the *AJNR*, the support of ASNR

will continue to afford us to grow and retain our pre-eminent position.

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EDITORIAL

ATM—OMG!

When did acute transverse myelitis (ATM) join the select differential group of being used for anything that shows T2 hyperintensity within the cord? Now I am as guilty as the next person in using tuberculosis and lymphoma for every differential, but as of late, residents and fellows have, without telling me, expanded that list. Can we set the record straight? Idiopathic ATM should be one of the last things out of our mouths when faced with an expanded cord with T2 hyperintensity. Not that ATM is not a real diagnosis, but we should strive to provide specific etiologies for the cord abnormality before leaping into the idiopathic realm. ATM is a focal inflammatory disorder, resulting in motor, sensory, and autonomic dysfunction.[1] There are approximately 1200 new cases per year in the United States and an incidence of 2 per 500,000 population. In comparison, spinal cord tumors occur more frequently at 2 per 100,000 (and when was the last time you saw a new spinal cord tumor?). Parainfectious ATM (acute disseminated encephalomyelitis [ADEM]) occurs in 1 per 100,000 population, with cord involvement much less common.[2] Those rates are eclipsed by multiple sclerosis (MS), which occurs in 30 per 100,000 population.

The underlying difficulty with this is the confusing and disparate nomenclature involved with myelopathic cord pathology. And you thought disk disease terminology was arcane.

First, we have "acute transverse myelopathy," which is distinct from myelitis. This term is the broadest and reflects a clinical constellation of findings, not a specific diagnosis. Myelopathy is to myelitis as back pain is to herniation. Transverse myelopathy includes both inflammatory and noninflammatory etiologies and excludes compressive lesions (so does ATM). The cornucopia of etiologies for this diagnosis includes MS, systemic diseases such as Sjögren syndrome and systemic lupus erythematosus (SLE), vascular disease (infarct, fistula), parainfectious diseases (ADEM), radiation myelopathy, and, finally, idiopathic causes.[3]

ATM is a subset of the transverse myelopathies and requires evidence of cord inflammation. Within the diagnosis of ATM, there are disease-associated varieties and idiopathic myelopathies. Idiopathic myelopathy makes up 16%–17% of transverse myelopathies in 1 large series.[3]

The Transverse Myelitis Consortium Working Group has proposed strict criteria for the diagnosis of idiopathic ATM.[1] The inclusion criteria include the following: 1) development of sensory, motor, or autonomic dysfunction attributable to the spinal cord; 2) bilateral signs and/or symptoms; 3) clearly defined sensory level; 4) exclusion of extra-axial compressive etiology by neuroimaging; 5) inflammation within the cord demonstrated by CSF pleocytosis or elevated immunoglobulin G index or gadolinium enhancement; and 6) progression to a nadir between 4 hours and 21 days following the onset of symptoms.

The exclusion criteria are equally important to define and include both systemic diseases and infections. The primary systemic diseases to consider are sarcoidosis, Behcet disease, Sjögren syndrome, and SLE. Infections include syphilis, Lyme disease, human immunodeficiency virus, human T-cell lymphoma/leukemia virus-1, and *Mycoplasma* species; and viruses such as herpes simplex virus-1 (HSV-1), HSV-2, varicella-zoster virus, Epstein-Barr virus, cytomegalovirus, human herpes virus-6, and enteroviruses. Finally, the brain should not have lesions consistent with MS.

How can we provide useful information for this diagnosis? The criteria suggest that if ATM is suspected, we must first exclude compressive lesions and define an intramedullary contrast-enhancing lesion for the inflammatory component. By the numbers, most will be MS. Defining the longitudinal extent and presence of multiple lesions may help in narrowing down the differential (greater than 4 more with Devic disease, less than 2 segments more with MS). Of course, the presence of brain periventricular lesions increases the likelihood of MS (along with SLE and parainfectious etiologies), and optic neuritis with longitudinally extensive cord lesion should suggest Devic disease. Talk to the clinician. What was the time course of the developing deficit? Does the CSF suggest an inflammatory etiology? Could it be vascular in etiology with a very abrupt onset?

Remember:

ATM

I) Noninflammatory
  A) Vascular
  B) Radiation
II) Inflammatory (ATM)
  A) Disease-associated ATM
    1) MS
    2) Devic disease
    3) Systemic diseases
      a) SLE
      b) Behcet
      c) Sjögren
    4) Parainfectious diseases
      a) ADEM
    5) Infectious diseases
      a) Syphilis
      b) Lyme
      c) HIV
      d) Virus
    6) Paraneoplastic diseases
  B) Idiopathic disease

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