Caution: Distinguish Cauda Equina v. Conus Medullaris Syndromes

The case report “Cauda equina syndrome: A case report and review of the literature” (Practical Neurology 2013; 12(6): 33-35) by Al-Badri and colleagues is instructive for several reasons.1 The case under discussion was an unusual and uncommon neurologic disorder affecting the terminal spinal cord, i.e. the cauda equina. The cauda equina is comprised of spinal nerve roots within the lumbar cistern that exit the subarachnoid space and innervate lumbar and sacral dermatomes.2-4 The syndrome manifests subacutely or chronically as an asymmetric sensory (dermatomal or radicular) and lower motor neuron dysfunction with late appearing paraplegia and incontinence as in the case presented. Recognizing that the cauda equina is anatomically within the subarachnoid compartment limits the differential diagnosis to one of three likely possibilities; an intradural extramedullary spinal cord tumor, an extradural spinal cord mass (degenerative spinal cord disease, tumor or abscess) and a primary meningeal process such as meningitis (neoplastic, infectious or inflammatory not otherwise specified). Consequently the appropriate neurologic work-up for a cauda equina syndrome (CES) would include anatomic imaging of the region of interest (the lumbosacral spine) using MRI with contrast and lumbar puncture to interrogate CSF (to include an opening pressure, cell count, glucose, protein, cytology and flow cytometry) if no clear anatomic explanation by lumbar MRI is forthcoming. Anatomic causes of the CES best determined by imaging include epidural (extradural) metastatic or primary vertebral body tumor (giant cell tumor, chordoma), abscess, hematoma (i.e., secondary to trauma and a vertebral body fracture) or degenerative (lumbar stenosis or disc herniation); intradural extramedullary tumor (i.e., myxopapillary ependymoma, peripheral nerve sheath tumor or paraganglioglioma) or congenital causes such as a tethered filum (cord) or diastematomyelia. Anatomically distinct from the cauda equina is that of the conus medullaris syndrome (CMS) which is often clinically confused with cauda equina dysfunction. The conus medullaris represents the terminus of the spinal cord as the authors discuss but unlike dysfunction of the cauda equina when injured is nearly always with an acute presentation, a rapidly evolving symmetric upper motor neuron paraplegia, incontinence and saddle (reflecting sacral outflow injury) anesthesia.5-7 Although the etiology of a cauda equina syndrome (CES) is similar to that for a CMS, the rapidity of onset and profound loss of function including continence limit recovery in a CMS and therefore the potential for meaningful intervention. A distinction between these entities (CMS vs. CES) is therefore critical from a clinical, prognostic and potential therapeutic perspective.

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“The .44-caliber bullet entered the back of his skull to the left of the midline just above the left lateral sinus which it severed, passed through the left posterior lobe of the cerebrum into the left lateral ventricle and stopped in the white matter just above the anterior portion of the left corpus striatum...”
I read the article in *Practical Neurology* (September/October 2013, online at PracticalNeurology.com) authored by Dr. Randy Evans and Christina L. Upchurch, MA that discussed the current opinion of neurologists (by mailed survey) in the state of Texas, as regards to pros and cons of their neurology practice. The survey answers read like an obituary column. As I read the “Discussion” section, I hoped for some light at the end of a dark tunnel with some positive suggestions to the very negative survey response; I was disappointed.

The topics that were the most frustrating and negative for practicing neurologists were:

- Increasing need for insurance authorization for medication and imaging requests.
- Poor compensation in general for neurology services.
- Overall feeling that neurologists are less appreciated by their patients.
- More and more regulations for Medicare (PQRS) with decreased reimbursement.

The motto for most of my life, whether personal or work related, has been: The glass is half full not half empty. There are always some positive solutions to overcome adversity. Positive solutions come in two categories:

**Group Method.** Combined effort by the AAN, ANA and other individual specialty organizations to educate Insurance companies, Medicare and/or members of congress to help eliminate or reduce adversity in neurology practice. This method recently achieved reversal of the 50 percent payment reduction for office EEG interpretation and partial reversal of reduced payments of EMG needle examination. Hopefully, Medicare payment reductions and other unpopular decisions will be reduced by this method. The clinical neurologist can help by contributing monies to these organizations that speak a unified voice in these matters.

**Solo Method.** Extra effort by individual or small groups of neurologists to make changes in their practice to overcome the perceived adversity. Here are 10 “successful” suggestions for general and some specialty practices.

- If you are a general neurologist, decide what specific neurological disorder(s) you like the best and most enjoy and would like to see more of these patients. You don’t have to be fellowship trained to do this; e.g., headaches, peripheral neuropathies, seizures or syncope autonomic nervous system disorders etc. Name this subject so it can be identified as a specialty clinic; e.g., Headache clinic, Balance and Falls clinic, Numbness and Tingling Disorders Clinic, Memory/Dementia Clinic, etc. Give talks on the specialty interest to support groups, the general public and primary care providers such as physicians, nurse practitioners and physician assistants. The public and primary care providers love specialty clinics. Write simple articles on the subject for your local newspaper or newsletter, set up a website on your specialty interest clinic. For example, along with my general practice, I specialize in Memory/Dementia and Taste and Smell Disorders. I enjoy seeing these patients and they are very grateful and appreciate my “expertise.” This kind of practice change will make you more wanted and appreciated. As you develop a specialty clinic, you will still see other patients but less frequently, depending on your specialty clinic demand.

Search in your practice region to see if there is any pharmacological research on neurological disorders. Contact the facility(s) and determine if you can send patients and help screen and follow them periodically during the study. Many research programs are happy to get more referrals, and some will pay handsomely for your time. You are helping your patients and will be very much appreciated.

Check to see if there is brand medication used for treatment for your “specialty” patients. Get to know the pharmaceutical rep and ask to be a speaker for the brand medication. These talks can be local and even regional depending on your success and interest. Once you are a speaker, the pharmaceutical reps will continue to look up to you when future products are released. They pay well for speaker engagements.

Sign up to be a “peer reviewer” for neurology for insurance companies and vendors who represent insurance companies. They will provide you records by e-mail and ask questions about the case. Tell them you do IMEs and they will send you patients for your opinion. The peer
reviews pay anywhere from $150 to $350 per case, and the IME’s may pay $400-$600 per case. You can incorporate this in your office time instead of some patients or do it anytime after hours. I have found this very enjoyable and appreciate the increased reimbursement.

If getting authorization for lab and imaging tests and treatment is such a hassle, consider seeing more geriatric patients (Medicare), which rarely requires this extra work. For example, I order PET scans for many of my Medicare cognitive impaired patients, and these do not require phone calls or authorization. This is a nightmare in non-Medicare cases, because you have to give a lot more detail, speak to a physician, and get the test denied because they consider the test experimental. Reduce or eliminate call if this is a major problem in your practice. With the presence of Hospitalists and Neuro-intensivists in many hospitals, it is a lot easier to carry this out, and many patients can be seen the following morning if necessary. I stopped hospital work about seven years ago, and the hospitalists take good care of the cases. The neurologists who elect to see hospital patients and take call can be consulted if necessary. The fear of losing referrals by not doing hospital work is always a concern, but I have never seen this come to fruition. Remember if you “specialize,” you will still see many referrals.

If you like to do EMGs and want increase this practice, I found some successful methods you could try. Reimbursement for EMGs has continued to decline but recently the very low reimbursement for the needle exam was partly reversed. Market to podiatrists, orthopedists, and pain management physicians by offering to give their practices a lunch seminar and demonstration of your machine, how the study is done, and the benefits, and include a live demonstration. In my experience this gets a lot of referrals. Also offer to do the studies, if necessary, in their office if they can round up four to five EMGs at a time, perhaps once or twice a month. Many physicians would be happy to have their patients studied in their own office. I had done this in the past for a number of years and had been successful. You get a temporary change of venue and get to make short contacts with your referring physicians. Obviously you can’t do this with every referral, but you have to decide how many studies you want to do, what’s your competition, etc. Give it a try and see how it works. You can’t lose.

Apply to be a consultant for workers compensation patients. This will also potentially increase your EMG referrals, since many of these cases require these tests. Take the course offered by the American Academy of Disability allowing physicians to better understand many of the workers comp neurology conditions as relates to appropriate treatments, length of disability, and back to work information. You can also take the exam for designated doctor training and be able to provide impairment ratings using the AMA guides to permanent impairment. I have been a fellow of this academy for 20 years, take the impairment exam every few years to keep current, and this has provided me many referrals with very reasonable reimbursement and minimal hassle.

Become an expert witness in your field. Work with attorneys. It can often begin if you have to be an expert witness for one of your patients who is in a law suit. If you do a good job in the deposition, the attorney may call you again for record review of other clients you have never seen. Word of mouth easily gets around if you do good work and other referrals will come. If you prefer to defend physicians in malpractice suits, contact the companies, (preferably the attorneys) who offer malpractice insurance and tell them you are available.

Medicare requirements continue to be a thorn in our side. Even though they don’t require authorization calls for tests, they do require more documentation (PQRS), electronic medical records, and E-prescribing. There is not much we can do for most of these rules, but the PQRS requirement may have some wiggle room. The penalty for not complying for PQRS will be 2% reduction of all Medicare payments starting in 2016 or sooner. You have to decide how much accounts receivable you have with Medicare for the year and subtract 2%. If you have $100 or $200 thousand dollars, remember this will only amount to $2000 to $4000 dollars per year. You can easily make this up with some suggested changes in you practice and not have to worry about PQRS. I have currently decided to do it this way. If, of course, PQRS becomes a definitive requirement like EMRs, that’s a no brainer and we will have to comply.

The idea that medicine is a rewarding occupation, very satisfying, and has good reimbursement and all you have to do is see patients who will flock to your office is a myth. Our teachers never gave us much information about the business side of medicine and about the ongoing and changing environment in reimbursement, government regulations, etc. Physicians have to market themselves regardless how you were taught. You can’t be passive, otherwise we will be rolled over. Medicine and especially neurology is a wonderful specialty and continues to advance by leaps and bounds. Many of these suggestions may not work, you may have already tried some, or you are not interested, but remember they are only suggestions. Hopefully with time, some of these suggestions and luck will prevail and change our attitude about neurology practice.

—Ronald Devere, MD, FAAN