Video Case Challenge

Recurrent Acute Focal Pain and Persistent Numbness in a Middle-age Woman

BY AZIZ SHAIBANI, MD, FACP, FAAN

A woman in her late forties experienced severe pain and numbness in the left anterior knee while kneeling and stretching to tend a fireplace. She had no swelling, but the numbness persisted, and the area is now devoid of sensation to pinprick and vibration. Six months later she had acute pain and subsequent numbness of the lateral aspect of the right leg. There are no vasomotor changes or discoloration of the skin; the area is devoid of sensation to pinprick and vibration. A similar area of numbness developed overlying the left Achilles tendon, subsequent to stretching. Watch the video at PracticalNeurology.com/videos.

Find the answer and diagnosis in the next edition of Practical Neurology or online, posted along with the patient video at PracticalNeurology.com.

CHALLENGE QUESTION

The most likely diagnosis is:

A. Polyarteritis nodosa
B. Wartenberg’s migratory sensory neuropathy
C. Systemic vasculitis
D. Isolated peripheral nervous system vasculitis
E. Psychogenic sensory loss

Case selected from Dr. Shaibani’s Video Atlas of Neuromuscular Diseases, in press, by Oxford University Press. Aziz Shaibani, MD, FACP, FAAN is Director of Nerve & Muscle Center of Texas and Clinical Associate Professor of Medicine at Baylor College of Medicine in Houston, TX. He is also Adjunct Professor of Neurology at Kansas University Medical Center in Kansas City, Kansas.
Solution: Anticipation

Last month’s case presented familial muscle stiffness.

BY AZIZ SHAIBANI, MD

A 53-year-old man who noticed difficulty relaxing his hand grip after a hand shake at age 35. Gradually he developed stiffness of the legs muscles and cataract. His asymptomatic daughter’s examination revealed grip and percussion myotonia.

The earlier appearance of symptoms in the daughter is due to a phenomenon called:

1. Contraction
2. Anticipation
3. Variable Penetrance
4. Heteroplasmcy
5. Co-dominance

• The earlier onset and more severe symptoms in successive generations is called “anticipation.”
• This is an interesting genetic phenomenon that was thought to be due to a bias resulting from more attention being given to the disease related symptoms in the younger generation.
• It is clear now that this phenomenon is due to instability of a genetic mutation.
• It is mostly noted in genetic disorders that are characterized by expansion of triplet repeats beyond a threshold.
• Triple repeats exist in human genomes coding and non-coding components; most of the time, their expansion is harmless.
• Examples of diseases caused by triplet repeat expansion:
  • Myotonic dystrophy type 1 (DM 1)
  • Huntington’s disease
  • Fragile X syndrome
  • Machado Joseph disease
  • Friedrieck’s ataxia

• In Myotonic dystrophy, the expanded repeat is a CTG sequence in the non-coding region of protein kinase gene on chromosome 19.
  • A normal CTG repeat is between 5 and 37
  • 38-49 repeats is called permutation, range and it increases the risk of having affected children.
  • A repeat of more than 50 is almost always symptomatic.
  • Interestingly, the number of CTG repeats positively correlates with an earlier onset and more severe disease.
  • The expanded repeats tend to expand further during meiosis, leading to a larger repeat in successive generations, which explains the phenomenon of anticipation.
  • The cause of instability of the CTG repeat is not clear.
  • More interestingly, CTG repeats expand when they go through a female germline and only rarely do so through a male germline. This explains the congenital form of the disease.