

Editors' Note: Dr. George and authors Amato, Greenberg, and Tsivgoulis argue the anatomy behind scapular winging in reference to "Teaching NeuroImages: Differential diagnosis of scapular winging." In reference to "Comorbidity of migraine in children presenting with epilepsy to a tertiary care center," Dr. Kasteleijn-Nolst Trenite et al. discuss possible reasons why headache complaints may be underestimated in children and adults with intractable epilepsy.

Megan Alcauskas, MD, and Robert C. Griggs, MD

# TEACHING NEUROIMAGES: DIFFERENTIAL DIAGNOSIS OF SCAPULAR WINGING

Jacob George, Kerala, India: I read with interest the Teaching Neuro Image regarding the differential diagnosis of scapular winging.1 Although neurology literature mentions that weakness of the rhomboids may cause winging,<sup>2,3</sup> this is likely erroneous. The rhomboids originate from C7 to D5 spinous processes and insert into the medial border of the scapula.4 Since the fibers are inserted into the medial border and not on the anterior and posterior aspects of the medial border, they do not have a role in holding the scapula approximated to the rib cage. Weakness of the rhomboids may cause the scapula to deviate down and out, but it would not cause winging, if winging is defined as lifting of the scapula off the rib cage. In case 2 of the article, the patient had wasting of the infraspinatus and it is likely that multiple muscles around the shoulder joint were weak. The winging of the medial border in case 2 was most likely due to serratus weakness. The winging of the medial border of the scapula in serratus weakness makes it appear that the rhomboids were weak,5 although clinical testing may reveal normal power of the rhomboids.

Anthony A. Amato, Steven A. Greenberg, Boston: Mild scapular winging due to rhomboid weakness can be appreciated by an astute examiner. Muscles do not work alone but in tandem with other muscles for proper function and alignment. The rhomboids contribute to holding the medial border of the scapula protracted against the posterior thoracic wall, and denervation or paralysis results in the subtle winging

of the medial border of the scapula as it lifts off the thoracic wall.<sup>6-9</sup> In addition, the scapula may rotate laterally along the posterior thoracic wall due to unopposed muscle contraction of the other functioning scapular muscles. The scapular winging is accentuated by having the patient extend the arm backward from a flexed position or as Dr. Tsivgoulis and colleagues showed in the figure, F and G.<sup>6</sup> They had the patient push his elbow backward against resistance when the hands were on the hips.

Author Response: Georgios Tsivgoulis, Alexandroupolis, Greece: We agree with Drs. Amato and Greenberg that scapular winging due to rhomboids weakness may be accentuated either by having the patient extend the arm backward from a flexed position or by having the patient push his elbow backward against resistance when the hands are on the hips. We appreciate their insightful comments on our recent article. We disagree with Dr. George and support current literature indicating that weakness of rhomboids may cause scapular winging. Neurologic examination of case 2 disclosed no weakness in serratus anterior muscles. Consequently, weakness of rhomboids was the cause of scapular winging in case 2.

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- Tsivgoulis G, Vadikolias K, Courcoutsakis N, et al. Teaching Neuro*Images*: differential diagnosis of scapular winging. Neurology 2012;78:e109.
- Greenberg SA. Pearls: neuromuscular disorders. Semin Neurol 2010;30:28–34.
- Greenberg SA, Amato A. EMG Pearls, vol. 1. Philadelphia: Hanley and Belfus; 2004.
- Bannister LH, Berry MN, Collins P, Dyson M, Dussek JE, Ferguson MWJ. Gray's Anatomy, 38th ed. Edinburgh: Churchill Livingstone; 2000.
- Kendall FP, McCreary EK, Provance PG. Muscles Testing and Function, 4th ed. Baltimore: Williams & Wilkins; 1993.
- Martin RM, Fish DE. Scapular winging: anatomical review, diagnosis, and treatments. Curr Rev Musculoskelet Med 2008;1:1–11.
- Herndon JH. Surgical Reconstruction of the Upper Extremity. Stamford: Appleton and Lange; 1999:239–240.
- Kuhn JE. Scapulothoracic articulation: anatomy, biomechanics, pathophysiology, management. In: Iannott JP, Williams GR, eds. Disorders of the Shoulder: Diagnosis and Management. Philadelphia: Lippincott Williams & Wilkins; 1999:824–825.
- Saeed MA, Gatens PF Jr, Singh S. Winging of the scapula. Am Fam Physician 1981;24:139–143.

# COMORBIDITY OF MIGRAINE IN CHILDREN PRESENTING WITH EPILEPSY TO A TERTIARY CARE CENTER

Dorothee G. Kasteleijn-Nolst Trenite, Utrecht, the Netherlands; Vincenzo Belcastro, Como, Italy; Alberto Spalice, Pasquale Parisi, Rome: Kelley et al. confirmed the higher prevalence of migraine in children with epilepsy.1 The authors expanded upon our hypothesis<sup>2</sup> by assuming that migraine would be more prevalent in patients with intractable epilepsy. In our opinion, this was not shown. In patients with intractable seizures, the focus is primarily on seizures vs headache complaints. Children with benign epilepsy with centrotemporal spikes and juvenile myoclonic epilepsy are most prevalent in this study and because these types of epilepsy are relatively benign, these patients are more likely to complain of headache. Considering that headache occurs after epilepsy onset and often in the same year confirms our hypothesis.2

Comorbidity of migraine and epilepsy is especially prevalent in children, as shown by Kelley et al. and the articles they cited. In adults, this correlation is usually not found<sup>3</sup> because adult patients who continue visiting the hospital generally are intractable and will underestimate their headache problems. Children show more autonomic manifestations.

The authors emphasized that there is underestimation of headache complaints especially in intractable children. We support their opinion and would like to add that the same is true for adults with intractable epilepsy.

Author Response: Sarah A. Kelley, Baltimore: We thank Kasteleijn-Nolst Trenite et al. for their comments. It is true that patients with more severe epilepsy may not bring up other complaints during a clinic visit. However, the way our study was designed, all patients with epilepsy (mild or severe) received a questionnaire asking them if they had headaches. All patients or their parents were therefore prompted to document headache on the questionnaire if the child had it.

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- Kelley SA, Hartman AL, Kossoff EH. Comorbidity of migraine in children presenting with epilepsy to a tertiary care center. Neurology 2012;79:468–473.
- Parisi P, Piccioli M, Villa MP, Buttinelli C, Kasteleijn-Nolst Trenite DG. Hypothesis on neurophysiopathological mechanisms linking epilepsy and headache. Med Hypotheses 2008;70:1150–1154.
- Tonini MC, Giordano L, Atzeni L, et al; EPICEF Group. Primary headache and epilepsy: a multicenter cross-sectional study. Epilepsy Behav 2012;23:342–347.
- Belcastro V, Striano P, Kasteleijn-Nolst Trenite DG, Villa MP, Parisi P. Migralepsy, hemicrania epileptica, post-ictal headache and "ictal epileptic headache": a proposal for terminology and classification revision. J Headache Pain 2011;12:289–294.

#### **CORRECTION**

#### Subjective cognitive impairment: Fickle but fateful

In the editorial "Subjective cognitive impairment: Fickle but fateful" by D.S. Knopman (*Neurology*® 2012;79:1308–1309), in lines 15–19 of the second column on page 1308, the text should read as follows: "The authors defined SMI using a single question 'Do you feel like your memory is becoming worse?' Participants who answered 'Yes, this worries me' were classified as having SMI." The author regrets the error.

### Default-mode network dysfunction and cognitive impairment in progressive MS

In the article "Default-mode network dysfunction and cognitive impairment in progressive MS" by M.A. Rocca et al. (*Neurology*® 2010;74:1252–1259), there is an error in the title of table 3, which should read "Mean (SE) values of z scores of resting state activity within the clusters showing a significant difference among healthy controls, patients with SPMS, and patients with PPMS." The values within the table are correct. The authors regret the error.



# Teaching Neuro Images: Differential diagnosis of scapular winging

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