Extreme altitude transient aphasia

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Severe mountain sickness, cerebral oedema, or ischaemic infarcts may occur when humans ascend to high altitude. However, neurological symptoms can occasionally be atypical. Recently, we studied a highly experienced climber who had suffered difficulties in expressing himself verbally, emitting incomprehensible sounds during a strenuous ascent to 8000 m in the Himalayas. The speech disorder, which was not associated with other neurological impairments, disappeared following a short rest. Cranial magnetic resonance imaging, performed 40 days later, showed small high intensity signals in the posterior lobes. To our knowledge, the nearest neurological episode to this case is a self report by Shipton in 1943.

Cerebral blood flow is highly sensitive to changes in carbon dioxide tension. CO₂ inhalation increases brain perfusion quickly reversing many high-altitude neurologic disturbances. Hackett et al.² reported six cases of altitude cortical blindness who showed excellent response to CO₂ administration. A severe fall in the arterial P CO₂ (at rest approximately 10 mm Hg at 8000 m) due to intense pulmonary gas exchange during fast ascents to extreme altitude can result in non-uniform vasoconstriction and tissue distribution. This mechanism, together with an increased blood viscosity and coagulability in a high mountain environment, would increase the hypoxic insult, especially in small vessel territories of the brain.

Although the precise significance and future implications of these magnetic resonance findings are not clear, the presentation and clinical evolution of this case strongly suggest a selective vasospasm of brain speech areas. Nevertheless, these imaging findings may be related to cumulative cerebral damage, as we have observed in a large number of climbers after repeated exposure to extreme altitude.³ Indeed, the increasing popularity of attempting to conquer the world's highest summits without supplementary oxygen would lead us to conjecture that such autolimited neurological episodes occur more frequently than is reported in the mountain medicine literature.

1 Shipton EE. Upon that mountain. London: Hodder and Stoughton, 1943:129.
2 Hackett P, Hollingsworth K, Roach R, Schoene R, Mills W. Cortical blindness in high altitude climbers and trekkers. A report of six cases. In: Sutton J, Houston C, Coates G, eds. Hypoxia and cold. New York: Praeger Press, 1987: 536.
3 Garrido E, Segura R, Capdevila A, Pujol J, Javierre C, Ventura JL. Are Himalayan Sherpas better protected against brain damage associated with extreme altitude climbs? Clin Sci 1996;90:81–5.

“I was that child”

For several years I was involved in swimming, a sport that is vulnerable to those who wish to abuse children. On a typical training day parents take their children to the pool early in the morning. The swimmer strips, almost naked, and spends up to two hours in the water, supervised usually by only one adult. The whole process is repeated again that evening. The coach may see much more of the swimmer than the swimmer's parent. It is easy to understand how a swimmer could be dominated by their coach.

My own memories of these events are all too clear. My coach never allowed us to change in the changing rooms, insisting that we “de-robe” on the side of the pool, whether or not we had our swimming trunks on before arriving at the pool. This was quite humiliating for those girls who had forgotten to put their bathing costumes on at home.

When my coach needed to give me a “ticking off”, he used never to approach me when I was fully clothed. He would wait until I was in my swimming trunks about to enter the water. Then and only then would he approach me. In this situation, the psychological advantages of clothes are immense. And the psychological abuse didn’t end there. If things were going poorly in competition or if I had done something to annoy my coach, I was purposely ignored for days on end. I remember I once acted in direct opposition to my coach and he ignored me for three months! To hurt me fur-
This generally former some Copeland's Active moninde. indeed. be page achilles EDITORS, — I was delighted to receive the BJSM in Bosnia, an improving journal. I would like to make some observations on the occasional piece, "Clinical tests in sports medicine, Achilles tendon rupture" (June, page 124).

As noted, these injuries are sadly frequently missed, yet the diagnosis is very simple to obtain. The history should not be ignored, and the classic popping sensation at the back of the calf is highly suggestive. The gait of a patient with a rupture of the achilles tendon can be remarkably normal, even in the relatively acute phase. There may be surprisingly little in the way of swelling, and the tendon can look quite normal.

The article describes some clinical tests.

Active plantar flexion when standing

This is not necessarily a good test for a rupture of the achilles tendon. As any sufferer will tell you, the pain from an acutely inflamed Achilles tendon will deter any attempts at tip-toeing. False positives are therefore very common indeed.

Thompson's test

Slight plantar flexion of the foot from applying this test can be achieved by including the peroneal muscles, toe flexors, and tibialis posterior in the muscles squeezed. Plantaris is a very small muscle, often absent, whose belly lies very high in the calf. The former muscles are those which will provide some active plantar flexion even against gravity, although not sufficient to stand tip-toe.

Copeland's test

This is really of historical interest and is not generally in clinical use. The same can be said of O'Brien's test which consists of inserting a needle into the proximal tendon and looking for movement on attempting plantar flexion. In my experience, the easiest way to assess the continuity of the Achilles tendon is to look at the angle at which both feet rest when the patient lies prone with both lower limbs from mid calf hanging over the end of a couch. The normal foot lies in some plantar flexion because of the intrinsic tone of the intact gastrocnemius-soleus complex. The affected foot hangs vertically, at 90 degrees to the couch. Thompson's test is then used to confirm the diagnosis. In the case of a rupture where the diagnosis has been delayed, the degree of loss of plantar flexion will provide the diagnosis, and the degree of shortening required if surgical intervention deemed necessary.

Finally, I would like to put forward the psosas tendon as a candidate for the title the thickest tendon in the body!

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Verbal encouragement of voluntary muscle action: reply to Commentary by Roger Euston

EDITOR, — Thank you for the opportunity to address Mr Euston's comments (Vol 30, no 3, page 245), particularly those relating to the statistical analysis of the data. The statistical procedures undertaken in this study were carefully matched to the Latin squares cross-over design. The procedures are detailed in Joseph Fleiss's book The design and analysis of clinical experiments. In respect to examining the effects of gender, in this instance a test of the difference of the pre and post values for the verbal and non-verbal conditions of males and females, provides no less information than an ANOVA on pre and post values. If there had been more than two groups compared, ANOVA would be a more appropriate test.¹

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LETTERS TO THE EDITOR

BOOK REVIEWS

Quantum Strength and Power Training (Gaining the Winning Edge). By P O'Shea. (Pp 248; $20.00.) Patrick's Books, 1996. ISBN 0 9648698 0 2.

There is perhaps no subject more underdeveloped in the area of sports performance than that of resistance training. Although there are many texts in this area, few, if any, address the fundamental issues of resistance training as they relate to sports performance (as opposed to general fitness). In this capacity alone the book is valuable. Dr O'Shea has combined his lifetime of practical and theoretical knowledge to skilfully write this text. Hence it is not surprising that it contains invaluable insights into many areas of resistance training for sports performance.

The book is inexpensive (it's a softback) and easy to read, and although I feel it has greater applicability for more advanced participants, the abundance of tables, photographs, and diagrams will make it attractive to the novice. I say the text may have more applicability for the advanced participant as it assumes a certain level of existing knowledge and contains little in the way of information about how to start a weight training programme. The author might consider this in future revisions.

The text contains strong sections on power lifting and Olympic style lifting and does a decent job on anatomical and physiological considerations for resistance training. From an academic point of view I would like to see primary and direct referencing to support the

¹ Fleiss J. The design and analysis of clinical experiments. New York: John Wiley and Sons, 1986:263-90.

² Cody R, Smith J. Applied statistics and the SAS programming language. New York: Elsevier Science, 1987:92-117.