

Letters

Reversed Chaddock method: a new method to elicit the upgoing great toe

Sir: It is widely accepted that the Babinski reflex is the most famous and important pathologic reflex in clinical neurology.¹ Among many other pathologic reflexes that elicit an upgoing great toe, such as Chaddock, Oppenheim, Gordon, Schaefer, or Bransky, only the Chaddock reflex is as sensitive as the Babinski.^{2,3} The optimal receptive fields of the Babinski and Chaddock reflexes are the lateral plantar surface, and the external inframalleolar area of the dorsum, respectively. I would like to introduce a new method for eliciting the upgoing great toe by stroking the dorsum of the foot from medial to a lateral direction, and discuss the significance and usefulness of this "reversed Chaddock method."

Thirteen patients with clinically definite pyramidal tract lesions were randomly selected, and both Babinski and Chaddock reflexes were carried out and compared. The diagnoses of these patients were multiple sclerosis (five cases), spastic paraparesis (two cases), multiple lacunar state, right cerebral infarction, left thalamic haemorrhage, Shy-Drager syndrome, amyotrophic lateral sclerosis and spinal cord tumor. Two hemiparetic cases were evaluated in the paretic side only, therefore 24 trials in total were counted. All patients were examined in the supine position by the present author, and the same hammer top was used for stimulation. The elicitation of the Babinski and the Chaddock reflexes was according to the original methods. The elicitation of an upgoing great toe was attempted by stimulating the dorsum of the foot from medial to lateral border as illustrated in figure. The author has proposed the name of the "reversed Chaddock method".

The positive rate of the Babinski reflex was 19/24 (79%), whereas that of the Chaddock reflex was 24/24 (100%) including one equivocal positive response. On the other hand, the positive rate of this "reversed Chaddock method" was 21/24 (88%), and somewhat superior to the Babinski reflex. The upgoing great toe was immediately obtained in this method, when the stimuli crossed the line into the sural nerve distribution. The posterior and anterior aspects of the lower leg were also stimulated. The upgoing great toe was more easily elicited on stimulating the postero-lateral aspect of the calf supplied by the sural nerve in com-

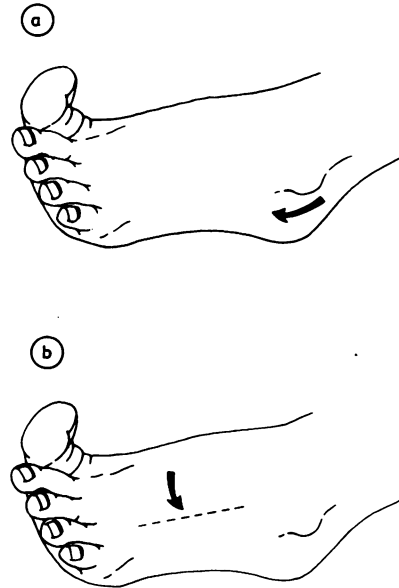


Fig Original Chaddock reflex (A) and "reversed Chaddock method" (B).

parison with the anterior shin supplied by the superficial peroneal nerve.

The Babinski reflex, obtained by stroking the sole, is by far the best and most reliable method of eliciting the upgoing great toe, and many other pathologic reflexes are considered to be just modifications of the Babinski reflex and not superior to it. However, the Chaddock reflex, the external malleolar sign, is also considered to be sensitive and reliable in the literature and in everyday neurological practice. The major problems in eliciting the Babinski reflex by stroking the lateral part of the sole are false positive or negative responses due to withdrawal of the foot, tonic foot responses, or equivocal movements. The irritation to the sole is actually very ticklish in nervous or even in normal individuals, and can provoke unpleasant paraesthesia especially in the patients with peripheral neuropathy. On the other hand, the external infra-malleolar area, which is the receptive field of the Chaddock reflex, is suitable for eliciting the Babinski's sign without provoking tonic foot responses, or withdrawal upgoing toe movements. By using this "reversed Chaddock method", the receptive field of the Chaddock reflex may be postulated to be in the sural nerve distribution, which can be supported by the better response on the postero-lateral calf stimulation than anterior shin. As far as the receptive fields of the

Babinski and Chaddock reflexes are concerned, the first sacral dermatome (S1) is considered to be the reflexogenous zone.⁴ But, since the dermatome supplied by the roots shows marked overlapping, such zones are varied in each individual.⁵ From the experiences of constant responses in the sural nerve distribution in the Chaddock reflex and the "reversed Chaddock method", the reflexogenous zone might correspond to the peripheral nerve territories. The same is true of the Babinski reflex, which involves the lateral plantar nerve, but not the medial plantar nerve, though both are supplied by S1 root.

It is concluded that this method, which I have called the "reversed Chaddock method" is not only effective, but also avoids false positives due to withdrawal upgoing toe movements or tonic foot responses which might be provoked by stroking the sole.

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Accepted 8 March 1986

Cognitive effects of high-dose naltrexone in patients with probable Alzheimer's disease

Sir: Prompted by conflicting reports of efficacy of parenteral naloxone^{1,2} and by the preclinical literature on the beneficial effects of opiate antagonists on memory,³ we undertook a study of the effects of the oral narcotic antagonist more appropriate for chronic administration, naltrexone. During the open dose-finding phase of the study, several patients experienced hepatotoxicity