The direction of scratch test

I read with interest the letter by Dr Motoi et al on the use of "direction of scratch" test in the assessment of posterior column dysfunction. They correlated the number of errors in the scratch test with central conduction times in somatosensory evoked potential (SEP) with vibration perception thresholds, demonstrating correlation coefficients of 0.56 and 0.34 respectively (p < 0.01). This led them to conclude that the scratch test could be "recommended as a simple and yet reliable clinical neurological examination for detecting posterior column dysfunction".

In Hankey and Edis' original description of the sign,3 they defined a clearly abnormal test as 3 or more errors out of 10. Applying this definition to Motoi et al's data for central conduction times, the predictive value for a positive test is only 60% (that is, 60% with an abnormal scratch test will have abnormal central conduction times). Conversely, the predictive value for a negative test is 80% (that is, 80% with a normal scratch test will have normal central conduction times). These figures cast some doubts on the usefulness of this test for clinical assessment of posterior column dysfunction.

Predictive values for the scratch test could not be calculated for vibration perception thresholds as Motoi et al did not provide a normal range. It would be of interest to have this information.

ARTHUR GOMMELFELDE
Department of Neurology,
Westminster Hospital,
London, UK


BOOK REVIEWS

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Recovery of function following a lesion in the central nervous system has always been an enigma to the Neurologist. The phenomenon is important because if the mechanisms of recovery were understood, not only would they be the key to the management of the central nervous system be clearer, but opportunities for aiding this recovery would become more likely. In the 1960's the concept that following partial denervation the undamaged central neurone would react in such a way that unused or little used pathways would become more effective was first suggested, on the basis of experimental studies, together with the corollary that part of the clinical picture seen after a lesion in the central nervous system was, in fact, due to the reaction of the intact central nervous system. This implied that the problem of rehabilitation of patients with chronic neurological deficit should be via active "re-education" of the intact nervous system, and not through rehabilitation away from the management or treatment of complications which arise as a result of dysfunction.

The phenomena of sprouting of new axons, unmasking of synaptic pathways, and alteration of receptive fields, have altered our view. By the late 1970's and early 1980's restorative neurology was established. There may be earlier claims for the coining of the term "restorative neurology" but it was Dimitrijevic who defined it as a branch of neurological sciences concerned with active procedures applied to the impaired nervous system in order to modify abnormal neuro-control. Since that time there has been an increasing interest in neuromodulation of the nervous system using physical or chemical stimulation and other methods to alter neurological function. This field is something of a departure from conventional neurological anatomy. Although very accurate diagnosis is essential, the emphasis in restorative neurology has always been on trying to assess the neuromyological system as accurately as possible.

The interests encompass those of the basic scientist interested in plasticity of the nervous system, engineers involved in computer modelling, the Neuropsychologists and Neurosurgeons involved in the function of the nervous system, the Anaesthetist with an interest in pain, and even the Vascular Surgeon. One of the most exciting aspects of this field is the effect of neuromodulation outside the central nervous system.

In this excellent book, the editors Delwaide and Young define restorative neurology as the sub-speciality of neurology dealing with "techniques and strategies used to restore a disordered nervous system to a state of optimal function" and they stress the wide ranging interests and specialties of the contributors, many of whom contribute to this volume. The editors, again, stress the importance of correct diagnosis and the importance of quantitative assessment.

There are chapters reviewing the epidemiology of disability, quality of survival, biochemical changes after stroke and trauma, plasticity, pharmacotherapy, engineering aspects, principles of motor learning and training, as well as conventional chapters on stroke, spinal cord injury, multiple sclerosis and Parkinson's disease. Newer technologies and disciplines of neurostimulation, surgical treatment of epilepsy and molecular biology are reviewed and the editors conclude with a thoughtful look to the future.

This book is strongly recommended.

LS ELLIS


The title is honest and true, but will lead you astray. The author, Boris who? maybe you’ve heard of him. Then the declaration “Translated from the Russian by John K Young” gives you the clue. It is not just a translation of the work, but more a synthesis of Russian and western neurophysiology. There are a number of references to the Russian and to the western and Russian literature. It is a modified form “English” even though the odd one is in German. The late Professor Kotlyar was at the Department of Physiology of Higher Nervous Activity at Moscow State University, highly acclaimed in Russia was completed in 1986, shortly before his death in 1990.

Most of us in the west are aware that there is a fine tradition of neurophysiological work in Russia and the east but hardly any of us have read any of it in recent years. There are a few Russian journals included in index medicus, but most scientific papers are reviewed, reviewed, reviewed, inhibitions of the many regional academies of sciences and the CIS. There is a Russian abstracting service, The All Union Institute for Scientific Information (INTI) which is probably available through the national lending library, but unless you can read Russian it is not of much help.

It is therefore valuable for us to have a book like this written by an eminent Russian scientist who has achieved an invaluable synthesis of Eastern and Western literature in this book of plasticity. Plasticity is a set of increasingly important processes and phenomena but where do they happen and what makes them happen? Herein lies the value of the book in exploring plasticity from the level of the synapse and sub-synaptic membranes through neurones and reflexes to brains and behaviour. The book does not pretend to be encyclopaedic but each chapter provides a balanced synthesis of Russian and Western work. The influence of I P Pavlov, who died in 1936, is still strong, stronger. Pavlov’s concepts of reinforcement, inhibition, association and extinction are still with us but in a modified form more befitting to the age of the micro-electrode. You must remember that Pavlov used a salivary gland for his research.

Brain "states" feature prominently. There is no definition of a state but it represents the particular relationship found between sets of neurones from time to time, for instance arousal, attention and drowsiness. Animal states are a behavioural manifestations of states. States cannot be studied by micro-electrodes. Nevertheless these important concepts are often overlooked in Western neurophysiology. The sections on higher nervous activity bring to mind the works of Edelman and the theory neuronal group selection. One begins to feel that if Edelman knew his Pavlov as well as he knows his neurons then something really exciting might happen. Here perhaps lies a tragedy of the cold war. If Edelman and Kotlyar had been able to engage in a dialogue, a richer synthesis and understanding of processes might have been forthcoming: but they weren’t and it is for future scientists to move along these lines. Kotlyar’s thoughtful and scholarly views are nonetheless valuable.

This book draws back the iron curtain for us and allows us to see neurosciences on each side in a new light. The publishers, editors and above all the authors of this and previous volumes are to be congratulated. It is to be hoped that literature, databases, abstracting and translating services pick up this initiative so that Eastern neuroscience can be assimilated along with that of the west, both sides will be enriched. 

EM SEDGWICK


This is a well thought out, practical and useful book. In a brief introductory chapter, the authors clearly define their aims: to present neurocytopathology in a concise and accessible format to surgical pathologists, cyrologists and clinicians, to provide relevant information to enable the practice of the more important techniques and to give further guidance both for the literature and for sources of continuing medical education. The book fulfils these rather ambitious goals remarkably well. One chapter gives a brief overview of the cellular components and histological structures of the nervous system: this hardly amounts to more than a series of short vignettes and is perhaps the weakest part of the book, although it may serve as a guide to the unintiated. There are no fewer than four chapters dealing with methodology: general aspects of CSF cytopathology, qualitative assessment of and quantitative approach to CSF cytopathology and cytological methods applied to neural tissue biopsies and aspirates. These chapters are full of useful practical information ranging from the actual descriptions of techniques to warning on artefacts.

The backbone of the book is the two chapters which give an account of diseases: one on tumours and related conditions, the other on non-neoplastic disorders. The former covers the more frequent entities and is, by no means, comprehensive. The latter include neurodegenerative, demyelinating, vascular, infective, inflammatory diseases, leukodystrophies and the non-neoplastic disorders of the eye and orbit. A separate chapter is devoted to pitffalls, medico-legal and diagnostic, listing 10 of the former and 190 of latter. However, the greatest single asset of the book is the collection of more than 200 good quality, colour illustrations. I warmly recommend this book.

PL LANTOS


The purpose of this series is to present in relation to a specific theme—in this case tumours of the CNS in childhood—both authoritative clinical and basic science aspects and to attempt to correlate the two. In this aim the text is successful. The volume is a compilation of some of the topics covered at the International Symposium on Paediatric Neuro-Oncology help on 3 June 1989 in Seattle. A strong plea is made in the preface that centralisation of care of children with CNS tumours continues and emphasises that effective management requires contributions from many paediatric sub-specialties including neurosurgery, neurology, oncology, radiotherapy, rehabilitation, psychology, endocrinology and psychiatry. Perhaps added to this list should be educationalists.

The volume covers issues of diagnosis, classification, surgical advances and chemotherapy. Specific tumours are discussed. An example would be the treatment of infants with brain tumours where most of what can be stated is particular difficulties rather than reporting advances.

Of particular interest is the discussion and presentation of the pathological data and the manner in which insight into the molecular phenotype of neural cells has improved understanding of the biology of brain tumours and systems of classification. Inadequacies of present systems for tumour classification based on presumed cell of origin and differentiation was discussed. There are excellent chapters on the investigation and clinical management of paediatric brain tumours in particular brain stem and spinal cord tumours in childhood and discussion of recent advances in management using hyperfractionated radiotherapy and high dose chemotherapy with autologous bone marrow rescue. For a comprehensive overview of the subject greater emphasis on such important issues as assessing and mitigating adverse effects of treatment would be necessary. Rehabilitation, the functioning of multidisciplinary management team, family support and audit of an overall service are not covered.

The volume can be recommended for those involved in the day to day management of paediatric brain tumours.

MA CLARKE


Prolonged exposure to neuroleptic drugs causing delayed or tardive dyskinesia has been generally accepted for over 20 years. This was deduced from the observed exacerbation or first appearance of dyskinesia with cessation of treatment, the suppression of dyskinesia with reintroduction of neuroleptic, and the slow improvement in some patients after extended drug withdrawal. However, the culpability of neuroleptics has recently been questioned by growing awareness of involuntary movements indistinguishable from tardive dyskinesia occurring in drug-naive psychiatric populations and the possible involvement of basal ganglia dysfunction in psychosis. The authors of this report on tardive dyskinesia from the American Psychiatric Association rate that in their view ‘the consensus at the present time is that antipsychotic drugs do play a major role in producing, precipitating, or evoking abnormal involuntary movements’. This advice is very suggestive but not compelling.

J Neurol Neurosurg Psychiatry: first published as 10.1136/jnnp.56.5.578-c on 1 May 1993. Downloaded from http://jnnp.bmj.com/ on January 9, 2021 by guest. Protected by copyright.