

has also been addressed in more depth for surgeons practising in this field but the editors manage to maintain a well balanced overview of the subject.

Rehabilitation has been covered quite extensively. Detailed results are reviewed for specific processing regimes and several long term outcomes are presented. Additionally, several specific institutions from a range of countries have documented the in depth analysis of their programme's results which gives an interesting comparison. The section of the book on rehabilitation also moves on from merely documenting results to look at modifications of current practise and the direction of future processing strategies.

The latter chapters reflect on the comparisons between adult and paediatric programmes and the evolutionary pathways followed by units as a result of this. There is an assessment of the potential for future implantation in Europe and a discussion on the cost effectiveness of the procedure. Space limited this discussion, as it had in several other aspects of the subject in the book. Overall this edition represents a good general synopsis of paediatric implantation with input from most of the major units involved in the subject.

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### **CLINICAL AUDIO-VESTIBULO-METRY FOR OTOLOGISTS AND NEUROLOGISTS, 2nd Edition.**

Anirban Biswas. Bhalani Publishing House. 1996. Price £15.

The value of this book lies in bringing a detailed description of both Auditory and Vestibular tests into one volume, and interpreting the results together in diagnostic oto-neurology. The procedure for a range of both auditory and vestibular tests is described step by step such that a novice would be able to conduct the tests to recognized standards. Interpretation of results is tackled with equal attention to detail, making no assumptions of existing knowledge. This approach is particularly welcome in the vestibular section as there are few published handbooks of vestibulometry. At times this approach makes the text somewhat laboured and wordy, but it is a price worth paying if the mystique is to be removed and standards maintained.

The auditory section, begins with a description of the audiometer and its physical principals, going on to describe the physiology of hearing measurement by air and bone conduction. This foundation enables the reader to understand exactly what is being measured bringing a better understanding of the audiogram obtained. Audiometric procedures are carefully and accurately described including masking techniques. The reader has no excuse for over or undermasking, the commonest mistakes in audiology. It would have been appropriate to give the tester insight into the application of pure tone audiometry in younger school children, for example the age at which masking can be attempted. A glaring omission of this section is the detection of non-organic hearing loss eg shadow curves,

although there is a brief description of how to assess non-organic hearing loss in Chapter 5. The examples of audiograms given to illustrate pathology are on the whole acceptable.

The section on localizing tests undertaken with a clinical audiometer only is a welcome reminder of tests that can be quickly and easily done, providing much of the information expected from brainstem auditory evoked responses. Once again the format is detailed step by step instructions and interpretation. The section on the SISI test could have been reduced and the space given to Loudness Discomfort Levels and Most Comfortable Listening Levels which are so simple to do and yet so useful in both diagnosis and rehabilitation. The Stenger test for non-organic hearing loss also deserved, but did not get, a detailed description in this section.

The chapter on Impedance audiometry is thorough, including a good description of the eliciting and interpretation of stapedius reflex threshold and decay. The use of reflex threshold in the assessment of malingers is mentioned.

The chapter on brainstem evoked response audiometry is also a good comprehensive reference text, highly relevant, and practical. Latency intensity functions are emphasized, and the use of the test for both threshold estimation and site of lesion is well presented.

Other audiological tests described more briefly in Chapter 5 include speech audiometry, Bekesy Audiometry, electrocochleography, and Otoacoustic emissions. Cortical Evoked Response Audiometry is not mentioned, which is a pity in view of its importance in medico-legal work. The section on central deafness found in Chapter 2 would have been more appropriate to this section as these tests are only outlined and involve more than a clinical audiometer. Although paediatric audiology is rightly the province of specialist texts there should have been more emphasis upon the application to children of the tests described in this book, as otoneurological practice is rarely confined to adults exclusively.

The vestibulometry section opens with an understandable summary of vestibular physiology. The principals of electronystagmography (the electrical recording of eye movements) are described and detailed examples given of the various features of the traces obtained. There follows a stepwise description of setting up the laboratory and procedures for recording calibration, spontaneous and gaze nystagmus, saccades, pendulum tracking, positional and positioning tests, rotatory and rotation tests and the bithermal caloric tests. Interpretation of the traces is carefully and comprehensively explained. Whereas the analysis of positional nystagmus using the Nylen classification for central and peripheral features is acceptable, the interpretation of spontaneous and gaze nystagmus is questionable. Although spontaneous nystagmus is accurately described for evidence of central and peripheral vestibular dysfunction, Alexander's law is not applied to the accompanying gaze nystagmus, causing confusion in interpretation. The role of rotation testing and it's interpretation is well described. Analysis of the caloric test receives the attention which this

fundamental aspect of vestibulometry deserves. The various parameters of duration, frequency of beat and slow phase velocity are discussed and the calculations of canal paresis and directional preponderance are sufficiently detailed for the novice to undertake. Considerable detail is given to a method of interpretation based upon the absolute values of each caloric response known as the Butterfly Chart of Clausen. Although this approach is valuable in principle the detailed series of examples tend to confuse an otherwise clear text.

The section on Vestibulospinal tests, the quantification of Unterberger's stepping test and Romberg's standing test, gives a very fair and adequately comprehensive description of both the techniques and their interpretation. Craniocorpography is a relatively inexpensive way of quantifying and extracting more information from Unterberger's test by means of head

mounted lights and a recording camera. The quantification of the Romberg test describes the full Equitest Dynamic Posturography system, which although beyond the budget of most vestibular facilities, does help the reader to understand both the pathology and disability of vestibular dysfunction.

The book closes with descriptions of typical findings in a number of common auditory and vestibular pathologies and a comprehensive reading list. This book has already been in print two years and some of the literature and approaches which it describes are already a little outdated, but this does not prevent it from being an extremely useful basic text for those who wish to undertake and interpret both auditory and vestibular test in clinical oto-neurology.

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