

Book Reviews

Interceptive Orthodontics (2002)

Authors: Damaso Caprioglio, Aurelio Levrini, Claudio Lanteri, Alberto Caprioglio and Luca Levrini
Publisher: Edizioni Martina Bologna s.r.l., Italy
Price: €250

This text book of some 450 pages has been elegantly produced by an Italian team of authors. It is well illustrated and clearly indexed and covers many aspects of interceptive and early treatment for orthodontic malocclusion. It reviews the principles of craniofacial growth, the role of paediatric dentistry including the treatment of dental trauma, interceptive treatment in Class I, II, and III malocclusions, as well as reviewing the treatment of periodontal problems in the developing dentition. The book also reviews various treatment mechanics, including removable and fixed appliance, lingual orthodontics, and onplants. The style of treatment presented,

however, is rather complex for the very young child and would not be the norm in the United Kingdom. It is, however, well referenced from international authors and provides the clinician with some interesting and inventive techniques for dealing with occlusal problems in the developing dentition. Overall this book provides a great deal of thought provoking approaches to the treatment of both skeletal and dental anomalies particularly between 6 and 12 years of age. The most significant criticism is that the English translation, whilst accurate, makes for rather laboured reading.

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Craniofacial development, growth and evolution (2002)

Author: Murray C. Meikle
Publisher: Bateson Publishing, Diss, Norfolk, UK
Price: £95.00
ISBN: 0-9542338-0-8

There are many excellent textbooks describing the current concepts of development. However, as these books are targeted mainly to undergraduate and graduate students in biological sciences, they are difficult reading for a clinician who has little background in molecular biology and genetics. They also contain much material which is not very relevant to the clinician. Murray Meikle has now undertaken the admirable task of extracting from the extensive literature in developmental biology the issues that are important for understanding the molecular and genetic regulation of craniofacial development. He has directed his new book '*Craniofacial development, growth and evolution*' to orthodontists, plastic and maxillofacial surgeons, otolaryngologists and paediatric dentists,

as well as research students. As he states in the preface, he has wanted 'to incorporate these discoveries into the traditional morphological description of craniofacial development'.

The book has 10 chapters and 363 pages, and includes thorough descriptions of the developmental anatomy and growth of craniofacial tissues. The focus of the book is on skeletal structures. It starts with a chapter describing the origin of the vertebrate head and early embryology such as the migration of neural crest cells. The molecular genetics of segmentation was unravelled in *Drosophila*, and in this context the author takes the opportunity to introduce this important model organism in the genetic analysis of development. The roles of Hox genes and other

transcription factors are then described in the vertebrate head and in positional specification of branchial arches and the face.

Chapter 3 focuses on the biology of skeletal tissue and contains a clear description of the mechanisms of endochondral and intramembranous ossification, and osteoblast and osteoclast differentiation. There is plenty of new information on molecular and genetic aspects, which are important for the understanding of bone growth and remodelling and some of which is already applied in the clinic.

Chapters 4–10 are dedicated to different craniofacial structures. Each chapter starts with a detailed description of the developmental anatomy followed by presentation of the most important genes and mechanisms regulating development. The common malformations are presented, as well as gene mutations that have been identified as their causes. Their OMIM reference numbers are given in parentheses, which is useful, and facilitates the search for additional data on the individual malformations and genes. The clinical relevance of the current understanding of the genetics and development is dealt with in each chapter and the readers will certainly find these discussions interesting and valuable. Also postnatal growth is described specifically in the chapters on the maxilla and mandible. Many orthodontists will read with interest the discussions on growth theories, in particular the functional matrix theory versus current knowledge on genetic regulation of development.

The book has illustrations of different styles and origins. There are colourful photographs of gene expression patterns and histological sections, and many of the schematic drawings adapted from other sources and redrawn for this book are in colour. In the present time when we are surrounded by bright colours from all media, I particularly liked the black and white pictures

reproduced from classical literature. They also typically show greater detail than the simplified colour diagrams common for most textbooks today. In particular, they demonstrate that the morphology of development is complicated, and that it has been carefully described decades or centuries ago by our predecessors.

I also liked the short historical footnotes ending each chapter and presenting great scientists and the discoveries that they made. I learned for example that Meckel, besides giving his name to the mandibular cartilage, provided the first comprehensive description of birth defects, that Rudolph Virchow who is known as the father of pathology also carried out classical studies on skull deformities, and that Goethe, the great poet, discovered the premaxillary bone. The author has selected wonderful original illustrations to accompany these footnotes, and as he states in the preface of his book, these drawings remind us of rich artistic traditions.

Even writing a book only on developmental biology of the craniofacial structures would have been a difficult task as it requires the integration of tissue morphology and cell biology with molecules and genes. Murray Meikle has taken a more demanding job when he decided to combine craniofacial developmental biology with growth, evolution, and clinical relevance. There is, however, no doubt that the book in its present form serves an important purpose. It is timely, and there is no other book on the market that it can be compared with. It gives orthodontists and other clinicians the opportunity to get acquainted with the progress of developmental biology and genetics and to realize clinical associations. I believe that clinicians will find this book exciting and stimulating. It is fairly easy reading and browsing it is pleasant as the different chapters are independent and can be read in any order.

Irma Thesleff

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