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## Preface

*Χρή δὲ πρῶτον μὲν γινώσκειν τὴν φύσιν τῆς ράχιος, οἷη τις  
ἔστιν· ἔς πολλά γάρ νοσήματα προσδέοι ἂν αὐτῆς....  
Ἱπποκράτους «περί ἀρθρῶν» XLV*

*One should first get knowledge of the structure of the  
Spine; for this is also requisite for many diseases....  
Hippocrates "On Joints" XLV*

The cervical spine represents a quite vulnerable area of the human skeleton, involved in many traumatic and medical conditions. Therefore, understanding the problems and managing the patients with disorders of the cervical spine is challenging. Of all the cervical vertebrae, the second has a particular interest. The second cervical vertebra is called "axis" or "epistropheus", names derived from the ancient Greek *ἄξων* (axon) or *ἐπιστροφεύς* (epistrofeús) that indicate its function: it forms the pivot upon which the first cervical vertebra (the atlas), which carries the head, rotates. The most distinctive characteristic of this bone is the strong odontoid process (the dens), a tooth-like process that rises perpendicularly from the upper surface of axis' body.

The unique anatomy, structure, position under the head, and the wide pathology of the axis vertebra is involved was a stimulus to undertake the scientific task to write a book focused on the disorders of this particular vertebra, aiming to provide useful and concrete information with adequate illustrations for the readers.

The book is separated in four parts that include chapters written by colleagues, experts in their field. The first part provides the embryology, the anatomy, and the biomechanics of the axis. The second part includes a thorough description of the injuries of the axis, with particular emphasis to the fractures of the odontoid process, the body, and the posterior arch of the axis. In the third part, the surgical approaches to the axis are thoroughly described with explanatory illustrations. In the last part, the congenital anomalies, infections, and tumors of the axis are discussed. Each chapter addresses the specific subject, and includes detailed information, and a list of references for further reading. All chapters are appropriately illustrated with photographs, line drawings, and radiographs.

I am grateful and honored for the colleagues who have kindly contributed and shared material, thoughts, and knowledge for the writing of their chapters. I should especially thank my colleague Andreas F. Mavrogenis who assisted me throughout the preparation of

this book. Finally, I wish to thank Springer Verlag editions of Italy for their help and recommendations throughout the writing and review process of *The Axis Vertebra*.

It is my hope that the readers will find this book useful from the perspective of obtaining the diagnosis and understanding the management of the patients with disorders of the axis vertebra.

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The Axis Vertebra

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