

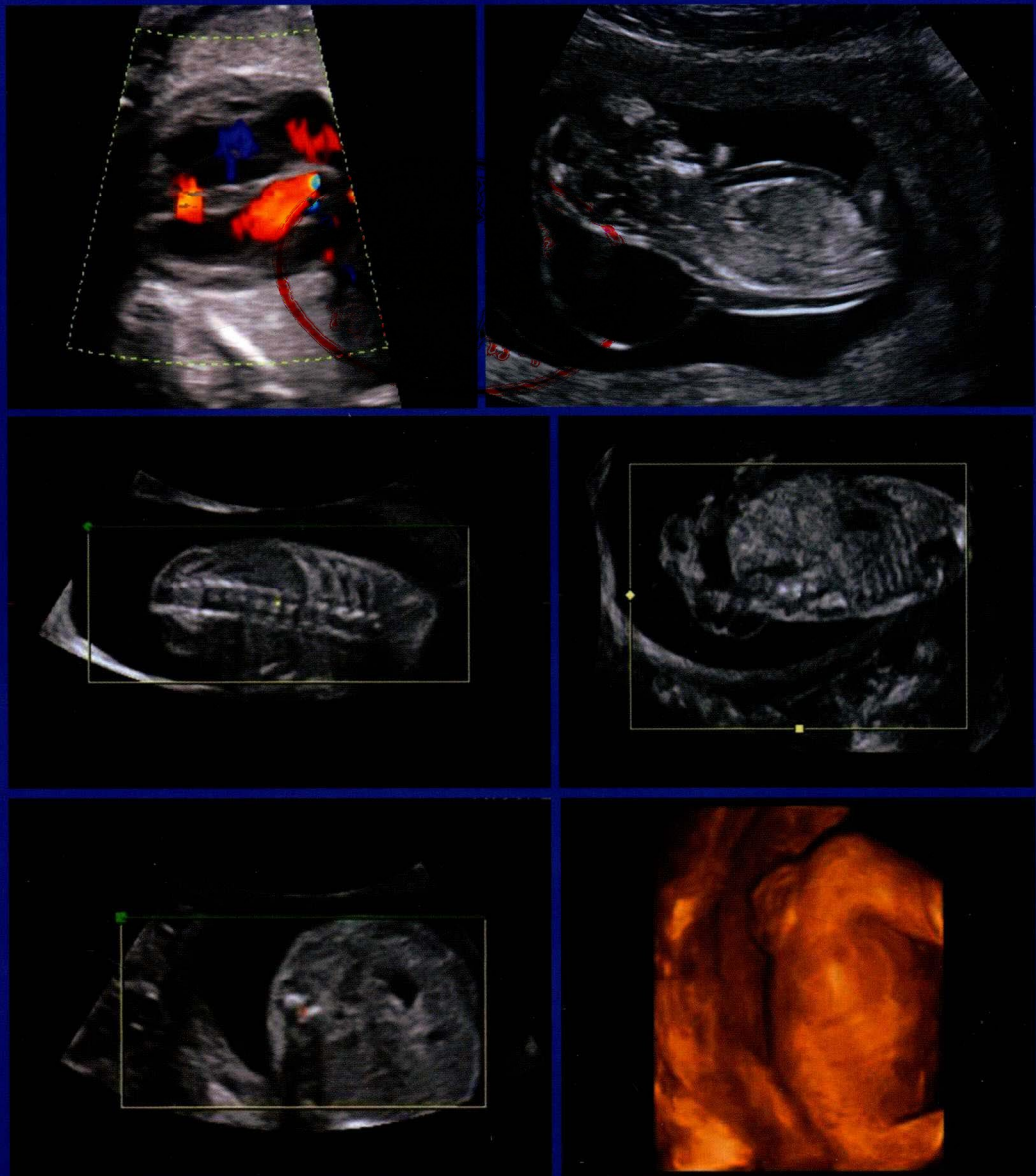
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Obstetric Imaging



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To our patients, and to our teachers and mentors, for sharing so much with us.

To our families for enabling us to have the time and energy to complete our work.

And in memory of Charlie Kleinman, who taught us all.

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Foreword

It has been 58 years since Ian Donald published the first crude ultrasound images of the fetus, and exactly 40 years since the first early prenatal diagnosis of anencephaly by ultrasound. These early images were obtained with large, cumbersome static scanning machines, and it was the development of the real-time scanner in the late 1970s that created the ultrasound revolution.

Real-time imaging was a great democratizing influence, because no longer was obstetric scanning confined to an elite group of specialists in a few major centers. Inexpensive real-time scanners very quickly became widely available, and many experienced practitioners of static scanning were surprised at how quickly their junior doctors and sonographers became experts in scanning almost overnight. The ease with which the probe could be manipulated meant that many fetal structures were studied and measured, and a great number of charts of different planes and organs were developed.

The study of fetal anatomy and function was enhanced by the development of computed sonography, color Doppler, and transvaginal sonography in the mid-1980s and 3D imaging in the 1990s. In just half a century, ultrasound had transformed prenatal care of the mother and her unborn baby from a primitive art to one of the most advanced medical specialties. Indeed for any fetus the ultrasound anatomical assessment that it receives prenatally is arguably more comprehensive and systematic than it will receive for the rest of its life. Ultrasound also provides information on growth and development and functional problems that could have long-term implications for the health of the individual. That is why a comprehensive understanding of the numerous anatomical and developmental problems is so important for the practicing obstetrician.

This book provides encyclopedic information about every possible congenital malformation, either genetic or

acquired, in an accessible, structured, and concise format. Each condition is defined; the prevalence, etiology, and pathophysiology described; and the ultrasound features, differential diagnosis, and management options discussed. A synopsis and list of key points are also standard features of each chapter. Both normal and abnormal ultrasound anatomy are beautifully illustrated, and the quality of the writing by the distinguished team of experts is of a uniformly high standard. Finally of course the book and additional illustrative videos can be accessed on the web, which is essential for the busy practitioner when faced with an unexpected ultrasound finding.

The next phase in the development of ultrasound prenatal diagnosis is for it to move gradually out of the expert teaching centers to the district and community hospitals, and for this to happen the residents of today must acquire the skills and knowledge to provide their patients with optimal information about their unborn baby. Prenatal diagnosis is enmeshed in ethical controversies, but the one inescapable fact that is abundantly clear is that the vast majority of couples wish—and therefore deserve—to know as much and as early as possible about the health and normality of their unborn baby. What is done with this information is decided by the couple in consultation with their doctor and the relevant specialists.

This excellent book provides the most up-to-date information on ultrasound prenatal diagnosis and will be essential reading not just for fetal-maternal medicine specialists, but for all obstetricians and trainees.

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Preface

When Elsevier first approached me about producing this text, the idea was a bit overwhelming. The Expert Radiology series is a significant brand within the Elsevier portfolio, so there would be a high standard to maintain. The sheer breadth of topics that would need to be covered was daunting in itself. And who has the time to do all this with hectic clinical and academic lives?

Indeed, the best way to get anything done is to ask a busy person, and to my great fortune I found six of the busiest to act as co-editors. Four world-class experts, Mary D'Alton, Eduard Gratacos, Larry Platt, and Boris Tutschek, served as senior editors, and reached out through their departments and beyond to find chapter authors. Two, Helen Feltovich and Tony Odibo, are fast becoming leaders in the field, and worked with more senior editors for parts of the book. I am forever indebted to them for their contributions. The section on skeletal anomalies would not have happened without the special expertise of Debbie Krakow, and I owe her particular thanks.

The format of the book is intended for both print and web access. We hope that clinicians with particular clinical findings will use the web version to search for differential

diagnostic possibilities in ways that print indexes cannot do. We also believe that the video clips embedded in the website will add even more to the value of the resource.

This whole project would never have happened if not for the persistence of Rebecca Gaertner from Elsevier, who first invited me to become involved. I am also grateful to Pam Hetherington, who took over as Acquisitions Editor early on. Special thanks also go to Roxanne Halpine Ward, Developmental Editor, and the most important day-to-day contact for all of the editors and authors.

Finally, the authors of all the chapters deserve recognition for their work in producing outstanding contributions. All of the editors share my gratitude and, frankly, awe, at what came from our colleagues in producing this volume.

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