

PREFACE

The examination of the fetal heart is part of the comprehensive fetal scan, but this examination is still considered a challenge even for experienced sonographers. Over the years the number of ultrasound techniques used in fetal cardiology impressively increased and no other fetal organ is examined with as many modalities as the fetal heart including high resolution two dimensional (2D) imaging, M-mode examination, spectral, color, power, high-definition digital Doppler, B flow as well as tissue Doppler. It is, however, common knowledge that despite the availability of all these technologies, screening programs, especially when limited to the study of the “four chamber view”, have shown disappointing low detection rates for congenital heart disease (CHD). Although the identification of CHD can be improved by routinely visualizing the outflow tracts, their diagnosis is greatly affected by the skill of the operator as well as his ability to interpret the findings.

Very recently three- and four- dimensional (3D and 4D) technologies have been introduced in fetal cardiology and have revolutionized the way in which it is possible to study the heart. 4D ultrasonography may reduce the operator dependency of CHD diagnosis and adds the possibility to obtain offline virtual planes in cardiac examinations, views of the fetal heart difficult or impossible to obtain with conventional 2D ultrasound.

This new fetal cardiology ebook, we believe, will be of great value for all practicing clinicians wanting to start the study of the fetal heart with 4D ultrasonography. We have chosen a panel of contributors that are both leaders in this field and can represent the differences in practice between Europe and United States. This is a comprehensive guide intended for anyone interested in fetal heart scanning performing both routine screening ultrasonographic examinations and targeted heart scans. It aims to assist the reader with the following questions: how can I use this technology to acquire cardiac volumes?, how do I handle cardiac volume data sets after acquisition? , how can I improve diagnosis and definition of CHD?

It is our hope that this book will provide a bridge between scientists using and testing new technologies for research purposes and clinicians wishing to improve their daily practice.

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