



Catherine Garel

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**MRI of the Fetal Brain**

Normal Development and Cerebral Pathologies



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# MRI of the Fetal Brain

Normal Development  
and Cerebral Pathologies

With contributions by  
Anne-Lise Delezoide · Laurent Guibaud  
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## Foreword

It is becoming increasingly clear that many developmental disorders of childhood have a prenatal basis, either resulting from abnormal programming of development or from some sort of in utero injury. It is less clear how to determine the cause of the brain abnormality, at what stage it can be determined, and how this knowledge can be used to benefit our patients. Prenatal imaging is clearly an important component of all of these steps. Although prenatal ultrasound has been in use for more than two decades and its strengths are well understood, prenatal MRI is newer and its capabilities are only beginning to be appreciated. This book and others like it are helping attain that insight.

In this book, Dr. Garel and her co-workers present the basic elements of proper use and interpretation of fetal cerebral MRI. The book starts with a description of the optimal techniques used for the studies. It continues to describe normal fetal brain development, as assessed by pathology and MRI. Finally, it describes and illustrates many abnormalities of the fetal brain, both developmental and acquired (destructive). Of note, the authors do not merely list abnormalities of the brain; instead, they explain the relevant embryology or pathogenesis of the disorder, describe sonographic findings, and discuss what adds to the assessment. This approach helps physicians understand what they are seeing and reduces the chances for misdiagnosis.

In short, this book is an excellent and important addition to the growing field of prenatal diagnosis.

A. JAMES BARKOVICH, MD

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Pediatrics, and Neurosurgery  
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Moreover, we wish to thank:

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## List of Abbreviations

|             |  |
|-------------|--|
| <b>AD</b>   | Atrial diameter                                  |
| <b>APDV</b> | Anteroposterior diameter of the vermis           |
| <b>BPD</b>  | Biparietal diameter                              |
| <b>TCD</b>  | Transverse cerebellar diameter                   |
| <b>DV3</b>  | Lateral diameter of the third ventricle          |
| <b>DV4</b>  | Anteroposterior diameter of the fourth ventricle |
| <b>FOD</b>  | Fronto-occipital diameter                        |
| <b>HV</b>   | Height of the vermis                             |
| <b>IHD</b>  | Interhemispheric distance                        |
| <b>IOPD</b> | Interopercular distance                          |
| <b>LCC</b>  | Length of the corpus callosum                    |
| <b>SV</b>   | Surface of the vermis                            |
| <b>WG</b>   | Weeks of gestation                               |