Assessment Of Placental And Fetal Oxygenation In Normal Pregnancy

High Risk Pregnancy
Assessment of Hemodynamic Parameters in the Fetal and Utero-placental Circulation Using Doppler Ultrasound
Assessment of Placental and Fetal Oxygenation in Normal and Abnormal Pregnancy Using Magnetic Resonance Imaging
Vascular Biology of the Placenta
Assessing Fetal Wellbeing
High risk pregnancy
Fetal Growth Restriction
Placental and Fetal Doppler
Glycolytic Metabolism and Pregnancy Parameters in the Murine Placenta
Prenatal Assessment of Multiple Pregnancy
Diagnosis and Treatment
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ROLE OF ULTRASONOGRAPHY ASSESSMENT OF PLACENTAL CHANGES DURING PREGNANCY

Assessment of Nos and Glut in Development of the Rabbit Placenta
Doppler Ultrasound in Obstetrics and Gynecology
Pattern Recognition and Machine Learning as a Morphology Characterization Tool for Assessment of Placental Health

Reexamining the Guidelines
Placental Pathology, An Issue of Surgical Pathology Clinics,
A Multidisciplinary Approach

Equine Reproductive Procedures

The Human Placenta

Placental and Fetal Doppler

The Guide to Investigations of Mouse Pregnancy

High risk pregnancy

Mosby's® Pocket Guide to Fetal Monitoring - E-Book
Placental Function Tests
assessment of fetal outcome by maternal serum placental lactogen, alpha fetoprotein and urinary estriol excretion
A Practical Guide
Assessment of Placental Function and Fetal Phenotype of Mice Conceived by Mice Conceived by Optimized in Vitro Culture Conditions

A Comprehensive Guide
Placental-Fetal Growth Restriction
Placental and Fetal Doppler
The Human Placenta
Equine Reproductive Procedures
A Multidisciplinary Approach
Current Evidence and Clinical Practice

MRI Assessment of Placental Size, Structure and Perfusion in Pregnancies with Small for Gestational Age Neonates

Role Of Ultrasound In Assessment Of Placental And Fetal Oxygenation In Normal...
eliminated and the placenta is likely to be at the root of many of the un terminal to that remain. A breakdown of the relationship between the placenta and the maternal tissue may turn out to be the cause of the majority of early lost pregnancies.

High risk pregnancy Cambridge University Press

Biophysical tests of fetal well-being (placental function tests) have been part of routine obstetric practice for more than twenty years. This book provides an overview of the current status and future trends of the tests - the physiological basis for their use, and their advantages and limitations in clinical practice. Considerable attention is given to interpretation, a subject which in the past has led to much confusion both in the scientific literature and in the minds of clinicians. Recent advances in our understanding of placental physiology are described in detail, in particular the discovery of a whole new generation of placental products some of which offer great promise in the prediction of conditions, such as placental abruption and premature labour, which cannot be identified by any other current parameters. Finally, a set of clear recommendations is put forward for the choice of test in the most of the common complications of both early and late pregnancy. The emphasis throughout is on how the basic principles of fetal-placental products dictate their use and interpretation in pathological conditions.

Fetal Growth Restriction Williams & Wilkins

PURPOSE To examine the potential value of placental MRI assessment in the prediction of pregnancies that result in delivery of small for gestational age (SGA) neonates. -- MATERIALS AND METHODS Three groups of singleton pregnancies were recruited: (1) normal group (estimated fetal weight on or above the 10th percentile and uterine artery pulsatility index (PI) below the 95th percentile); (2) abnormal Doppler group (estimated fetal weight on or above the 10th percentile but uterine artery PI above the 95th percentile); and (3) low estimated fetal weight group (estimated fetal weight below the 10th percentile and uterine artery PI above the 95th percentile). -- In total there were 88 pregnancies at 24-29 weeks' gestation. All the women had uterine artery PI measured by Doppler ultrasound. Four different magnetic resonance imaging (MRI) sequences were acquired at 1.5T: structural images were obtained for the calculation of placental volumes (n=83); placental perfusion was carried out using the flow-sensitive alternating recovery (FAIR) sequence (n=59) and the intravoxel incoherent motion (IVIM) sequence (n=37); and placental T2 relaxation time was measured (n=40). -- The significance between the four MRI measurements, uterine artery PI and birth weight percentile was examined. -- RESULTS In pregnancies that resulted in delivery of SGA newborns with birth weight below the 10th percentile the median placental volume corrected for gestational age, the placental perfusion measured by FAIR and IVIM and the IVIM diffusion coefficient and the uterine artery PI was significantly increased. -- There were significant associations between all the MRI measurements and uterine artery PI and birth weight percentile.

Gynecology and Obstetrics, edited by Paul J. DeCherney and Kenneth D. Hill (W.B. Saunders Co.)

Based on the RCOG Training Module in Fetal Medicine, this book provides a knowledge base for practitioners in obstetrics and maternal-fetal medicine.

Assessment of placental and fetal oxygenation in normal and abnormal pregnancies provides a guide to the correct use of fetal monitoring. Illustrations, tables, and clinical photographs are used to highlight the points being made. The text is written in a straightforward style and includes a comprehensive review of the scientific literature.

Critical Concepts in Fetal Monitoring

This comprehensive clinical textbook on Doppler assessment of placental and fetal circulation provides the foundation needed for the theoretical component of the Certificate of Competence in Placental and Fetal Circulation offered by the Society of Obstetricians and Gynecology and the International Society of Perinatal Medicine. Following introductory chapters on Doppler ultrasound principles, practice, safety and methodology, the book covers Doppler studies in the full range of areas relevant to placental and fetal circulation. Key features:*Explains Doppler assessment of placental and fetal circulation*Provides the basis for learning for a certificate of competence in placental and fetal Doppler*Contains introductory material on Doppler ultrasound principles, practice, safety and methodology*Includes bibliographic references and index

ROLE OF ULTRASONOGRAPHY ASSESSMENT OF PLACENTAL CHANGES DURING PREGNANCY Cambridge University Press

Fetal growth restriction (FGR) is a condition that affects 5%-10% of all pregnancies and is the second most common cause of perinatal mortality. Fetuses with FGR present with a greater risk of long-term health defects as impaired neurological and cognitive development and cardiovascular or endocrine diseases in adulthood. Due to its high prevalence and serious long-term consequences, an in-depth understanding of the diagnosis and management of FGR is essential for all those professionals involved in perinatal care, since it can prevent unwanted outcomes both to the mother and to the newborn. On the last years, the knowledge about fetal growth restriction has evolved considerably, with an increasing number of articles being published on this topic and new concepts being described, including new diagnostic guidelines. Even so, there are no recent books fully dedicated to FGR; this theme has only generally been discussed in chapters in larger obstetrics and neonatology books. This current book intends to present and discuss the state of the art on FGR in a clear and didactical way. It will focus on the main topics related to FGR, including its etiology, classification, prediction, diagnosis, and management, as well as its neurological complications and maternal cardiovascular involvement. Written by experienced and renowned gynecologists from Brazil, Italy and the US, this book will be a comprehensive guide, directed to all gynecologists, radiologists and general practitioners who are involved in perinatal care, as well as to internists, residents, professors and researchers in the field. The book gives practical guidance on how to perform Doppler assessment of placental and fetal circulation. It includes four sections. The first section deals with an overview of the state of the art on FGR in a clear and didactical way. The second section focuses on the definition of FGR, its epidemiology and the different methods for its detection and diagnosis. The third section describes the different methods for FGR diagnosis, including the use of Doppler ultrasound, and compares these methods with the different Doppler indexes used for FGR detection. The fourth section is devoted to the different stages of FGR, from mild to severe, and the different management strategies recommended for each stage. The book is a comprehensive guide to the diagnosis and management of FGR, and it is a valuable resource for all those professionals involved in perinatal care.
Introduction: The placenta is a complex, disk-shaped organ vital to successful pregnancy and responsible for materno-fetal exchange of vital gases and biochemicals. Episodes of compromised placental development or function—collectively termed placenta dysfunction—underlies the most common and devastating pregnancy complications observed in North America, including preeclampsia (PE) and fetal growth restriction (FGR). A comprehensive histopathology examination of the placenta following delivery can help clarify obstetrical disease etiology and progression and offers tremendous potential in the identification of patients at risk of recurrence in subsequent pregnancies, as well as patients at high risk of chronic diseases in later life. However, these types of examinations require a high degree of specialized training and are resource intensive, limiting their availability to tertiary care centers in large city centers. The development of machine learning algorithms tailored to placenta histopathology applications may allow for automation and/or standardization of this important clinical exam—expanding its appropriate usage and impact on the health of mothers and infants. The primary objective of the current project is to develop and pilot the use of machine learning models capable of placental disease classification using digital histopathology images of the placenta. Methods: 1) A systematic review was conducted to identify the current methods being applied to automate histopathology screening to inform experimental design for later components of the project. Of 230 peer-reviewed articles retrieved in the search, 18 articles met all inclusion criteria and were used to develop guidelines for best practices. 2) To facilitate machine learning model development on placenta histopathology samples, a villi segmentation algorithm was developed to aid with feature extraction by providing objective metrics to automatically quantify microscopic placenta images. The segmentation algorithm applied colour clustering and a tophat transform to delineate the boundaries between neighbouring villi. 3) As a proof-of-concept, 2 machine learning algorithms were tested to evaluate their ability to predict the clinical outcome of preeclampsia (PE) using placental histopathology specimens collected through the Research Centre for Women’s and Infant’s Health (RCWH) Biobank. The sample set included digital images from 50 cases of early onset PE, 29 cases of late onset PE, and 69 controls with matching gestational ages. All images were pre-processed using patch extraction, colour normalization, and image transformations. Features of interest were extracted using: a) villi segmentation algorithm; b) SIFT keypoint descriptors (textural features); c) integrated feature extraction (in the context of deep learning model development). Using the different methods of feature extraction, two different machine learning approaches were compared—Support Vector Machine (SVM) and Convolutional Neural Network (CNN, deep learning). To track model improvement during training, cross validation on 20% of the total dataset was used (deep learning algorithm only) and the trained algorithms were evaluated on a test dataset (20% of the original dataset previously unseen by the model). Results: From the systematic review, 5 key steps were found to be essential for machine learning model development on histopathology images (image acquisition and preparation, feature extraction, pattern recognition and classification model training, and model testing) and recommendations were provided for the optimal methods for each of the 5 steps. The segmentation algorithm was able to correctly identify individual villi with an F1 score of 80.76%—a significantly better performance than recently published methods. A maximum accuracy of 73% for the machine learning experiments was obtained when using textural features (SIFT keypoint descriptors) in an SVM model, using onset of PE disease (early vs. late) as the output classification of interest. Conclusion: Three major outcomes came of this project: 1) the range of methods available to develop automated screening tools for histopathology images with machine learning were consolidated and a set of best practices were proposed to guide future projects, 2) a villi segmentation tool was developed that can automatically segment all individual villi from an image and extract biologically relevant features that can be used in machine learning model development, and 3) a prototype machine learning classification tool for placenta histopathology was developed that was able to achieve moderate classification accuracy when distinguishing cases of early onset PE and late onset PE cases from controls. The collective body of work has made significant contributions to the fields of placenta pathology and computer vision, laying the foundation for significant progress aimed at integrating machine learning tools into the clinical setting of perinatal pathology. Pattern Recognition and Machine Learning as a Morphology Characterization Tool for Assessment of Placental Health John Wiley & Sons

The placenta is an organ that connects the developing fetus to the uterine wall, thereby allowing nutrient uptake, waste elimination, and gas exchange via the mother’s blood supply. Proper vascular development in the placenta is fundamental to ensuring a healthy fetus and successful pregnancy. This book provides an up-to-date summary and synthesis of knowledge regarding placental-vascular biology and discusses the relevance of this vascular bed to the functions of the human placenta.