Introduction to Fetal Medicine

BIOL 6505
Introduction

to Introduction in Fetal Medicine

• What is fetal medicine?
  ● Relevance of the course
    ● Why so early in curriculum?
    ● Paradigm for multidisciplinary R/
    ● Touches many specialties
Introduction

to Introduction in Fetal Medicine

• Course material
  • Syllabus
  • References
  • Slides, images
    • www.fetal-program.org
  • (Attend MADAM conferences)
<table>
<thead>
<tr>
<th>Course</th>
<th>Date</th>
<th>Time</th>
<th>Room</th>
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<tr>
<td>Introduction to fetal medicine</td>
<td>1/30</td>
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<td>Rm 275</td>
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<tr>
<td>Ethics of fetal medicine</td>
<td>1/30</td>
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<tr>
<td>Genetics and fetal medicine</td>
<td>2/6</td>
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<td>Embryology</td>
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<tr>
<td>Fetal diagnosis and imaging</td>
<td>2/13</td>
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<td>a. MRI</td>
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<td>b. Ultrasound</td>
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<tr>
<td>Twin gestations</td>
<td>2/18</td>
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<tr>
<td>Urological anomalies</td>
<td>2/18</td>
<td>4:30-6:00</td>
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<tr>
<td>Pulmonary anomalies</td>
<td>2/20</td>
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<tr>
<td>Visceral anomalies</td>
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<td>Neurological anomalies</td>
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<td>Hematological anomalies</td>
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<td>Fetal surgery</td>
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<td>Rm 275</td>
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Introduction

to Introduction in Fetal Medicine

• Evaluation
  ● Attendance & participation
  ● Questions-of-the-week
  ● Exam:
    ● Mock MADAM conference
      Wednesday 3/6, Rm 275
Introduction to Fetal Medicine
Introduction to Fetal Medicine

• The way it used to be
Introduction to Fetal Medicine

• The way it used to be
  ● Medicine of pregnancy (obstetrics)
    ● “Black box:” no prenatal diagnosis
    ● Pregnancy, not fetus, is central
    ● Treat newborn/infant/child
Introduction to Fetal Medicine

• The fetus as a patient
  • Fetal diseases
    • Autopsies/perinatal pathology
    • Newborns
    • Animal models
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• The fetus as a patient
  ● Fetal physiology
    ● Animal models (fetal lamb)
    ● Prenatal diagnosis (U/S, 1960s)
      – Observation/ normal vs. abnormal
      – Opportunity to treat the fetus
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• The fetus as a patient
  • Premature infant: 23-36 weeks
    • Neonatologist
  • Medical specialists
    – Cardiologist
    – Endocrinologist
    – Geneticist
    – Nephrologist
Introduction to Fetal Medicine

• The fetus as a patient
  • Premature infant: 23-36 weeks
    • Neonatologist
  • Surgical specialists
    – Pediatric surgeon
    – Pediatric urologist
    – Pediatric neurosurgeon
    – Pediatric orthopedic surgeon
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• The fetus as a patient
  • Fetus: 16-36 weeks
    • Obstetrician
    • Maternal-Fetal Medicine specialist
  • No different than premature infant?
    – Same multidisciplinary approach
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• Fetal medicine vs. Obstetrics
  ● Obstetrics
    ● Mother, pregnancy and delivery
  ● Maternal-Fetal Medicine (MFM)
    ● High-risk pregnancies (diabetes)
    ● Focus on mother and fetus
    ● Only one person
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• Fetal medicine vs. Obstetrics
  - Fetal medicine
    - Only fraction of high risk pregnancies
    - Fetus-, not pregnancy-directed
    - Multidisciplinary team
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• Who needs fetal medicine?
  • Multiple consultants
  • MFM
  • Neonatologist
  • Surgeon
  • Geneticist
  • Radiologist
  • Endocrinologist
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Introduction to Fetal Medicine

Obstetrician

MFM
Introduction to Fetal Medicine

- Obstetrician
- Cardiologist
- MFM
- Pediatric urologist
- Pediatric surgeon
- Geneticist
- Neonatologist
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• Who needs fetal medicine?
  1. Multiple consultants
     • All talk to each other
     • All listen to each other
     • Develop a unified recommendation
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- Obstetrician
- MFM
- Fetal Program Coordinator
- Pediatric surgeon
- Pediatric urologist
- Neonatologist
- Geneticist
- Cardiologist
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• Who needs fetal medicine?

  2. Need for intervention

   - Prenatal intervention
     - Alter mode/place/time of delivery
     - Invasive fetal procedure

   - Perinatal intervention
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• Who needs fetal medicine?
  3. Need for specific expertise
    - Nobody can know *everything*
    - Difficult to remain up-to-date
      - Changing trends
      - Evidence-based medicine
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• The MADAM concept
  ● Multidisciplinary
  ● Antenatal
  ● Diagnosis
  ● And
  ● Management
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• The MADAM concept
  ● Developed at Brown 1996
  ● Other models exist (obviously!)
  ● Meets twice-a-month
  ● Discusses selected cases/patients
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- **Who is worthy of MADAM?**
  1. More than one consultant involved
  2. Fetal management will be altered
     - Fetal surgical intervention, e.g.
  3. Protocol will likely be altered
     - Illustrative case
     - Develop evidence-based guidelines
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• Altering the protocol:
  ● Gastroschisis – old teaching:
    ● Exposure to amniotic fluid is harmful
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Huang J et al, Brown Fetal Medicine Program
Obstet Gynecol 2002

Age at definitive closure

Gestational age (weeks)
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- Altering the protocol:
  - Gastroschisis – *new* teaching:
    - Full term is best
    - No early delivery
  - No need to discuss *every* gastroschisis
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• Roles of MADAM:
  ● ‘Tumor board’ for fetal cases
  ● Establish protocols
  ● Educate others
  ● Educate each other
  ● Ethics board for novel therapies
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• *Your role at a mock* MADAM:
  * Assume the identity of a specialist
  * Learn about a ‘patient’
  * Become an expert in your field
  * Discuss your point of view
  * Come to a consensus
Introduction to Fetal Medicine

- www.fetal-program.org
- Questions-of-the-week
- Next session: Friday 2/6 at 3:00
  - Genetics
  - Embryology