

# ULTRASOUND

## LECTURE SERIES

### Fetal Genitourinary System

**Bryann Bromley, MD**

*Departments of Obstetrics and Gynecology\*‡  
and Radiology  
Massachusetts General Hospital\*, Brigham and  
Women's Hospital‡, Harvard Medical School  
Boston, Massachusetts*

#### Objectives

At completion of this presentation, the participant will:

1. Understand the classification of pyelectasis.
2. Appreciate the significance of mild pyelectasis as an isolated finding for the prenatal detection of Down syndrome as opposed to a fetus with other markers of aneuploidy.
3. Categorize cystic renal disease.
4. Be familiar with common anomalies involving the bladder.
5. Be familiar with some of the more common anomalies involving the fetal genitals.

#### Topics

1. Normal anatomy
  - Kidneys (longitudinal, axial views, pelves)
  - Color Doppler identification of the renal arteries
  - Bladder
  - Normal genitalia
2. Common sonographic anomalies
  - Mild pyelectasis (Down syndrome risk covered by another author)
  - Hydronephrosis (mild and severe)
  - Posterior urethral valve obstruction
  - Renal agenesis (unilateral and bilateral)
  - Cystic kidney disease
    - Multicystic kidney
    - Polycystic kidney disease
3. Genitalia
  - Gender identification
  - Frequency of error
  - Anomalous genitalia

#### Review Questions

1. Which are characteristics of grade III renal pyelectasis?
  - A. Dilation of the pelvis and calyces, thinning parenchyma.
  - B. Dilatation of the pelvis and visualization of all calyces, normal renal parenchyma.
  - C. Moderate dilation of the pelvis and visualization of a few calyces.
  - D. Renal pelvis dilation only.
2. Which renal anomaly is characterized by a lobular-shaped kidney and noncommunicating various-sized cysts?
  - A. Autosomal dominant polycystic kidney disease.
  - B. Autosomal recessive polycystic kidney disease.
  - C. Multicystic dysplastic kidney.
  - D. Severe hydronephrosis.
3. Which renal anomaly is characterized by similar-sized communicating cysts with peripheral renal parenchyma?
  - A. Autosomal dominant polycystic kidney disease.
  - B. Autosomal recessive polycystic kidney disease.
  - C. Multicystic dysplastic kidney.
  - D. Severe hydronephrosis.
4. Which renal anomaly is characterized by large uniform kidneys containing microcysts too small to distinguish individually?
  - A. Autosomal dominant polycystic kidney disease.
  - B. Autosomal recessive polycystic kidney disease.
  - C. Multicystic dysplastic kidney.
  - D. Severe hydronephrosis.
5. Which diagnosis is suggested by serial scan findings of increasing bladder distension but continued normal amniotic fluid volume?
  - A. Bladder exstrophy.
  - B. Bladder outlet obstruction.
  - C. Megacystis-microcolon-intestinal hypoperistalsis syndrome.
  - D. Ureterocele.