A Rare Cause of Fetal Bilateral Hydronephrosis Secondary to Meatal Stenosis

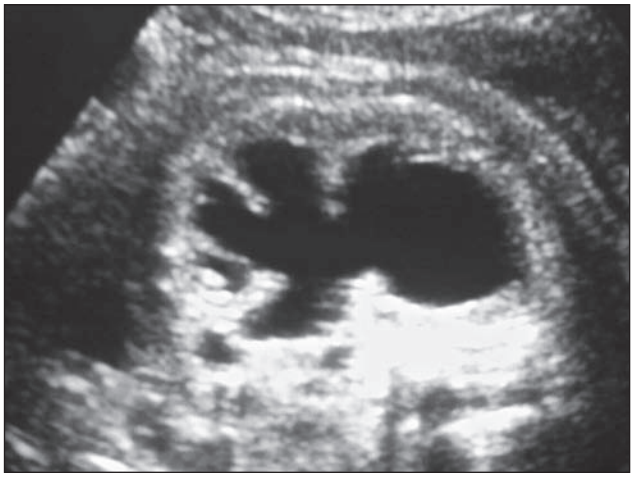

Figure A.

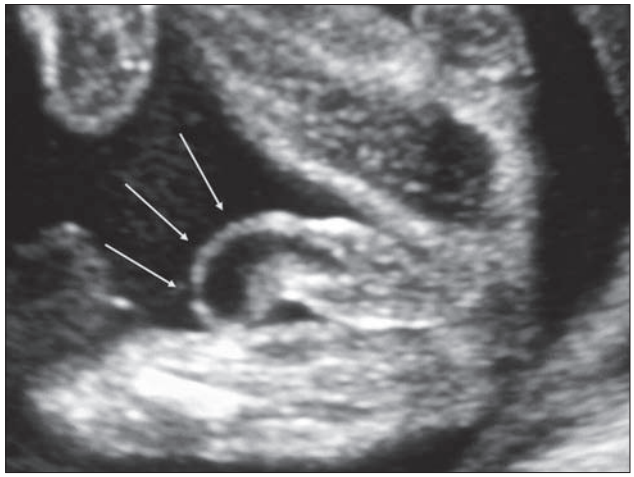

Figure B.

A 22-year-old primigravida was referred to our institution for sonographic evaluation because of low levels of maternal serum alpha fetoprotein but did not come to us until she had reached 26 weeks of gestation. Her medical history included no previous surgeries, and she had no chronic medical conditions or toxic habits and had not taken any medication before or during her pregnancy. Figure A shows a longitudinal view of the fetal abdomen. The renal pelvis of each kidney can be seen to be enlarged and hypoechoic, with dilatation and blunting of the calyces suggestive of hydronephrosis. Figure B shows the fetal male genitalia; the penis is enlarged, and the penile urethra is markedly dilated.

Bilateral hydronephrosis in the fetus is usually caused by bladder outlet obstruction, although bilateral ureteropelvic junction obstruction is another possible etiology. Progressive bladder enlargement eventually causes ureteral reflux and renal pelvis dilatation. If the obstruction is complete, megacystis and severe hydronephrosis (possibly leading to renal damage) could occur (1). Posterior urethral valves (PUV) disorder is the most common cause of this condition in male fetuses (2). PUV is caused by the presence of redundant folds of mucosa in the prostatic urethra. Other possible etiologies include urethral agenesis or stenosis. These may occur in either gender, but males are more commonly affected by both than are females (3). Cloacal persistence is another rare cause of bladder outlet obstruction; it usually is found in females (4). Stenosis of the distal urethra, as is presented here, is an uncommon etiology, and the incidence of associated anomalies seems to be high.

When viewed by sonogram, an enlarged bladder is usually seen accompanied by a dilated urethra, though this depends on the site of the obstruction. In cases of PUV, a "keyhole" appearance is typical. The amount of amniotic fluid and the size and echogenicity of the kidney parenchyma must be carefully evaluated since increased echogenicity may be a sign of renal dysplasia.

When dealing with hydronephrosis in conjunction with bladder outlet obstruction, the two findings that mainly affect prognosis are the amount of amniotic fluid and the presence of other anomalies. A complete evaluation by ultrasound and genetic amniocentesis are important in the planning of future management. Early onset of severe oligohydramnios may produce lung hypoplasia; however, if the amniotic fluid is normal, the possibility of lung hypoplasia is minimal (5). Progressive dilatation of the kidneys may eventually produce irreversible damage; thus, a vesico-amniotic shunt should also be considered. In this particular case, the newborn was evaluated by the urology service, and surgical correction of the meatus defect was performed successfully.

References

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