

Nephrocalcinosis in Newborns: a case report

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Abstract

Nephrolithiasis and nephrocalcinosis are common in both term and premature infants who have had difficult neonatal courses. Multiple factors may contribute and being born from a diabetic mother is one of them.

This case is about a neonate with nephrocalcinosis. She is followed to 9 months and remained healthy during a 9-month follow-up.

Key words: Nephrocalcinosis, Newborns

Background & Aims

Nephrocalcinosis refers to deposits of calcium crystals diffusely located in the parenchyma of kidney. The incidence is particularly high in infants with low birth weight. However, it varies widely between 1.7% and 64%. Almost all of nephrocalcinosis (NC) cases happen in preterm infants suffering from bronchopulmonary Dysplasia (BPD), following diuretic therapy which promotes renal calcium oxalate and calcium phosphate deposition. This is a report of nephrocalcinosis in infant of a diabetic mother.

Case report

A 3900 g girl was delivered via cesarean section for failure to descend from a 35-year-old, insulin dependent diabetic mother at 37 weeks of gestation. She had apgar scores of 6 at 1 and 5 minutes of life and afterwards was transferred to NICU for a low blood glucose work-up and tachypnea. The infant was treated with antibiotics (gentamycin & ampicillin) for presumed sepsis. On Day 2 of life, she was suffering from hypoglycemia and hypocalcemia, with normal urinary output. The incidentally abdominal x-Ray showed calcifications in left upper quadrant and a renal sonogram confirmed and showed opacities consistent of a 3 to 4 mm renal calculus in the upper pole of right and nephrocalcinosis in the left kidney. Other tests were normal. The infant was treated for hypocalcemia. Analysis of a random urine sample revealed normal excretion of calcium, oxalate, phosphate and creatinine, and a normal urinary calcium and creatinine ratio of 0.32. Intervention with potassium citrate was instituted, and the infant was discharged from hospital at 12th day of life. The

repeat renal sonograms at 3 and 9 months of life revealed no renal stone in right kidney and decreased calcifications in left side. The infant remained healthy during a 9-month follow-up.

Discussion

Nephrolithiasis and nephrocalcinosis are common in both term and premature infants who have had difficult neonatal courses. Although multiple factors may contribute, such as high calcium and phosphorous intake, above all therapy with a loop diuretic appears to be the major risk factor. Due to limited experience, management of renal stones in newborn infants is not well defined. Nephrolithiasis is more commonly diagnosed incidentally on X-rays. This self-limiting entity is detected by abdominal radiography and reported between 11 and 50 days of life. In one report, all premature infants with urolithiasis were asymptomatic. It has been observed that most stones are less than 5 mm in diameter and pass spontaneously and therefore do not require specific therapy. Surgical intervention is rarely indicated. The possibility of in-utero renal pathologies, such as infection, abscess, infarct, hemorrhage or necrosis, which is subsequently healed with calcification, also renal ischemia or the use of nephrotoxic drugs can result in renal tubular injury that can enhance heterogeneous nucleation of calcium phosphate or calcium oxalate crystals and we could not rule out these pathologies in this case.

Conclusion

Nephrolithiasis and nephrocalcinosis are

common in both term and premature infants who have had difficult neonatal courses. Multiple factors may contribute and being born from a diabetic mother is one of them.

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