

RENAL STONES COMPLICATING SHORT-TERM  
FUROSEMIDE THERAPY AFTER CONGENITAL HEART  
SURGERY IN 2 CHILDREN

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**Introduction:**

Furosemide, commonly used in children with congenital heart disease is known to cause hypercalciurea which can rarely progress to renal stones (1,2). Although the incidence of this complication increases with higher doses, a dose as low as 0.75 mg/kg/day can lead to nephrolithiasis (2).

We describe 2 children treated with furosemide for a period of 4-6 weeks after cardiac surgery who developed this complication.

**Case 1:**

A 2 year old boy had successful surgical repair for Tetralogy of Fallot after which he was put on furosemide 2mg/kg/day for 4 weeks. On follow up he complained of red urine. Urine analysis showed uncountable red blood cells and renal ultrasound revealed two small renal calculi. Furosemide was discontinued and he was advised to take large amounts of clear fluids. His symptoms improved and he is awaiting repeating the renal scan.

**Case 2:**

An 18 month old boy had a Glenn procedure (superior vena cava to pulmonary artery shunt) for palliation of tricuspid atresia. The

surgical result was acceptable but he developed pleural effusions in the immediate post operative period for which he was managed with furosemide 2 mg/kg/day for 4 weeks then 1 mg/kg/day for another 2 weeks. He presented at this time with red urine and passing stone per urethra. Renal ultrasound revealed a large (1x1.5) renal stone and a smaller urethral stone. Furosemide was discontinued and he was advised to take large amounts of clear fluids.

### **Discussion:**

Nephrolithiasis is well known in preterm infants receiving long term furosemide (3). Full term infants with heart failure treated for a long duration had an incidence of renal stones of up to 14% in some series. Our patients had diuretics for only 4-6 weeks, although it seems unusual to have stones as early as that animal studies proved that most of the renal calcifications induced by furosemide occur during the early days of treatment. (4). We see many patients with unrepaired congenital heart disease and cardiomyopathy on long term furosemide treatment however, we did not notice the occurrence of renal stones. The effect of cardiopulmonary bypass (open heart surgery) on renal function and the fluid shifts that occur during the post-operative period could play a role in patients who had cardiac surgery. In most reports there is usually spontaneous resolution of the stones in up to 50% of cases 5-6 month after discontinuation of diuretics (5). Long term follow up should therefore be arranged for these children. We recommend that furosemide therapy not to be used routinely in post operative patients and should be restricted to those with clear indications.

**CORRESPONDENCE AND REPRINT REQUEST:**

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