

An infant with hypercalcemia: Questions

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A 6-month-old male infant born by normal vaginal delivery (birth weight 3.150 kg, length 49 cm) and affected by hypospadias underwent renal ultrasound scan (Fig. 1). Expert advice was required after an “uncertain renal US report”.

The patient suffered decreased appetite, vomiting, constipation, polyuria and polydipsia during the previous 2 months. At our appointment, we found hypotonia, irritability, failure to thrive, anterior fontanelle 1.5×1 cm, and moderate dehydration. His mother reported that the infant was taking no drugs except prophylaxis with vitamin D (400 IU/day).

Serum chemistry was as follows: calcium 18.67 mg/dl (normal range, 8.4–10.2 mg/dl), urea 65 mg/dl (10–50 mg/dl), creatinine 0.45 mg/dl, phosphorus 5.7 mg/dl, $\text{Ca} \times \text{P}$ 106 mg (normal value <55 mg), venous pH 7.38. Na, K, Cl, Mg, HCO_3 , ABE, glycemia, AST, ALT, γGT , bilirubin, alkaline phosphatase and complete blood count were within normal limits. Urinary electrolyte concentrations: calcium/creatinine ratio 1.27 mg/mg, uric acid/creatinine 0.45 mg/dl

of glomerular filtration rate, beta2 microglobulin 0.4 mg/l (nv: <0.3 mg/l).

ECG, cardiologic and oculistic examination, and blood pressure monitoring were normal.

We started hyperhydration (NaCl 0.9 % 7 ml/kg/h) to reduce calcemia. After 12 h, the blood calcium was 15.2 mg/dl. Therefore we added furosemide (1 mg/kg intravenously twice a day) and methylprednisolone (1 mg/kg once a day). After 4 days of therapy, the blood calcium was 13.8 mg/dl and urinary calcium/creatinine ratio was 2.61 mg/mg.

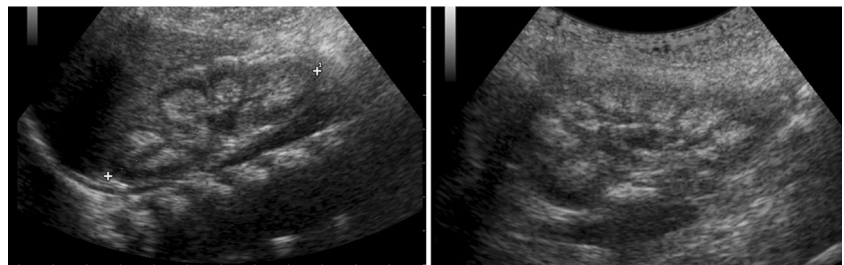
The clinical conditions of the patient improved after 4 days (no vomiting, increased appetite).

The serum level of calcium did not decrease after 6 days of therapy with furosemide and methylprednisolone, remaining at 13.8 mg/dl.

Questions:

- 1) What do you think about the US appearance?
- 2) What additional investigations are necessary for diagnosis and what was the cause of hypercalcemia?
- 3) What is the next step of therapy for hypercalcemia?

Fig. 1 Renal ultrasound of an infant with hypercalcemia



The answers to these questions can be found at <http://dx.doi.org/10.1007/s00467-013-2639-9>.

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