CASE REPORT

# *Hypercalciuria associated with pediatric prostatic calculi*

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AL-TAHEINI K, FILLER G, LEONARD M. Hypercalciuria associated with pediatric prostatic calculi. The Canadian Journal of Urology. 2007;14(3):3577-3579.

*Prostatic calculi, though common in adult men, are rare in children. We report three cases of pediatric prostatic calculi seen at our clinic that were associated with hypercalciuria and elevated urinary calcium/creatinine ratios. The patients had no symptoms from their prostatic calcification, but one patient had recurrent symptomatic renal calculi. In patients with prostatic calculi, determination of spot urine calcium/creatinine ratios is recommended. If significant hypercalciuria is found, treatment to prevent upper urinary tract calculi may be considered.*

**Key Words:** pediatric, prostatic calculi, hypercalciuria

## Introduction

Prostatic calculi, though common in adult men, are rare in children.[1] We report three cases of pediatric prostatic calculi seen at our clinic. The study was approved by our institutional review board.

Accepted for publication April 2007

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## Case one

A 9-year-old boy who had a history of left dismembered pyeloplasty for a ureteropelvic junction obstruction was seen at our clinic. He had received multiple interventions (shock-wave lithotripsy, percutaneous nephrolithotomy, and ureteroscopy) to eliminate

stones from his left renal collecting system, and he had also spontaneously passed some renal stones, which were found to be composed of calcium oxalate. When he was seen at our clinic, laboratory testing found an elevated urinary calcium/creatinine ratio (1.24; normal value < 0.6) and normal values for other risk factors for renal stone formation (no renal tubular acidosis, hyperuricosuria, hypocitraturia, or hyperoxaluria). His serum calcium, electrolytes, and creatinine levels were normal. An ultrasound of the patient's kidney and bladder showed mild left hydronephrosis and a 10-mm prostatic calcification. After the patient was treated with hydrochlorothiazide and magnesium citrate for 7 months, his urinary calcium/creatinine ratio was normal, but an ultrasound of his bladder still showed prostatic calcification, and he continued to have recurrent stones in his left kidney.

## Case two

A 9-year-old boy was referred to our clinic after an ultrasound of his kidneys (performed in another hospital) revealed bilateral hyperechoic kidneys. The clinical indication for the ultrasound was not clear. The patient was asymptomatic and had no history of urinary tract infection, flank pain, or hematuria. The ultrasound also revealed that the patient had a tiny, approximately 3-mm focus of calcification within his prostate gland. His urinary calcium/creatinine ratio was high (1.29), but his serum calcium and creatinine levels were normal. After 6 months of treatment with magnesium citrate, the patient's urinary calcium/creatinine ratio was normal, but an ultrasound showed that the 3-mm prostatic calcification persisted.

## Case three

A 9-year-old boy was seen in our clinic because of a history of lower urinary tract infection. An ultrasound revealed a 5-mm calculus in the right lobe and a 4-mm in the left lobe of his prostate as shown in Figure 1 and 2. The patient's voiding cystourethrogram was normal. His urinary calcium/creatinine ratio was elevated (0.73) and his 24-hr urinary uric acid, cystine, and oxalate levels were normal. He was asymptomatic and was not treated for his hypercalciuria because calcium creatinine ratio was mildly elevated. One year later, an ultrasound of the patient's kidney and bladder showed no calculi in his upper urinary tracts, but his prostatic calculi persisted.

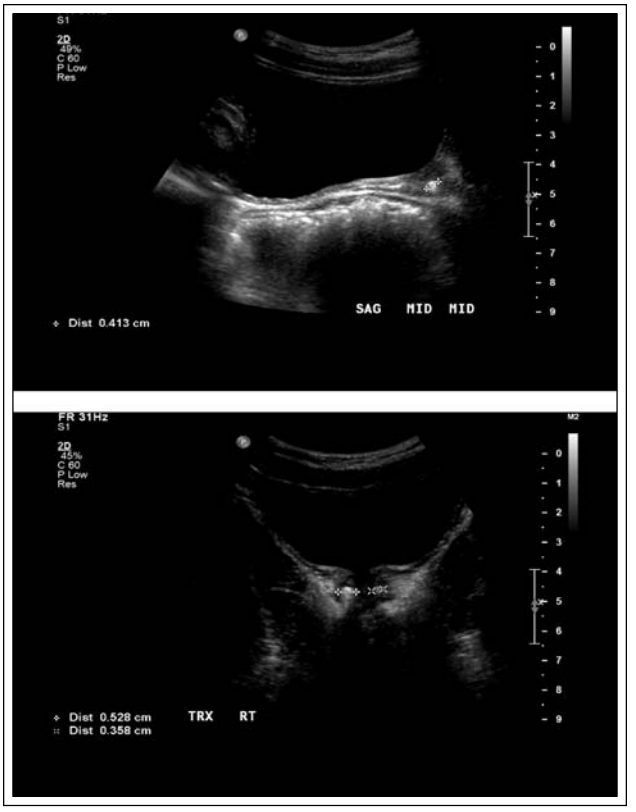


**Figure 1 and 2.** Show different views of bladder ultrasound for Case three which clearly shows the prostatic calculi between markers.

## Discussion

In adults, prostatic calcification is often found along with benign prostatic hypertrophy. Prostatic stones are formed secondary to obstruction and stasis of prostatic secretions. They may also arise spontaneously by initiating an inflammatory reaction that contributes to their growth. It appears that infection probably occurs secondary to stone formation.[1,2] The mechanism of prostatic calculus formation in children may be different. To our knowledge, only one case of pediatric prostatic calcification has been published; this occurred in a 4-year-old boy who had a history of rickets and had received unknown quantities of vitamin D and calcium.[3] All three patients in our study, who had prostatic calcification detected by ultrasound, had hypercalciuria and high urinary calcium/creatinine ratios. Two patients were asymptomatic and did not have any other stones in their urinary tracts; one patient continued to have recurrent kidney stones. The reason why these rare cases were picked up in one institution is in part related to the

frequency at which ultrasound is performed and the improved technology which allows 3-mm calculus for example to be picked up.

## Conclusions

Pediatric prostatic calculi are rare and are usually incidental findings on renal and bladder ultrasound done for other indications. Our finding that hypercalciuria is common in patients with prostatic calculi suggests that spot urine calcium/creatinine ratios should be determined in such patients. Only one of our patients had associated upper urinary tract calculi, but the presence of hypercalciuria in all three patients suggests that all pediatric patients with prostatic calculi are at risk for stones in the upper urinary tract. Treatment of significant hypercalciuria, even in patients who are asymptomatic, may be necessary to prevent formation of stones in the upper urinary tract.[4] □

References

1. Klinias R, Bennett B, Gardner W. Prostatic calculi: a Review. *The Prostate* 1985;7:91-96.
2. Taylor J. Stuart. Gross calcification within the prostate gland-case report. *BJU* 1998:81:645-646.
3. Izzidien A. Prostatic Calcification in a 4-yr old boy. *Archives of Diseases in Childhood* 1980;55:963.
4. Polito C, La Manna A, Cioce F, Villani J, Nappi B, Di Toro R. Clinical presentation and natural course of idiopathic hypercalciuria in children. *Pediatr Nephrol* 2000;15:211-214.