

## Secondary Oxalosis Involving the Epididymis

Sangkyum Kim • Kwanggil Lee  
Namhoon Cho

Department of Pathology, Yonsei  
University College of Medicine, Seoul,  
Korea

Received : July 31, 2007  
Accepted : September 11, 2007

### Corresponding Author

Nam Hoon Cho, M.D.  
Department of Pathology, Yonsei University College of  
Medicine, 134 Sinchon-dong, Seodaemun-gu, Seoul  
120-752, Korea  
Tel: 02-2228-1767  
Fax: 02-312-5370  
E-mail: cho1988@yumc.yonsei.ac.kr

Secondary oxalosis in the epididymis is a rare complication among patients who have undergone hemodialysis or peritoneal dialysis. This case report presents secondary oxalosis confirmed via a clinicoradiological-pathologic process-in combination with clinical symptoms, ultrasonographic findings, cytologic findings in urine, and surgical pathological diagnosis.

**Key Words :** Epididymis; Chronic renal insufficiency; Peritoneal dialysis

Secondary oxalosis in the epididymis of a patient who has undergone hemodialysis or peritoneal dialysis is a rare complication. We describe a case of secondary oxalosis involving the epididymis.

### CASE REPORT

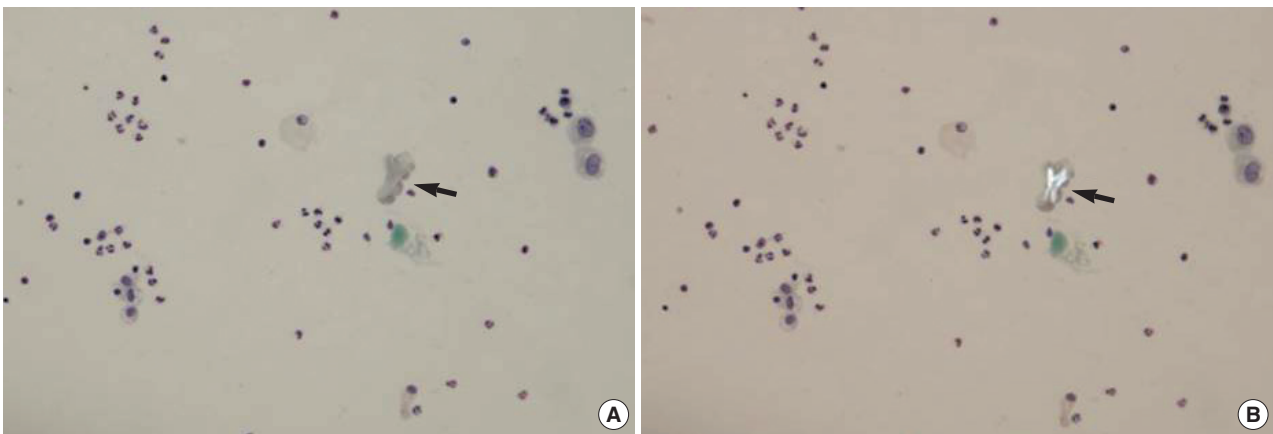
A 46-year-old man presented with a 1-month history of fever. He had undergone peritoneal dialysis for 7 years to treat end-stage renal disease and underwent renal transplantation in 2006. For 10 days, he presented with minimal scrotal swelling and discomfort. Ultrasonography showed that both testes were normal in size and had normal echogenicity, but the right epididymis was enlarged, showing more echogenicity than the left one. Serologic and urologic analyses were both negative. Cytologic findings for urine showed many bland-looking urothelial cells with acute and chronic inflammatory cells, and amorphous crystalline materials (arrow) with birefringent activity under the polarizing microscope (Fig. 1).

The patient underwent right orchiectomy for a presumed epididymal tumor. On gross examination, the excised testis measured  $3.5 \times 2.3 \times 1.5$  cm and weighed 22 g. The cut surface of

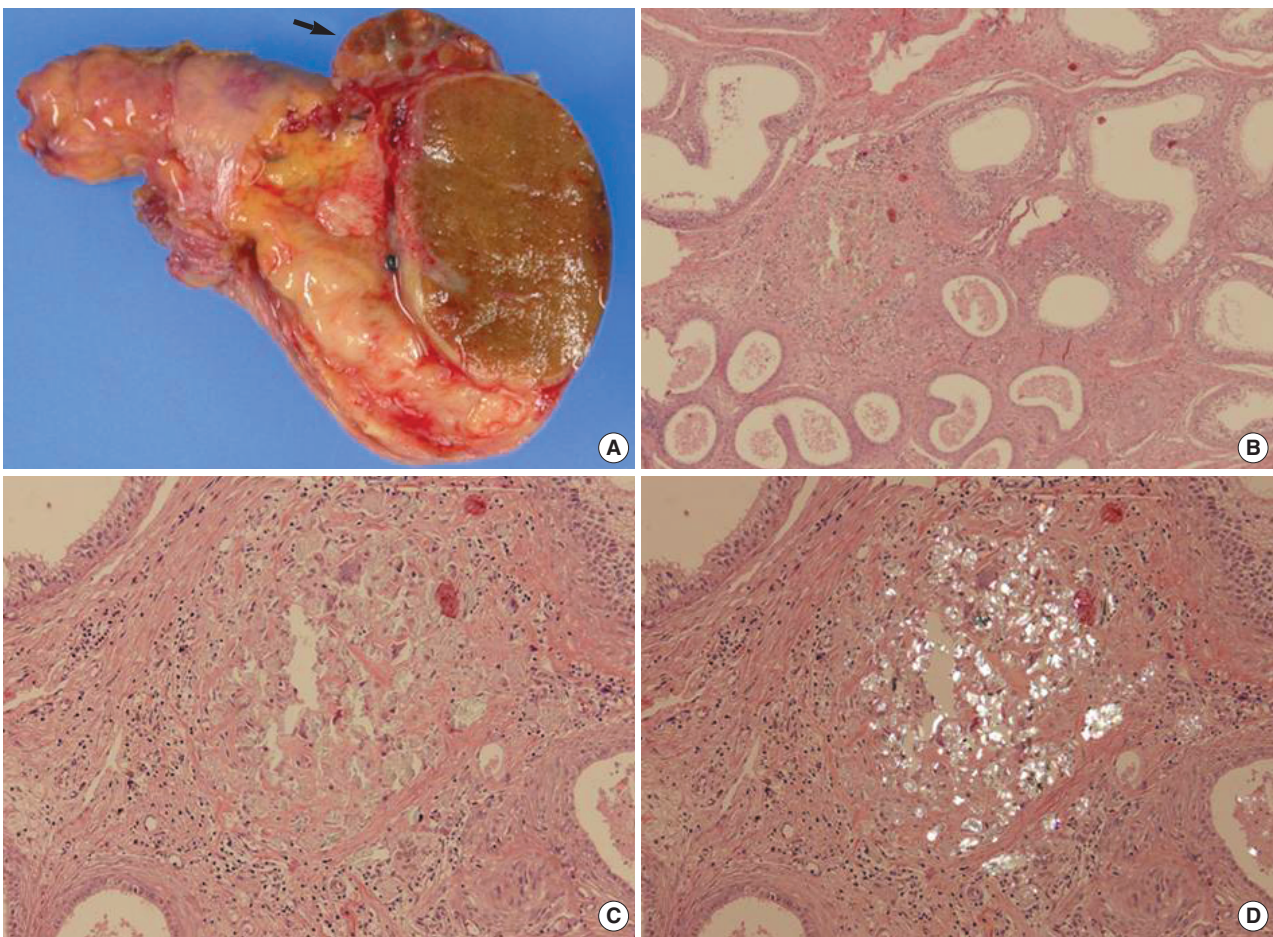
the testis appeared normal. The attached epididymis measured  $4.5 \times 1$  cm. On sections, the head portion of the epididymis revealed a pedunculated reddish tan soft mass with partial cystic dilatation (Fig. 2A, arrow). On microscopical examination, the testis was found to be composed of seminiferous tubules with active spermatogenesis. The epididymis revealed multifocal deposition of amorphous crystalline materials, with cystic dilation of the epididymis and ductuli effluence (Fig. 2B). The stroma adjacent to the excretory ducts showed a foreign-body giant-cell reaction with an accumulation of crystalline calcium oxalate deposits (Fig. 2C). The amorphous laminated crystalline materials were birefringent under a polarized light microscope (Fig. 2D), which confirmed secondary epididymal oxalosis following long-term dialysis.

### DISCUSSION

In over 30 cases, secondary oxalosis involving efferent ductules and caput epididymis has been rarely reported as a complication of long-term hemodialysis or peritoneal dialysis.<sup>1-3</sup> Cystic transformation of the rete testis was used to designate the deposition of oxalate crystal and calcium mainly secondary to renal insuffi-



**Fig. 1.** Cytologic finding of voided urine. Amorphous crystalline materials (A, arrow) with birefringent activity under the polarizing microscope (B, arrow) are observed in the background of many bland-looking urothelial cells with acute and chronic inflammatory cells.



**Fig. 2.** Histopathological findings of ductuli efference and epididymis. (A) Macroscopic finding of the head portion of the epididymis revealed a pedunculated reddish tan soft mass with partial cystic dilatation (arrow). (B) The epididymis revealed multifocal deposition of amorphous crystalline materials, with cystic dilation of the epididymis and ductuli efference. (C) The stroma adjacent to the excretory ducts showed a foreign-body giant-cell reaction with an accumulation of crystalline calcium oxalate deposits. (D) The amorphous laminated crystalline materials were birefringent under the polarized light microscope.

ciency.<sup>2</sup> Oxalate is an insoluble and nonmetabolizable end product of glycine and ascorbic acid metabolism that is secreted by the kidney. The reason for calcium<sup>8</sup> oxalate deposition in the epididymis remains uncertain, but it is suggested that the epithelial lining of the epididymis and efferent ducts are involved in oxalate excretion and that defects in the cellular transport of oxalate give rise to calcium oxalate deposition, as may occur in the convoluted tubular epithelium.<sup>4,5</sup> The deposition appears to obstruct the intratesticular excretory ducts and subsequently results in cystic transformation of the epididymis and efferent ducts, as in acquired renal cystic disease.<sup>1</sup> This case report is the first of its kind to confirm these results via a clinico-radiological-pathologic process in combination with cytologic findings in urine and pathological diagnosis.

## REFERENCES

1. Nistal M, Satamaria L, Paniagua R. Acquired cystic transformation of the rete testis secondary to renal failure. *Hum Pathol* 1989; 20: 1065-70.
2. Nistal M, Jimenez-Heffernan J, Garcia-Viera M, Paniagua R. Cystic transformation and calcium oxalate deposits in rete testis and efferent ducts in dialysis patients. *Hum Pathol* 1996; 27: 336-41.
3. Coyne J, Al-Nakib L, Goldsmith D, O'Flynn K. Secondary oxalosis and sperm granuloma of the epididymis. *J Clin Pathol* 1994; 47: 470-1.
4. Concolino G, Lubrao C, Ombres M, *et al.* Acquired cystic kidney disease: The hormonal hypothesis. *Urology* 1993; 41: 170-5.
5. Brosatti A. Calcium oxalate nephrolithiasis. Defective oxalate transport. *Kidney Int* 1991; 39: 1283-98.