CMJ
www.cmj.ac.kr

Vitamin C-induced Acute Kidney Injury

Eun Hui Bae[1], Sung Sun Kim[2], Seong Kwon Ma, and Soo Wan Kim[1,*]

Departments of [1]Internal Medicine, [2]Pathology, Chonnam National University Medical School, Gwangju, Korea

A 22-year-old man was referred to us with elevated plasma creatinine and anemia. He had been admitted to another hospital for fatigue and received 1 L of intravenous physiologic saline and 10 g vitamin C daily, for 7 days without improvement. The levels of plasma creatinine was 3.88 mg/dL, hemoglobin (Hb) was 10.8 g/dL, and erythropoietin was 0.90 mu/mL (reference range, 3.22-31.9 mu/mL). There was no proteinuria or hematuria. Ultrasonography showed increased kidney size and enhanced cortical echogenicity, consistent with acute kidney injury. Biopsy revealed crystal nephropathy with numerous, round basophilic crystals in the tubules, and tubular epithelium changes with flattening and simplification of the cell lining. Von Kossa staining for crystals was positive, suggesting calcium deposition (Fig. 1). One month later, the follow-up creatinine level was 1.16 mg/dL, Hb was 15.7 g/dL, and erythropoietin was 41.99 mu/mL. Vitamin C can protect against acute kidney injury, however, high doses might cause crystal nephropathy.

COMPLIANCE WITH ETHICAL STANDARDS

This article does not contain any studies with animals performed by any authors. Signed informed consent was obtained from the patient, and the study was approved by the Health Research Ethics Board of Chonnam National University Hospital.

CONFLICT OF INTEREST STATEMENT

None declared.

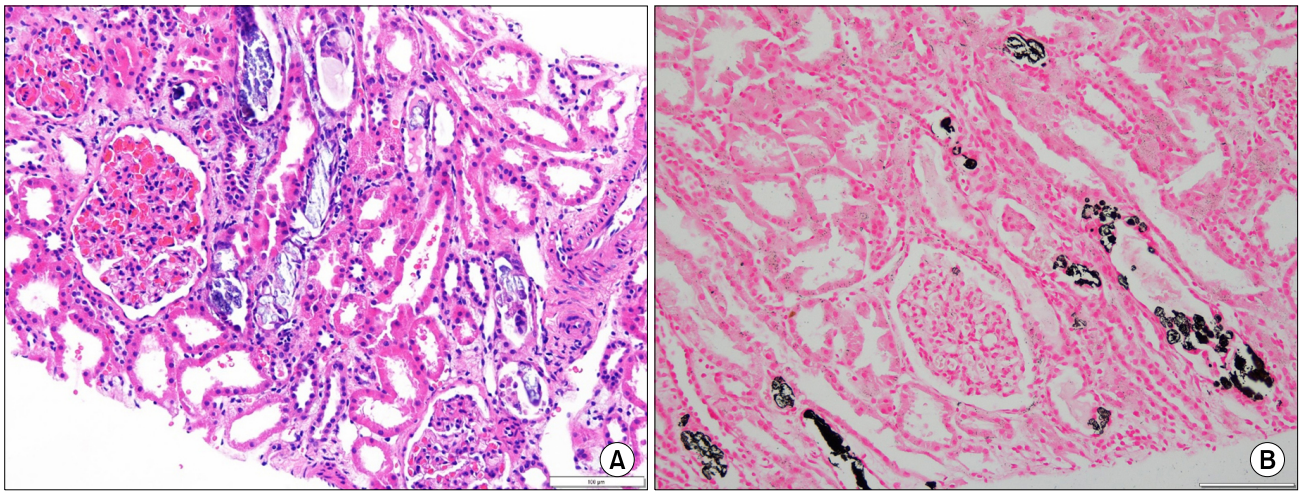

FIG. 1. Numerous basophilic crystals are found in tubules, which have a rounded appearance in Hematoxylin and eosin stain (A) and von Kossa stain (B). Tubular epithelial cell changes are also noted, which are flattening and simplification of the cell lining. magnification, ×200.

Corresponding Author:
Soo Wan Kim
Department of Internal Medicine, Chonnam National University Medical School, 42 Jebong-ro, Dong-gu, Gwangju 61469, Korea
Tel: +82-62-2206271, Fax: +82-62-2258578, E-mail: skimw@chonnam.ac.kr

Article History:
Received August 28, 2017
Accepted September 8, 2017

https://doi.org/10.4068/cmj.2017.53.3.231