effect is apparent, with an increasing risk of renal side effects as the number of administered doses increases. Our patient’s liver function was deranged, possibly due to granulomatous hepatitis, which has been described in this setting [2].

Treatment with prednisolone and anti-tuberculous chemotherapy was based on advice found in the literature [2,4,5]. Prednisolone at a starting dose of 40 mg daily, tapering over 3 months as response occurs, plus isoniazid and rifampicin for 6 months, represents current optimal therapy. Prognosis appears good, though some renal impairment may persist.

We have described a patient with acute renal failure due to tubulointerstitial nephritis and glomerulonephritis following intravesical BCG treatment who recovered with steroids and antituberculous chemotherapy. The diagnosis should be considered in at-risk patients, and established with early renal biopsy, as the outcome appears to be better when treatment is initiated promptly before the interstitial lesion can progress to scarring and fibrosis.

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Renal failure following bowel cleansing with a sodium phosphate purgative

Sir,

Visicol® (InKline Pharmaceutical Co., Inc., Blue Bell, PA, USA) is a tablet form of sodium phosphate used as a bowel purgative prior to colonoscopy. Patients are instructed to take three tablets with at least 8 oz (227 g) clear liquids every 15 min, for a total of 20 tablets, both the evening before and again the morning of colonoscopy. The cumulative dose of 40 tablets contains 44.08 g sodium phosphate monobasic monohydrate (USP) and 15.92 g sodium dibasic anhydrous (USP) for a total of 60 g sodium phosphate. Visicol has been shown to be an effective and safe bowel purgative [1,2]. We describe a case of acute renal failure (ARF) with sustained loss of renal function following use of Visicol.

A 44-year-old Caucasian male presented for evaluation of renal dysfunction. The patient had mild chronic renal insufficiency (CRI) with a creatinine of 1.5 mg/dl (normal range: 0.7–1.5 mg/dl) in August 2002 and 1.7 mg/dl in early December 2003. In early February 2004, the patient was found to have a creatinine of 2.6 mg/dl and was referred for nephrological consultation.

Past medical history was significant for coronary artery disease, requiring multiple percutaneous interventions (PCIs) and stent placements over the previous 2 years. The most recent PCI was in July 2003 and was not associated with a change in renal function. There was also a history of hypertension, gout and osteoarthritis, for which he had been treated with non-steroidal anti-inflammatory drugs (NSAID) for the past 10 years. There was no history of diabetes mellitus. Medications included meloxicam 15 mg QD and ramipril 10 mg QD. The patient experienced an episode of haematochezia in autumn 2003 and underwent colonoscopy in mid-December 2003. For bowel preparation, the patient was given Visicol, 20 tablets the evening before and 12 tablets the morning of the colonoscopy procedure.

Physical examination revealed a blood pressure of 138/82 mmHg, obesity [height: 5’ 1” (155 cm); weight: 238 lb (108 kg)] and no oedema. The patient had serum albumin of 4.4 g/dl (normal: 3.2–5.2 g/dl), calcium of 9.2 mg/dl (normal: 8.4–10.4 mg/dl), 24 h urine protein of 95 mg (normal: 0–150 mg) and bland urinary sediment. Serological evaluation revealed normal C3 and C4 complement levels, negative ANA and no evidence of a monoclonal serum or urine spike. Magnetic resonance angiography was negative for renal artery stenosis. The kidneys measured 11.7 and 12.0 cm in length by ultrasound. While the patient’s mild CRI appeared to be related to chronic NSAID use, the aetiology of the superimposed ARF was unclear.


Fig. 1. Multiple basophilic calcifications are seen in tubular lumina and adjacent interstitium. The calcifications did not polarize and were von Kossa positive, consistent with calcium phosphate. (Haematoxylin and eosin; original magnification: ×400.)
Renal biopsy revealed a tubulo-interstitial nephropathy characterized by degenerative changes in proximal tubules and numerous distal tubular calcifications with staining properties of calcium phosphate (Figure 1), accompanied by mild tubular atrophy and interstitial fibrosis. The findings of ‘acute nephrocalcinosis’ were not associated with glomerular or vascular disease. No specific therapy was given and 4 months post-biopsy the patient’s creatinine was 2.2 mg/dl.

Oral sodium phosphate solution (OSPS; Phospho-soda, CB Fleet, Lynchburg, PA, USA) is widely used for bowel cleansing prior to colonoscopy. The recommended regimen of two 35 ml doses taken 12 h apart contains 37.6 g monobasic sodium phosphate and 8.6 g dibasic sodium phosphate, for a total of 46.2 g sodium phosphate. This regimen is associated with a transient increase in serum phosphorus of 3.0–3.5 mg/dl and a transient decline in serum calcium of 0.2–0.3 mg/dl [3,4].

We recently reported the occurrence of renal failure and acute nephrocalcinosis following bowel cleansing with OSPS [5]. The five reported patients had a mean age of 69.2 years and a mean baseline serum creatinine of 0.9 mg/dl (with a mean interval from baseline creatinine determination to colonoscopy of 4 months). Patients presented with ARF and a mean creatinine of 4.9 mg/dl at 3 days to 2 months (mean: 3 weeks) post-colonoscopy. Renal biopsy revealed acute nephrocalcinosis with abundant distal tubular calcium phosphate deposition in all five patients. The close temporal relationship with colonoscopy, the presence of tubular calcium phosphate precipitates and previous reports of a similar lesion occurring after oral phosphate treatment of children with hypophosphatemic rickets [6], all strongly implicated OSPS as the precipitating factor. At 4 months post-colonoscopy, renal function was unchanged in four patients and slightly improved in one patient. Subsequent to this report, we have seen 10 additional cases of ARF due to biopsy-proven acute nephrocalcinosis following treatment with OSPS.

Visicol is a newer purgative preparation with a nearly identical composition to OSPS. While all purgatives have the potential for abuse, in the case of OSPS abuse is limited by its unpleasant taste. In contrast, Visicol tablets are virtually tasteless and, therefore, are only available by prescription [1]. Similar to OSPS, Visicol is associated with transient electrolyte abnormalities. At 3–5 h after the second dose of 20 tablets, patients experience a mean increase in serum phosphorus of 3.7 mg/dl and a mean decline in serum calcium of 0.5 mg/dl [1]. These changes resolve within 48–72 h. It is recommended that both agents be used with caution in patients who have electrolyte abnormalities or renal insufficiency.

This is the first report of ARF following the use of Visicol, a tablet form of sodium phosphate bowel purgative. The renal biopsy findings of acute nephrocalcinosis following Visicol administration are identical to those reported for OSPS. This observation reaffirms that ARF and acute nephrocalcinosis is a potential complication of all orally administered sodium phosphate purgatives, whether they are given in liquid or tablet form. Clinicians should be aware of this potential complication of sodium phosphate-containing purgative agents.

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The immunohistochemical localization of $\gamma_2$-Heremans–Schmid glycoprotein/fetuin-A (AHSG)

Sir,

As reviewed by Floege and Ketteler [1], vascular calcification is a frequent complication found in patients with end-stage renal diseases (ESRD). It has been recognized that the serum levels of $\gamma_2$-Heremans–Schmid glycoprotein/fetuin-A (AHSG) [2] are generally low in ESRD patients [3]. Recently, AHSG was shown to exert a calcification inhibitory action both in vitro and in vivo [4,5]. Thus, low levels of circulating AHSG may be one of the causes of ectopic calcification associated with uremia [1]. In principle, we agree with this hypothesis; however, circulating molecules may not be the only AHSG that inhibits ectopic calcification.

We examined the localization of AHSG around lesions with ectopic calcification in dialysis patients. Anti-human AHSG antibody (DakoCytomation, Glostrup, Denmark) was used for the immunohistochemical study. Figure 1 shows ectopic calcification around the right wrist joint in a dialysis patient. Calcified tissue is indicated by von Kossa staining (Figure 1A). Note that AHSG-positive immunoreactivity surrounds the calcified tissue (Figure 1B).

AHSG seems to be assimilated into the tissues through passive or active mechanisms. On the other hand, the calcified lesions containing AHSG may not progress rapidly, since AHSG inhibits further calcification.

Thus, AHSG was found to be concentrated around ectopic calcified lesions. This type of localized deposition might enhance the calcification inhibitory action of AHSG in vivo.