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Acute nephrocalcinosis following oral sodium phosphate bowel cleansing

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Acute kidney injury; nephrocalcinosis; phosphate.

Dear Sir,

Recently in the Portuguese Journal of Nephrology and Hypertension, Y. Aznar *et al.*[1] described a very interesting case of acute renal failure, intratubular and interstitial calcium phosphate deposits associated with the use of an osmotic purgative (Fosfosoda®). There is currently great interest in linking acute deposit of calcium phosphate in renal parenchyma with concomitant tubular injury to the use of phosphate-containing cathartics.

This entity is differentiated from typical nephrocalcinosis by deposits of calcium phosphate[2] occurring in the absence of increased serum calcium levels; development of acute renal failure following the use of phosphate-containing cathartics[3] often resulting in acute and persistent loss of kidney function; the specific histological pattern; no evidence of chronic injury[3]; experimental evidence of kidney damage associated with phosphorus overload[4] and that the dominant mechanism is acute tubular injury[3].

Pathology findings are important in diagnosing this entity. There is a particular pattern of abundant deposit of calcium phosphate, principally in distal tubules and collecting ducts[2,3]; important focal peritubular lymphocytic inflammation and minimal tubular damage, including occasional necrotic and sloughed epithelial cells, coarse vacuolisation, loss of brush borders, nuclear enlargement, nucleolar prominence, and occasional binucleation. These tubular degenerative changes are accompanied by interstitial oedema[3,5]. The tubular injury closely resembles acute tubular necrosis[3]. This is further demonstrated by the immunohistochemical findings of markers of acute kidney injury[3].

The term "nephrocalcinosis" denotes a clinical--pathological entity characterised histologically by abundant renal parenchymal deposits of calcium phosphate associated with chronic tubulointerstitial injury[3], and this is a term coined to describe the deposit of calcium crystals in the renal parenchyma resulting from long-lasting hypercalcaemia.

Finally, unlike the usual form of nephrocalcinosis, there is strong evidence that the renal lesions can be induced by a high phosphate load as the sole causative factor. The temporal relationship with an overload of phosphate and kidney damage and the specific histopathological findings could more suitably be described as "acute renal damage by phosphate" or "acute phosphate nephropathy". This would describe this entity more aptly than "acute nephrocalcinosis"[6].

Conflict of interest statement. None declared.

References

1. Aznar Y, Fernandez Nájera JE, Graña, *et al.* Acute nephrocalcinosis following oral sodium phosphate bowel cleansing. Port J Nephrol Hypert 2008;22:325-327

2. Asplin JR, Mandel NS, Coe FL. Evidence of calcium phosphate supersaturation in the loop of Henle. Am J Physiol 1996; 270(4 Pt 2): F604-13

3. Markowitz GS, Stokes MB, Radhakrishnan J, D'Agati VD. Acute phosphate nephropathy following oral sodium phosphate bowel purgative: an underrecognized cause of chronic renal failure. J Am Soc Nephrol 2005;16:3389-96

4. Ritskes-Hoitinga J, Lemmens AG, Dande LH, Beynen AC. Phosphorus-induced nephrocalcinosis and kidney function in female rats. J Nutr 1989; 119:1423-31

5. Beyea A, Block C, Schned A. Acute phosphate nephropathy following oral sodium phosphate solution to cleanse the bowel for colonoscopy. Am J Kidney Dis 2007; 50:151-4

6. Desmeules S, Bergeron MJ, Isenring P. Acute phosphate nephropathy and renal failure. N Engl J Med 2003;349:1006-7

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