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Nephrology Dialysis Transplantation

Teaching Point
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A well-meant present from a friend

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Case

A 70-year-old female was admitted to hospital because of a general weakness and a high creatinine level. On admission she was hypotensive (105/55 mmHg) and complained of chronic back pains. During the weeks preceding the hospitalization she was taking fosinopril 10 mg qd, amitryptiline 50 mg qd and paracetamol as required (not >1000 mg per day). She had raised urea (35.1 mmol/l), creatinine (889 μmol/l), potassium (6.1 mmol/l) and C-reactive protein (CRP; 72 mg/l) and she had a metabolic acidosis (pH 7.17, bicarbonate 14.6 mmol/l). Urinalysis revealed albuminuria ++, 10–15 WBC/high-power field, 3–5 RBC, no casts. An urgent abdominal ultrasound showed normal size kidneys.

Remarkably, her past medical history included an episode of acute renal failure 2 years before the present hospitalization, at which time she presented with oliguria and a high creatinine (1187 μmol/l) requiring immediate dialysis. Because of back pain she had been started on mefenamic acid 6 weeks earlier. The renal biopsy had showed a severe interstitial nephritis with a dense mononuclear cell infiltrate and minimal tubular destruction. The administration of prednisone (1 mg/kg body weight) had allowed rapid recovery of renal function: dialysis was discontinued after 5 days and her creatinine level dropped to 155 μmol/l at day 14 and stabilized around 90 μmol/l after 2 months. The steroids had been rapidly reduced and stopped after 2 months. The patient was strongly advised not to take any nonsteroidal anti-inflammatory drugs (NSAIDs) and was prescribed only paracetamol.

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Because of this past medical history, the patient was directly questioned about NSAIDs. She was well aware of her allergy and despite the recent flare-up of back pain she denied ingestion of NSAIDs or over-the-counter medication.

Initially the patient was given 1 l NaCl 0.9% and lisinopril was discontinued. Renal biopsy revealed an acute interstitial nephritis similar to that seen 2 years previously, but this time with granulomatous lesions (Figure 1). Prednisone 1 mg/kg body weight was administered and renal function improved over the next days. Creatinine dropped to 140 μmol/l after 2 weeks and CRP returned to normal. During recovery the patient recalled having received from her good friend a 'helpful' topical gel (Voltaren gel®: diclofenac) that she had applied on her back during 10 days preceding the hospitalization.

NSAIDs are well known to induce renal failure in volume-depleted patients by inhibition of prostaglandin synthesis [1]. In addition, NSAIDs, including the selective COX-2 inhibitors [2], have been reported to produce allergic reactions in the kidney; most often a nephrotic syndrome due to a membranous glomerulonephritis or an acute interstitial nephritis. Although these latter reactions are rare complications of NSAIDs, they are not seen uncommonly, simply because of the very wide application of these drugs.

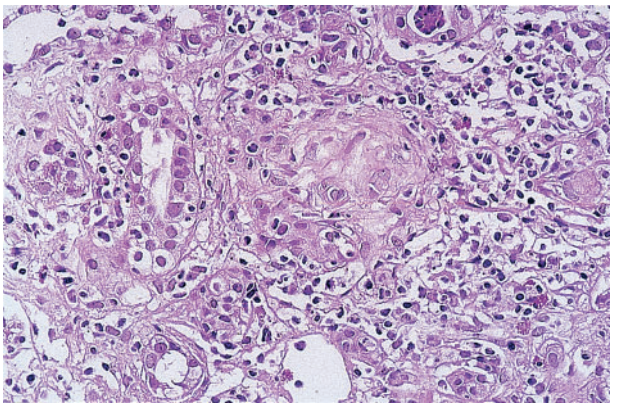

Fig. 1. Second biopsy: granuloma and a diffuse interstitial infiltrate of mononuclear cells. (Haemotoxylin and eosin, ×350.)

In several countries, NSAIDs can be bought freely over the counter. Although only rarely documented, a re-exposure to the same or another NSAID may produce a relapse of the glomerular or interstitial nephritis and all authors advise against it [3]. The patient presented here illustrates this point and in addition shows that topical administration of a NSAID leads to systemic levels sufficient to reactivate an allergy [4]. A long duration of exposure to the allergen, a pronounced interstitial cell infiltration, interstitial granuloma, the presence of tubular atrophy and a shrinking kidney on ultrasound are all indicators for a more severe outcome [5]. The offending drug should be stopped immediately and although no good evidence is available, most clinicians treat the acute interstitial nephritis with a short course of steroids.

Teaching points

(i) Even topical rechallenge with an allergenic compound may re-induce interstitial nephritis.
(ii) Patients often do not realize that topical substances are absorbed and do not mention them. Also, doctors forget to ask [6].
(iii) A 'wonderful gel' that is fine for a friend is not automatically good for you.

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