moptysis. Mean CRP was 2.4 ± 1.8 mg/dL. Proteinuria in the non-nephrotic range (maximum 1g/24 hours) and microhematuria with deformed red blood cells were present in all patients.

Immunological investigations were negative except for ANCA, which exhibited an anti-myeloperoxidase pattern. On diagnosis, the ultrasound revealed a decreased renal size with a maximal longitudinal axis of 9 cm in all cases. A renal biopsy was performed in 3 patients, which showed vasculitic lesions, sclerosed glomeruli, and intense interstitial fibrosis, obviously related with the diminished renal size. Three patients presented at least one episode of pulmonary hemorrhage, and two patients died from infectious complications. In three cases the condition evolved to end-stage renal disease requiring hemodialysis, while the others were controlled with immunosuppressive drugs. It is interesting that two patients had been diagnosed with nephroangiosclerosis and presented the first episode of pulmonary hemorrhage when they already were on hemodialysis. This episode prompted the ANCA investigation.

The reported cases are remarkable due to the coincidence of small sized kidneys and ANCA-positive vasculitis. In this condition the usual presentation differs, because the renal size is normal or perhaps bigger than normal as a consequence of the inflammatory reaction. Renal vasculitis has usually a rapidly progressive evolution, but it is evident that it sometimes evolves more torpidly, with a slow worsening of renal function and few manifestations on urine sediment (minimal proteinuria of microhematuria, which initially go unrecognized).[1] Falk *et al.* have recently pointed out that the disease can possibly evolve in flares of vasculitis, with progressive glomerular lesions, which can produce a late clinical picture, when more than a half of the glomeruli are affected. In this sense, a glomerulonephritis evolving to CRD should never be considered as a mild condition.[2] If the clinical evolution is slow, the episodes of focal necrosis resolve with glomerular scaring and sclerosis, and at each flare new glomerular lesions are added. That could explain the diminution of the renal size.

It is possible that among patients who are on renal replacement therapy with a disease of unknown origin and with small kidneys on diagnosis, some of them may have been diagnosed with nephroangiosclerosis and present, positive ANCA antibodies and vasculitis with few clinical manifestations, being susceptible to suffer from an episode of pulmonary hemorrhage while on hemodialysis program. In this setting, if the diagnosis is not clear, at least an ANCA determination should be mandatory and profitable, to avoid diagnostic failures with important consequences.

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Severe calciphylaxis in a patient on dialysis, with a liver transplant and long evolution hypocalcaemia

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To the editor: We report a 65 year-old male, who received a liver transplant in 1996 and is on treatment with prednisone, mycofenolate and cyclosporin. He presented early graft rejection that was treated with pulses of methylprednisolone, and developed acute renal failure due to cyclosporin-induced nephrotoxicity requiring hemodialysis on July 2002. He has also a history of type 2 diabetes mellitus, dilated cardiomyopathy and atrial fibrillation (on anticoagulation with Acenocoumarol). He developed severe hypocalcaemia and received calcium carbonate (up to 12 g/day) and oral calcitriol (1 µg/day). The iPTH levels were maintained between 100 and 250 pg/mL and the calcium × phosphorus product was lower than 50.

In December of 2002, he presented with bilateral skin lesions on the legs, which were painful and small in diameter. Some of them had an ecchymotic appearance and others were eroded and covered by a necrotic ulcer, with violaceous borders. Peripheral pulses were present. He required opiates to control the pain and topical antibiotics. In January 2003 he was admitted to the hospital because of hemodynamic instability during hemodialysis session, fever, anemia and progression of the lesions with increasing necrosis and infection.

The laboratory parameters were: 1,900 leucocytes/mm^3, hemoglobin 6.7 g/dL, calcium 7 mg/dL, phosphate 3.5 mg/dl, iPTH 72.5 pg/mL, albumin 2.6 g/dL, CRP 13.9 mg/L. The viral serology and immunological study (ANA, ANCA) were negative. Hemocultures and antigenemia were positive for *Cryptococcus neoformans.* Abdominal plain X-ray film: multiple vascular calcifications. Skin biopsy: Calcification within the middle layer of dermal arterioles and arteries, thrombosis within the vessels, necrosis of the adipose tissue, suggestive of calciphylaxis.

Despite the treatment with wide spectrum antibiotics and intravenous fluconazole, the progressive diminution of mycofenolate, and the surgical debridement of the lesions, the evolution was torpid and the patient died in septic shock.

CUA is a syndrome of unknown origin, characterized by areas of ischemic necrosis and calcifications of the middle layers of dermoepidermal arterioles. It is associated to chronic renal insufficiency, dialysis, and kidney transplant[1]. Other risk factors were identified: hyperparathyroidism, elevated calcium-phosphorus product, hyperphosphatemia,[2,4-8] adynamic bone disease,[9] prolonged treatment with vitamin D supplements, calcium-based phosphorus chelating agents, oral anticoagulants, steroids, intravenous iron load, diabetes mellitus, hypoalbuminemia, deficit of proteins C or S, hyperlipidemia, local traumas and HIV infection.[4,8,10-12] It is more frequent among obese and females patients.[6]

Diagnosis lies on clinical findings: presence of typical lesions with peripheral pulses and hyperesthesia,

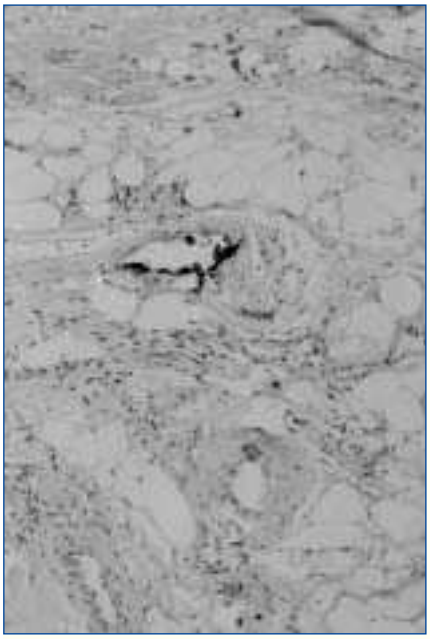

Figure 1. Basophilic material (calcium) lining the wall of a small size vessel at the hypodermis.

often resistant to analgesia.[2] Histological confirmation is definitive. However it is associated to a high risk for superinfection and local dissemination of the ulcer, and some authors affirm that it should be reserved for those cases, in which the diagnosis is not clear.[2,8]

The approach to these patients must be multidisciplinary: treatment of underlying conditions,[1,6] control of the calcium-phosphorus product and of secondary hyperparathyroidism, to limit the use of calcium-based phosphorus chelating agents and of vitamin D[6,10,11], and hemodialysis with low calcium content in the dialysis fluid.[6] Parathyroidectomy is indicated in cases of severe hyperparathyroidism.[8] Necrotic tissue should be surgically removed and wide spectrum antibiotics should be administered. In recent studies the use of steroids,[8] hyperbaric oxygen, diphosphonates, pentoxifylline or sterile larvae[9] have shown promising results. In spite of an aggressive therapy the mortality is very high (60-80%), mainly due to sepsis.[4]

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Is it necessary to measure anti-hepatitis B antibodies every six months instead of every twelve months in patients on hemodialysis?

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To the editor: All patients on hemodialysis with negative serology for hepatitis B virus must receive the vaccine.[1-4]

In 1989, we initiated a vaccination protocol for patients on hemodialysis. A double dose of Engerix B® was intramuscularly administered in the deltoid muscle on months 0, 1, and 6. We annually measured the antibody levels and revaccinated with double doses those patients who did not respond or if the antibody levels were < 10 mIU/mL.

The anti-HBs antibodies were measured with a Microparticles Enzyme-immune analysis (MEIA). We defined seroconversion in the presence of an antibody titer > 10 mIU/mL.

The protocol was maintained until 2003. That year we changed to 4 double doses of the vaccine. The patients that were in the previous protocol of 1989 went on unchanged.

In this population the response rate is low, sometimes lower than 50%. Some patients maintain only the protection for short periods and it is recommended to annually determine the antibody levels. Some authors use other vaccination programs or administer co-adjuvants to improve the immunological response.[5-8]

Hepatitis B vaccination and antibodies control requires dedication, time, and follow-up from physicians and nurses. Epidemiological surveys present patients on dialysis not vaccinated or in which the antibody levels were not measured. In 1995, only 35% of the patients in the USA had received the vaccine.[9-11]

According to the protocol of 1989, we determined in the first annual control serological markers and anti-HBs antibodies and afterwards we strictly proceeded to vaccination.

In 2004, we began to measure the levels of anti-HBs antibodies every six months. In 2007, we had 31 patients on the protocol of 1989, and antibody controls every 6 months and every 12 months. We could observe the following findings:

Six patients (19.35%) did not respond in any control either to the first vaccination or revaccinations.

The remaining 25 patients (80.65%) had in at least one control anti-HBs antibodies higher than 10 mIU/mL. Controls at six months were not different to annual controls in 17 of these patients (54.8%).

In 8 patients of the group of responders (table I), the controls performed at 6 months yielded information not obtained in the annual determination. In 4 of these patients (12.9%) the antibodies had already decreased below the protective range and the patients could