of age and gender at the two centres included in the study, neither in the retrospective nor prospective phase, although a greater number of patients included from the *Hospital Universitario San Cecilio* came from Primary Care. After one year of follow-up, 84% of the patients were assessed to start treatment, after a median of 69 days (IQR: 25–102) from diagnosis to the consultation with the specialist. Only 18 patients (16%) were not seen by the specialist. Table 1 summarises the frequency and times to referral in both phases of the study, with the details of the referral at one year and at six months from diagnosis. These data reveal that reflex testing is an alternative which improves the traditional diagnosis, as it allows a greater number of losses in referral to be avoided.[4–6] Furthermore, reflex testing avoids overloading specialist consultations with patients whose infections have already resolved spontaneously.[7,8]

In conclusion, our study shows how the implementation of reflex testing has a real impact on the treatment cascade for hepatitis C, by allowing a greater number of patients to be assessed for treatment. We believe that these diagnostic strategies should be incorporated by Microbiology Departments, to help eliminate hepatitis C.

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Autochthonous Weil's disease: A case report☆

Enfermedad de Weil autóctona: a propósito de un caso

Leptospirosis is a zoonotic disease with worldwide distribution caused by spirochetes of the genus *Leptospira*.[1–5] Transmission to humans occurs through direct contact with the urine, blood or tissue of an infected animal or exposure to contaminated environments, such as standing water.[1–5] It can cause a wide variety of clinical manifestations, ranging from a mild form to severe disease, and may even be life-threatening.[1–3] It appears to be mainly linked to occupational activity, individuals with unfavourable socio-economic conditions, recreational activities or individuals living with pets.[1–3,5]

Below, we describe the case of a 30-year-old man, with no history of interest, referred to our centre for symptoms of multi-organ failure. Three days prior to admission, the patient had consulted his primary care physician due to flu-like symptoms, general malaise with dysthermia, odynophagia and myalgia. He was admitted to a regional hospital due to fever along with significant laboratory test abnormalities: anaemia; intrahepatic cholestasis; rhabdomyolysis and leukocytosis with thrombocytopenia. As regards his relevant medical history, a recent 20-day trip to the province of Guipuzcoa in the Basque Country is highlighted, during which he bathed in ponds and may have swallowed poor-quality water. He did not mention insect bites, contact with animals or travel to tropical countries. The patient was initially stable, but his condition worsened, with hypotension and desaturation in the context of a spiking fever. In the control laboratory tests (6 h later), his analytical parameters were seen to have worsened. He passed various bloody stools containing fresh blood. That same day he was referred to our centre, where he was admitted to the ICU due to rapid progression of bilateral pulmonary infiltrates which led to acute hypoxaemic respiratory failure, requiring him to undergo orotracheal intubation and mechanical ventilation. His clinical picture was interpreted as septic shock of unknown origin with rapid progression to multiple organ dysfunction syndrome. Intensive support measures were initiated. Given the symptoms of icterohaemorrhagic fever together with the history of bathing in ponds and the possible ingestion of poor-quality water, infection due to *Leptospira* was suspected and treatment with meropenem (1 g/8 h), linezolid (600 mg/12 h) and doxycycline (100 mg/12 h) started. Blood cultures and respiratory, urine and serum samples were collected to rule out hepatotropic viruses, HIV, Lyme disease, *Leptospira* and atypical pneumonia. 32 h after his admission, *Leptospira* infection was confirmed by means of a PCR on urine and plasma (negative serology). Targeted treatment was started with ceftriaxone (2 g/12 h). While in hospital, the patient's clinical course was unfavourable, with life-threatening progression as a result of refractory hypoxaemia due to pulmonary haemorrhage and multi-organ failure, eventually leading to his death seven days after admission.

In Spain, leptospirosis is mainly diagnosed by serological testing through the detection of IgM antibodies against *Leptospira* or seroconversion (ELISA, ICT or MAT).[1–5] The isolation of *Leptospira*

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in blood or CSF during the leptospiraemic phase and in urine from the second week is also possible.[1,2]

Performing a real-time PCR specific to leptospirosis enables rapid diagnosis, even in the period when serology is negative.[2–4] In our case, both the PCR on blood and the PCR on urine performed in our hospital on the fourth day after the onset of symptoms were positive (detection of *LipL32 gene*; FTD Tropical fever core, Fast Track Diagnostics). At that point, the serological tests were negative (ICT Leptospira IgM/IgG, Standard Diagnostics, Inc.). It was not until 11 days after the onset of symptoms, coinciding with the time of the patient's death, that the serology for *Leptospira* was positive. All samples were sent to the Spanish National Microbiology Centre, where the result was confirmed. At said centre, PCRs were performed on the patient's urine and blood samples, yielding a positive result in both (detection of the gene *LipL32*, modified version of the protocol described by Bourhy et al.),[6] and serological tests from days 4 and 11, with a positive result for day 11 (Panbio® Leptospira IgM ELISA, Abbott Diagnostics).

In our area, leptospirosis is a low-incidence disease, mainly due to the fact that a very low percentage of individuals develop the most severe forms, with asymptomatic cases being underestimated and mild cases classified as febrile syndromes without a focus.[1–5] Weil's disease is the form of presentation with the worst prognosis.[2,3] Although rare, it occurs mainly in travellers returning from endemic areas and in those undertaking occupational or recreational activities.[1–3,5] It is important for *Leptospira* to be included as a differential diagnosis in light of a suspected case of haemorrhagic fever with the aforementioned history.[4] The course of the severe form of the disease is rapid and unfavourable, with patients' vital functions being compromised. Therefore, as we have described, the use of fast and specific diagnostic techniques, such as PCR on samples of blood and/or urine within the first few days of the onset of symptoms is vital in order to establish a rapid diagnosis and the correct treatment.

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Allergy to antibiotics: Perspective from a tertiary care hospital☆

Alergia a antibióticos: perspectiva desde un hospital de tercer nivel

In routine clinical practice, it is common for hospitalised patients who require antibiotic treatment to state that they are allergic to antibiotics or to present a possible allergic event during their administration. Although we do not have data on the actual incidence of antibiotic allergies, there are studies which indicate that in both children and adults (the general population), the prevalence of hypersensitivity reactions to antibiotics ranges from 1 to 10%.[1,2] Our objective was to evaluate the prevalence of patients allergic to antibiotics in our tertiary hospital, and to determine the main antibiotics involved and the percentage of patients who were eventually able to receive the right antibiotic. To that end, a retrospective study was conducted in our tertiary hospital, in which all referrals received by the allergy department in 2016 and 2017 relating to antibiotic allergies were included. In addition, follow-up information was collected from outpatient allergy consultations attended by patients who were deemed to require them after being discharged from hospital.

A total of 222 referrals (49.5% males and 50.5% females, mean age: 63.9 years) were carried out. Of these, 108 patients (48.6%) reported a history of allergy upon admission, of which only 27 (25%) provided prior allergy tests. The manifestations were mainly cutaneous (75%), followed by anaphylaxis (1.8%) and DRESS (0.9%). The remaining patients did not recall or know how to identify the reaction. The main antibiotic groups involved were beta-lactams (83.3%), mainly penicillins, followed by aminoglycosides, quinolones, co-trimoxazole and sulphonamides. Furthermore, 165 referrals (74.3%) stemmed from patients who presented with suspected allergy symptoms during their hospital stay, with assessment by the allergy department being requested. Once again, beta-lactams were the main antibiotics involved. Allergy was ruled out in 64 patients by means of allergy testing. The study performed consisted of a targeted medical history, skin tests and an oral provocation test in patients in whom it was deemed necessary. 46 of them were eventually able to receive the medicine which had initially been prohibited, as detailed in Table 1. Finally, a deferred study was proposed at hospital discharge in 188 patients (84.6%), 84 of whom attended the consultation (44.6%). In this group, allergy was ruled out in 35 patients (41.6%) and proven in 21 patients (25%). Once again, beta-lactams were the most frequently involved antibiotics. There were 19 non-conclusive studies (22.6%) and nine patients are still under study (10.7%).

In our review, half of the referrals made were for patients who mentioned a history of antibiotic allergy. The main group involved and the manifestations cited coincide with what is reported in

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