

Brief Report

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Fake imported tropical diseases: A retrospective study

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ABSTRACT

Background. When we evaluate a patient with a suspected imported disease we cannot forget to include any autochthonous causes that may mimic imported pathologies to avoid misdiagnosis and therapeutic delay.

Methods. A descriptive longitudinal retrospective study was designed with patients in whom an imported disease was suspected but who were finally diagnosed with autochthonous processes. The patients were selected from two internal medicine practices specializing in tropical diseases between 2008–2017 in Spain.

Results. We report 16 patients, 11 (68.7%) were males, and the mean age was 43.4 ± 13.7 years old. Thirteen patients (81.2%) were travellers. Half of the patients were from Latin America, 7 (43.5%) were from Africa, and 1 (6.2%) was from Asia. The time from trip to evaluation ranged between 1 week and 20 years (median, 4 weeks), and the mean time from evaluation to diagnosis was 58.4 ± 100.9 days. There were 5 (31.2%) cases of autochthonous infection, 5 (31.2%) cases of cancer, 2 (12.5%) cases of inflammatory disease, and 2 (12.5%) cases of vascular disease.

Conclusions. Travel or migration by a patient can sometimes be a confusing factor if an imported disease is suspected and may cause delays in the diagnosis and treatment of an autochthonous disease. We highlight that 1/3 of the patients with autochthonous diseases in this study had cancer. The evaluation of imported diseases requires a comprehensive approach by the internist, especially if he specializes in infectious and/or tropical diseases and is, therefore, the best qualified to make an accurate diagnosis.

Key words: Traveller; Immigrant; Imported diseases; Tropical medicine

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Falsas enfermedades tropicales: un estudio retrospectivo

RESUMEN

Introducción. La evaluación de un enfermo con sospecha de patología importada debe incluir las causas autóctonas que puedan simular enfermedades importadas, para evitar un diagnóstico erróneo y un retraso terapéutico.

Métodos. Estudio retrospectivo longitudinal descriptivo de pacientes con sospecha de patología importada con diagnóstico final de proceso autóctono. Los pacientes fueron seleccionados en dos consultas especializadas en enfermedades tropicales de dos hospitales españoles entre 2008–2017.

Resultados. Se obtuvieron 16 pacientes, 11 (68,7%) hombres. La edad media fue de $43,4 \pm 13,7$ años. Trece pacientes (81,2%) eran viajeros. Ocho (50%) pacientes eran latinoamericanos, 7 (43,5%) africanos y un paciente asiático (6,2%). El tiempo desde el viaje hasta la evaluación osciló entre 1 semana y 20 años. El tiempo medio desde la evaluación hasta el diagnóstico fue de $58,4 \pm 100,9$ días. Hubo 5 (31,2%) casos de infección autóctona, 5 (31,2%) casos de cáncer, 2 (12,5%) casos de enfermedad inflamatoria y 2 (12,5%) casos de patología vascular.

Conclusiones. El origen del paciente o el antecedente de un viaje pueden ser factores de confusión durante el proceso clínico y causar un retraso diagnóstico y terapéutico. Por lo tanto, es aconsejable una visión amplia al evaluar estas enfermedades. Destacamos que un tercio de los pacientes presentó un diagnóstico final de neoplasia.

Palabras clave: Viajeros; inmigrantes; enfermedades importadas; medicina tropical.

INTRODUCTION

In a global world, knowledge of imported diseases is essential in daily practice, both for the microbiologist and for the clinician who diagnoses and treats infectious diseases in returned travellers and migrants [1,2]. According to the World Tourism Organization, there were 1235 million international tourists worldwide during 2016 [3]. Tropical and subtropical countries where there is a greater risk of contracting an infectious disease are among the most frequently visited tourist destinations. Another aspect of travel is immigration and settled immigrants who visit their relatives; *visiting friends and relatives* (VFR) in the tropics is a growing reality in Europe. All these factors have significantly increased the number of people at risk of an imported disease [4,5].

It is necessary to take a global view of a patient who has travelled or immigrated because we have to include both imported and autochthonous diseases in the differential diagnosis [6] since autochthonous diseases can mimic imported diseases, producing delays in diagnosis and therapy. Additionally, the presence of fever does not always indicate infection because it can also be due to other causes, such as heat stroke [7], long-travel-related thromboembolism [8], autoimmune diseases triggered by different factors during the trip (systemic lupus erythematous or inflammatory bowel disease) [9], or adverse drug reactions.

In the case of travellers, approximately half of the diseases correspond to diseases similar to those of the native population, and the circumstances of the trip (e.g., changes in climatic conditions, exposure to different ecosystems, hygiene difficulties, antimicrobial consumption, and different food) facilitate their development [10,11].

In the case of immigrants, much of their pathology will depend on their socio-economic situation, the frequency of multiple concurrent diseases, the country of origin, and the host country; in those cases, universal processes must always be disregarded as tuberculosis, viral hepatitis and sexually transmitted diseases [12]. Another aspect to take into consideration with regard to immigrants is the language difficulties and cultural differences, which require careful collection of their medical history [13].

The objective of this paper is to report our experience of cases when an imported disease was suspected but the final diagnosis was an autochthonous process.

PATIENTS AND METHODS

A descriptive longitudinal retrospective study was designed with patients in whom an imported disease was suspected but who were finally diagnosed with autochthonous processes. Patients were selected for this study from two internal medicine practices specializing in tropical diseases: *i*) the Unit of Infectious Diseases and Tropical Medicine of the Complejo Hospitalario Universitario Insular-Materno Infantil de Gran Canarias, Las Palmas, Spain (CHUIMIGC), between 1999 and 2017 and *ii*)

the Tropical Medicine Consultation of the Infectious Diseases Section of the Complejo Asistencial de Salamanca, Salamanca, Spain (CAUSA), between 2008 and 2017. Patients were referred from primary care and other hospital services because imported diseases were suspected, but the patients were finally diagnosed with autochthonous diseases.

Imported diseases are defined as those diseases acquired in places where they are autochthonous but diagnosed and treated in areas where they do not exist or are very rare. VFR is defined as an immigrant who settled in Spain who returns to his country of origin to visit relatives or friends.

The data collected were the hospital where the patient had been treated, the country of origin or destination, the type of patient (traveller, immigrant or VFR), age, sex, clinical data, presumptive and final diagnoses, and time from trip to diagnosis. Patients with missing data were excluded from the study.

RESULTS

During the study period, a total of 3,109 (1,751 at CHU-IMIGC and 1,358 at CAUSA) patients were attended at both centres. Sixteen (0.5%) patients were selected, 10 from CHU-IMIGC and 6 from CAUSA. The main epidemiological and clinical data are listed in table 1. Eleven patients were males, and the mean age was 43.4 ± 13.7 years old. Thirteen patients (81.2%) were travellers. Of the 16 selected patients, 8 (50%) patients came from Latin America, 7 (43.75%) came from Africa, and 1 (6.25%) came from Asia. The time from trip to evaluation was between 1 week and 20 years (the median was 4 weeks). The mean time from evaluation to diagnosis was 58.4 ± 100.9 days. There were 5 (31.2%) cases of autochthonous infection, 5 (31.2%) cases of cancer, 2 (12.5%) cases of inflammatory disease, and 2 (12.5%) cases of vascular disease.

DISCUSSION

The occurrence of diseases related to international travel is very frequent, affecting between 20 and 60% of travelers. However, most of the problems are self-limiting or of little importance, so they do not require medical evaluation. Globally, it is estimated that approximately 10% of returning travellers visit a doctor with a health problem [14]. Additionally, migration has contributed to the emergence of certain infectious diseases in host countries.

In the literature, there have been multiple studies on infectious pathology that can be found in both travellers [1] and migrants [15,16]. When we evaluate a patient with a probable imported disease, we have to take into account the country of origin and the symptoms that are characteristic of an imported infectious disease [17]. However, to avoid a therapeutic delay, we cannot forget to include other causes in the differential diagnosis. We did not find any published cases of patients whose final diagnosis was an autochthonous pathology.

In our study, the average age was relatively young, the most common autochthonous diagnosis was a neoplasm

Table 1 Main epidemiological and clinical data of 16 patients included in the study.

Nº	Hospital	Age (Years)	Sex	Country of origin or destination	Type of patient	Time since trip to evaluation (Weeks)	Clinical data	Presumptive diagnosis	Final diagnosis	Test key	Time to diagnosis (Days)
1	CHUIMIGC ^a	48	Female	Dominican Republic	Traveller	4	Jaundice	Hepatitis A virus	Hepatitis B virus	Serology Incubation period	7
2	CHUIMIGC ^a	34	Male	Morocco	Traveller	2	Tourniquet test	Dengue	Lymphoma Chronic lymphatic leukemia	Blood count	1
3	CHUIMIGC ^a	40	Female	Cuba	Traveller	510	Skin lesions	Mycobacteriosis	Epithelioid sarcoma	Biopsy	21
4	CHUIMIGC ^a	18	Male	Costa Rica	Traveller	1	Orchitis	Brucellosis	Mumps orchitis	Serology	14
5	CHUIMIGC ^a	18	Female	Jamaica	Traveller	4	Erythema nodosum	Histoplasmosis	Streptococcal infection	Serology	14
6	CHUIMIGC ^a	57	Male	Costa Rica	Traveller	2	Fever	Malaria	Prostatitis	Meares test	5
7	CHUIMIGC ^a	45	Male	Central America	Traveller	4	Worm in feces	Helminthiasis	Eathworm	Morphology	1
8	CHUIMIGC ^a	60	Male	Equatorial Guinea	Traveller	1,020	Hyperthermia	Malaria	Pseudopheochromocytoma	Multiple	365
9	CHUIMIGC ^a	52	Male	Thailand	Traveller	4	Diarrhoea Eosinophilia	Strongyloidiasis	Crohn's disease	Biopsy	60
10	CHUIMIGC ^a	62	Male	Senegal	Traveller	1	Obtundation	Mefloquine toxicity	Subdural hematoma	Brain CT ^c	30
11	CAUSA ^b	27	Female	Egypt	Traveller	1	Jaundice	Hepatitis A	Choledocholithiasis	Ultrasound	30
12	CAUSA ^b	43	Male	Colombia	Immigrant	100	Eosinophilia	Helminthiasis	Eosinophilic esophagitis	Gastroscopy Allergy testing	30
13	CAUSAb	38	Male	Senegal	Traveller	4	Eosinophilia	Helminthiasis	Relapse of adenocarcinoma	Abdominal CT ^c	270
14	CAUSA ^b	45	Male	Nigeria	Immigrant	12	Diarrhoea	Infectious diarrhoea	Crohn's disease	Colonoscopy	60
15	CAUSA ^b	64	Male	Kenya	Traveller	4	Fever Chest pain	Myocarditis	Heart attack	Echocardiography Cardiac catheterization	5
16	CAUSA ^b	43	Female	Bolivia	VFR ^d	0.14	Fever Abdominal pain	Giardia	Cholangiocarcinoma	Abdominal CT ^c	21

^aCHUIMIGC: Complejo Hospitalario Universidad Insular-Materno Infantil Gran Canarias, ^bCAUSA: Complejo Asistencial Universitario de Salamanca, ^cCT: Computed tomography, ^dVFR: visiting friends and relatives

(31.2%), and the diagnosis was made through tests that were not included in the patient's initial screening (i.e., CT and biopsy). In our work, the initial presumptive diagnosis was always an infection, notwithstanding that the symptoms were very diverse. It should be noted that although the mean time to diagnosis was 58.4 days, in cases where it took longer, the patients were eventually diagnosed with cancer. We highlight this group because in our series, death occurred as a result. Autochthonous infections were the second most common pathologies diagnosed; and immune or vascular diseases were less frequently diagnosed. In the group of patients who had an infection, there was a short time to diagnosis because diagnosis was reached as the result of simple tests that were usually included in the initial protocol.

Therefore, we conclude that being a traveller or a migrant patient can sometimes be a confusing factor if an imported disease is suspected and may cause delays in the diagnosis and treatment of an autochthonous disease. We highlight that one-third of the patients with autochthonous diseases had cancer. The evaluation of imported diseases requires a comprehensive approach by the internist, especially if he specializes in

infectious and/or tropical diseases and is, therefore, the best qualified to make an accurate diagnosis.

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CONFLICT OF INTEREST

The authors declare that have no conflict of interest.

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