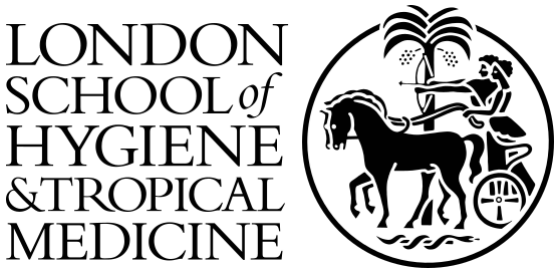

Clinical Pearls in Travellers and Migrants

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Between 43-79% of travellers fall ill.[1] Although the risk and clinical manifestations of diseases encountered by travellers are best studied in large epidemiological studies through global networks combined with translational scientific research[2], individual case reports also play a pivotal role in advancing the art and science of travel medicine. Case reports expand the field of medical knowledge to disseminate best clinical practice and original research.

Case reports may highlight new insights on pathogenesis or transmission routes to a disease. For example, the non-vector route of transmission of Zika virus was first described in a case report of a returning traveller: a US traveller who had acquired a Zika infection in Senegal in 2008 passed it on to his wife upon return home suggesting sexual transmission.[3] This observation was made many years before the Zika outbreak attracted international attention in 2015. It was also the case report of a pregnant traveller from Serbia to Brazil in early 2016 that nailed the causal association between maternal Zika virus infection and congenital Zika syndrome.[4]

Case reports can be "innovative" as they can describe a first case in a new area, report a first human case of an infectious agent or unmask the presence of a disease in countries that may not report it and hence would have gone unnoticed. For example Zika in Asia was first unmasked only through

travellers returning to developed countries.[5] Vien et al described a traveller who presented with erythema migrans in the context of recent travel to Brazil.[6] Lyme and related borreliosis are uncommon but increasingly recognized emerging infectious entities in Brazil. The diagnosis of Baggio-Yoshinari syndrome, formerly known as Brazilian Lyme-like disease, was made and appropriate treatment instituted. Borreliosis in Brazil is transmitted primarily by *Rhipicephalus* spp. and *Dermacentor nitens* ticks however *Amblyomma* species are also suspected to play a role in transmission. Brazilian borreliosis have similar clinical features and are treated with antimicrobials such as ceftriaxone, amoxicillin and doxycycline. Chunge reported a small group of travellers that became infected with *Echinostoma* sp. after ingesting raw fish from the Lake Tanganyika, Tanzania.[7] The infection was diagnosed by finding the characteristic eggs in stool samples. *Echinostoma* is a genus of parasitic trematodes or flukes normally known to infect humans in South East Asia and the Far East. This appears to be the first report of echinostomiasis in East Africa which was attributed to ingestion of locally caught raw fish.[7] The emergence of schistosomiasis in Corsica was discovered after a schistosomiasis was diagnosed in a boy with hematuria who had never left Europe.[8] As such, case reports of travellers serve as valuable worldwide sentinels, signalling emerging and re-emerging infectious diseases.

Clinical observations gleaned from case reports enhance our knowledge on the full spectrum of clinical manifestations, often also describing unusual clinical presentations. For example, Magnelli et al published an atypical hand, foot and mouth disease due to Coxsackievirus A6 in a traveller returning from Indonesia to Italy.[9] Single case reports may also enhance our knowledge on new diagnostic or treatment approaches: a Polish traveller with East African Trypanosomiasis was treated in Poland with a second-line therapy, pentamidine, because suramin was not available. He fully recovered on this new treatment approach, thus stimulating more research in this area.[10] Returning travellers have also contributed to a better understanding of adverse events, such as hemolysis after oral combination artemisinin therapy for malaria.[11]

The Journal of Travel Medicine also publishes non-infectious causes of health problems encountered by travellers and migrants. The following case report of a traveller injured by a needlefish in the Caribbean is certainly unusual:[12] A needlefish had leapt from the ocean and struck the traveller's face at high speed, causing a seemingly superficial puncture wound on his nose. Later, it became apparent that multiple fish bones had broken off and lodged in his nasal cavity, very narrowly missing his cribriform plate. Some bones were discharged spontaneously through his nose over the next 3 months, and one required surgical removal. This report highlighted the importance of radiological examination in patients injured by needlefish, even if the external wound appears insignificant.[12]

In July 2018, the Journal of Travel Medicine created a new manuscript category called “Clinical Pearls in Travellers and Migrants”, to encourage developing a valuable repository of fascinating photographs or videos, clinical and therapeutic "pearls" regarding uncommon and selected common diseases with atypical presentations or therapeutic challenges in travellers and migrants. The first clinical pearl to be published was a case report by Lindner et al, with the title “A live worm emerging from the eye lid”.[13]

We encourage readers to watch the live video first and make a spot diagnosis. By November 2018, the Journal of Travel Medicine published nine “Clinical Pearls” (Table 1), the majority of which are related to tropical infectious diseases, two in migrants. One clinical pearl is about a non-communicable problem that occurred after snowboarding in Japan.

The author instructions for “Clinical Pearls” state the following: “Clinical Pearls” include unusual, or educational clinical case presentations, diagnostic conundrums or clinical management dilemmas, in a traveller or migrant, often related to tropical medicine. However, interesting pre-travel case scenarios may also be considered. The Journal of Travel Medicine prefers clinical conditions that have international appeal, and may interest health care providers from different specialties and backgrounds. Ideally, a photograph or video should be added, provided consent has been obtained from the patient (or next of kin). As the word count is limited to 500, authors should refer readers to reputable review articles or systematic reviews that elaborate further on the clinical condition. For more information, please refer to the instructions for authors: https://academic.oup.com/jtm/pages/General_Instructions.

Table 1: Clinical Pearls published in the Journal of Travel Medicine in 2018

Title	Diagnosis	Authors	Publication details
A live worm emerging from the eyelid	Dirofilariasis	Lindner, Tappe, Gertler, Martinez, Richter	Journal of Travel Medicine 2018 https://doi.org/10.1093/jtm/tay066
Acute toxoplasmosis in an immunocompetent traveller to Senegal	Toxoplasmosis	Gachet, Elbaz, Boucher, Robineau, Fréalle	Journal of Travel Medicine 2018 https://doi.org/10.1093/jtm/tay086
A swollen arm after backcountry snowboarding in Japan	Paget-Schroetter Syndrome	Kubota, Inakuma, Cammack, Kisa	Journal of Travel Medicine 2018. https://doi.org/10.1093/jtm/tay125
Oral lesions in a patient with confirmed Zika virus infection	Zika	LH Chen	Journal of Travel Medicine 2018. https://doi.org/10.1093/jtm/tay113
Electrocardiographic alterations and cardiomegaly in a Bolivian migrant	Chagas	Comeche, López-Vélez	Journal of Travel Medicine 2018. https://doi.org/10.1093/jtm/tay114
Chronic constipation in a migrant from Paraguay	Chagas	Comeche, López-Vélez	Journal of Travel Medicine 2018. https://doi.org/10.1093/jtm/tay115
A veterinarian with fever, rash and chancre after holidays in Uganda	Human African Trypanosomiasis	Huits, Ganck, Clerinx, Büscher, Bottieau	Journal of Travel Medicine 2018 https://doi.org/10.1093/jtm/tay104
Furuncular myiasis from Southern Ontario	Myiasis	Liu, Challa, Boggild	Journal of Travel Medicine 2018 https://doi.org/10.1093/jtm/tay109
ECG abnormalities in a patient with paratyphoid fever	Paratyphoid fever	Biber, Schwartz	Journal of Travel Medicine 2018. https://doi.org/10.1093/jtm/tay111

References

1. Angelo KM, Kozarsky PE, Ryan ET, Chen LH, Sotir MJ. What proportion of international travellers acquire a travel-related illness? A review of the literature. *J Travel Med* 2017; **24**(5).
2. Torresi J, Steffen R. Redefining priorities towards graded travel-related infectious disease research. *J Travel Med* 2017; **24**(6).
3. Foy BD, Kobylinski KC, Chilson Foy JL, et al. Probable non-vector-borne transmission of Zika virus, Colorado, USA. *Emerg Infect Dis* 2011; **17**(5): 880-2.
4. Mlakar J, Korva M, Tul N, et al. Zika Virus Associated with Microcephaly. *N Engl J Med* 2016; **374**(10): 951-8.
5. Wilder-Smith A, Chang CR, Leong WY. Zika in travellers 1947-2017: a systematic review. *J Travel Med* 2018; **25**(1).
6. Vien VP, Bassi R, Maxim T, Bogoch, II. Lyme disease vs Baggio-Yoshinari syndrome in a returned traveller from Brazil. *J Travel Med* 2017; **24**(5).
7. Chunge RN, Chunge CN. Infection with Echinostoma sp. in a group of travellers to Lake Tanganyika, Tanzania, in January 2017. *J Travel Med* 2017; **24**(5).
8. Holtfreter MC, Mone H, Muller-Stover I, Mouahid G, Richter J. Schistosoma haematobium infections acquired in Corsica, France, August 2013. *Euro Surveill* 2014; **19**(22).
9. Magnelli D, Zammarchi L, Antonelli A, Martelli F, Rossolini GM, Bartoloni A. Atypical hand, foot and mouth disease due to Coxsackievirus A6 in a traveler returning from Indonesia to Italy. *J Travel Med* 2017; **24**(5).
10. Paul M, Stefaniak J, Smuszkiewicz P, Van Esbroeck M, Geysen D, Clerinx J. Outcome of acute East African trypanosomiasis in a Polish traveller treated with pentamidine. *BMC Infect Dis* 2014; **14**: 111.
11. Kurth F, Lingscheid T, Steiner F, et al. Hemolysis after Oral Artemisinin Combination Therapy for Uncomplicated Plasmodium falciparum Malaria. *Emerg Infect Dis* 2016; **22**(8): 1381-6.
12. Lau CL, Sweet M, Weinstein P. A stitch in time: unrecognized retained foreign bodies after a needlefish injury. *J Travel Med* 2017; **24**(2).
13. Lindner AK, Tappe D, Gertler M, Equihua Martinez G, Richter J. A live worm emerging from the eyelid. *J Travel Med* 2018; **25**(1).