Fever in a returned traveller

Fever in the returned traveller is a common presentation to Emergency Departments across Australia. Estimations suggest that febrile illness occurs in about 2-3% of travellers. Febrile illness occurs when the patient runs a temperature at 38 degrees Celsius or above. For example, returned travellers suffering a fever accounts for about a quarter of post-travel presentations for medical care.

For instance, some common causes of travel-related fever include:

- malaria,
- influenza,
- dengue fever,
- rickettsial infections,
- non-specific viral syndromes, and
- bacterial diarrhea.

However, it can be a diagnostic challenge for junior doctors to determine the cause and management of these potentially contagious patients. Hence, your best chance of accurately evaluating the patient is to take a detailed history, targeted examination and thorough evaluation.

About Dr. Indy Sandaradura

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Febrile returner traveller

With Dr. Indy Sandaradura, Infectious Diseases Physician and Clinical Microbiologist, Westmead Hospital, New South Wales, Australia.

Introduction
Fever in the returned traveller is a not uncommon presentation to Emergency Departments across Australia. It is estimated that febrile illness (temperature >38C) occurs in about 2-3% of travellers and accounts for about a quarter of post-travel presentations for medical care. Common causes of travel-related fever include malaria, influenza, dengue fever, rickettsial infections, non-specific viral syndromes and bacterial diarrhea. Travellers may prove a diagnostic challenge in view of the vast array of infectious and non-infectious aetiologies that require consideration, as well as the practical management of a potentially contagious patient. An accurate detailed history, targeted examination and judicious use of investigations will afford a clinician the best chance of evaluating the patient appropriately.

Case

You are a junior doctor working in the Emergency Department and you get called to see a 21-year-old male who’s complaining of a three-day history of fever and malaise upon returning from a holiday in Malaysia.

1. Initial assessment of the patient?

- Recognition of the severity of illness – septic? shocked? Do they need ICU?
- Does the patient require isolation from other patients?

2. Outline your assessment approach by the bedside

- History
  - Firstly gather the travel details. Were there layovers? Did they spend time in other countries either on the way there or on the way back? How long were what the patient there for? When precisely did they return? How long after returning did the fever begin? Are there any co-travellers and how is their health? Where did they go exactly? Exposure to bushland, scrub, waterholes, rivers, ticks or mosquitos? Was there exposure to animals, local freshwater etc?
  - Gather a timeline of symptoms – vitally important when considering incubation periods of infectious diseases and generating differentials. Typhoid fever and Dengue have shorter incubation periods. Viral infections such as HIV and Hepatitis tend to have weeks of incubation. Infections such as TB have quite lengthy incubation periods.
  - Previous health conditions particularly the status of both routine childhood vaccinations as well as travel vaccinations such as Hepatitis A or yellow fever. Did they obtain travel health advice prior and were they given prophylaxis (such as for Malaria)? Were they compliant before, during and after return?
  - Were they visiting friends or relatives – Travellers may travel to more rural places, take higher risks with local foods when in the company of relatives naturalized in the foreign country.
Sexual health history is often overlooked and very important. Gathering information of specific symptoms such as gastrointestinal, genitourinary, respiratory infections will help to target your differentials. Dermatological symptoms are also important to ask about. Utilise resources such as the CDC yellow book for country specific information.

**Examination**

- Broad approach required
  - Dermatological – Rash? Bite marks? Scratches?
  - CNS – Evidence of confusion, altered mental status, meningism
  - Thorough abdominal (particularly hepatological) and respiratory examination
  - Other system examination required if the history suggests

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### 3. Investigations for the febrile returned traveler

- Basic bloods – FBC, UEC, LFT
- Microbiology – blood cultures, urine cultures
- Imaging – Chest X Ray
- ABG – Lactate, Base excess (if patient quite unwell)
- An extra serum specimen may be useful for future serology

**Subsequent testing dictated by history and examination:**

- Respiratory infection testing or STI screening may be required if the history dictates
- Malaria – Thick and thin films required, often 2-3 sets over a couple of days but requires a scientist trained in identification. Rapid antigen tests have been shown to be relatively good at Malaria identification however work best for *falciparum* malaria and patients with a high parasite load. Following an initial negative smear, films can be collected daily over next 3 days should the patient remain unwell.

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### 4. Which diagnoses are worth considering in this 21 year old man?

- In this young man assuming his bloods, chest X Ray and urine specimen, STI screen return unremarkable it is reasonable to consider Typhoid or Dengue Fever.

**Typhoid or Enteric Fever**

- Infectious Organism
Salmonella Typhi or Paratyphi

Geographic Prevalence
Although it may occur anywhere outside of the industrialised world, it is endemic in Southeast Asia, where the majority of sufferers contract the illness

Presentation
Widely regarded as an enteric illness however very rarely presents with a predominance of gastrointestinal symptoms
Often there is a non-specific phase lasting approximately a week and then there is a bacteraemic phase consisting of gradually worsening fatigue with fevers and rigors and few other symptoms
Headache, malaise and anorexia are nearly universal whilst abdominal pain, diarrhoea or constipation is less often reported

Diagnosis
Blood cultures are the key diagnostic test

Complications

A serious complication of Typhoid is intestinal haemorrhage and microperforation, occurring 2-3 weeks after contracting the illness. It is easily confused with Malaria and Dengue Fever

Dengue Fever

Infectious Organism

- Flavivirus – Dengue Virus (DENV) 1, 2, 3 or 4 transmitted by the Aedes mosquito

Geographic Prevalence

- Endemic throughout the tropics and subtropics and is a leading cause of febrile illness among travelers returning from Latin America, the Caribbean, and Southeast Asia

Presentation

- Often asymptomatic following an incubation period of approximately one week
- Classically presents as fevers, arthralgia and sunburn like rash. Frontal headache is quite common
- Minor haemorrhagic manifestations such as petechial rashes, purpura, bleeding gums or epistaxis may occur, as can haematuria

Diagnosis

- Serology. Some laboratories offer NS1 antigen tests, which are positive in the first few days of illness

Complications

- Severe dengue occurs in as much as 5% of patients
- Can be lethal due to wide variety of presentations secondary to haemorrhagic complications or an acute increase in vascular permeability and capillary leak
5. Management for this patient

- First consider your differentials – the main causes of fever in returned traveller are respiratory or gastro-intestinal infections that may simply require supportive care
- Should your differential include conditions such as TB, Meningococcal meningitis or measles (particularly unvaccinated patient) prompt isolation is required
- Does this patient need to be admitted? A stable patient with a recognizable infection may simply be discharged. Often times the diagnosis is less clear and so admission for 24-48 hours is required whilst diagnostic tests return. Empirical treatment of an infectious cause is typically Ceftriaxone 2g if Typhoid is suspected. Dengue fever does not have a specific treatment however a vaccine is coming

Take home messages

- Take a good travel history, exposure history and sexual history
- Use up to date resources in order to limit your differential diagnosis
- Think about Typhoid and Dengue fever - particularly if travelling to endemic areas such as south east Asia and the subcontinent
- Remember common things are common so don’t forget about urinary tract infections and viral respiratory tract infections

References


Related Podcasts

- The sick neonate
- The sick child
- Assessing and treating paediatric patients
- Febrile returned traveller
Tags: #dengue fever,#disease control,#enteric fever,#fever,#gastrointestinal infections,#genitourinary,#infectious diseases,#malaria,#measles,#meningococcal meningitis,#microbiology,#respiratory,#sepsis,#shock,#typhoid

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