



Sandfly Fever: A Case from Antalya, TURKEY

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- Sandfly fever (also known as “Phlebotomus, Papatacci or three-day fever”) is a self-limiting viral infection which occurs in humans as a result of transmission of sandfly fever virus (SFV) via phlebotomus spp. bite.
- The SFV is an enveloped RNA virus belonging to phlebovirus species of bunyaviridae family.
- Four serotypes, sand fly Sicilian virus (SFSV), sand fly Cyprus virus (SFCV), sand fly Naples virus (SFNV), and Toscana virus (TOSV), have been circulating in the Mediterranean region in association with the presence of sand fly vector
- The disease occurs especially in August which sandflies are active.

Researcher	Year	Province	number	IgM Positivity	Probable Serotype	Virus neutralization test	PCR positivity
Carhan A et al.	2007-2008	Ankara-Mamak (Central Anatolia), İzmir-Ödemiş (Aegean) Adana -Kozan(Mediterranean)	106	55	38 SFSV 13SFSV/SFCV 4 SFCV		
Torun Edis C et al.	2009	Kırıkkale (Central Anatolia)	11 cases	8	5 SFNV 3 SFSV		
Guler S et al.	2010	Kahramanmaraş (Mediterranean)	40 cases	9	7 SFSV 2 SFCV		2 SFSV
Ergunay K et al.	2011	Ankara (884) Konya (388) Eskisehir (143) Zonguldak (118)	1533 (blood donors)	505		SFSV (Ankara) SFTV (Konya) SFSV/TOSV (Eskişehir) TOSV (Zonguldak)	16 TOSV (102 CNS inf. patients)

Carhan A, Uyar Y, Özkaya E et al. Characterization of a sandfly fever Sicilian virus isolated during a sandfly fever epidemic in Turkey. *Journal of Clinical Virology*. 2010;48:264–269.

Torun Edis C, Yagci-Caglayik D, Uyar Y et al. Sandfly fever outbreak in a province at Central Anatolia, Turkey. *Mikrobiyol Bul*. 2010; 44: 431–9.

Guler S, Guler E, Yagci-Caglayik D et al. A sandfly fever virus outbreak in the East Mediterranean region of Turkey. *International Journal of Infectious Diseases*. 2012; 16(4): e244-e246. <https://doi.org/10.1016/j.ijid.2011.12.001>

Ergunay K, Saygan MB, Aydogan S et al. Sandfly fever virus activity in central/northern Anatolia, Turkey: first report of Toscana virus infections. *Clinical Microbiology and Infection*. 2011; 17:575-81.

Ergunay K, Ismayilova V, Colpak IA, et al. A case of central nervous system infection due to a novel Sandfly Fever Virus (SFV) variant: Sandfly Fever Turkey Virus (SFTV). *J Clin Virol*. 2012;54:79-82.

Ergunay K, Tufan Z. Overview of West Nile Virus and Sandfly-borne Phlebovirus Infections in Anatolia. *J Microbil Infect Dis*. 2014; 4(5): 22-31.

Kocak Tufan Z, Ergunay K, Bulut C, et al. Ongoing circulation of a novel sandfly fever virus variant, sandfly fever Turkish virus in Ankara province, Turkey. *ECCMID congress 2012; R2679:p.804*

- In Turkey, serum samples from suspected sandfly cases are sent to the National Virology Reference Laboratory, Arboviruses and Viral Zoonotic Diseases Laboratory to perform a commercial mosaic immunofluorescence test (IFT) (EuroImmun, Germany) for the detection of specific IgM and IgG antibodies that allows simultaneous detection of four viral serotypes (SFSV, SFNV, TOSV and SFCV)
- PCR can only detect nucleic acids during the early stages of the clinical disease due to low and transient viremia.

- The disease leads to different symptoms like fever, rash, diffuse muscle pain, arthralgia, headache, nausea and vomiting. (TOSV also causes meningoencephalitis)
- The laboratory findings include leukopenia, thrombocytopenia, increased liver enzymes, creatinine kinase and C-reactive protein (CRP).

Case

- A thirty-two years old female who is working as hospital staff without known disease was admitted to an external health care center with complaints of resistant fever reaching up to 40°C and fatigue that had been present for 2 days.
- She was referred to our tertiary care hospital upon detection of pancytopenia according to her blood analysis.

- She had no supplemental complaint as headache, sore throat, cough, abdominal pain, diarrhea or dysuria.
- No recent history of disease in her family, traveling to the highlands or out of the greenery area, contact with a tick or animal were reported

- Due to multiple insect bites on her arms which she had observed two to three days ago sandfly fever was suspected.
- Her general condition was good and vital findings were within the normal limits. She didn't have rash and lymphadenopathy.
- Hepatosplenomegaly was observed according to the abdominal examination (and also present in abdominal ultrasonography examination).
- Other physical examination findings were normal.

- Hemoglobin 9.6 g/dL (12.5-16)
- CRP 5 mg/L (0-5)
- white blood cell count 2300/mm³ (4000-10.500)
- platelet count 143000/mm³ (150.000- 450.000)
- Creatinin Kinase 61 U/L (<172)
- LDH 210 U/L (<248)
- ALT 12 U/L (0-50)
- AST 21 U/L (10-50)
- PT, aPTT and the other biochemical variables were found to be normal.

No blast cells were found on peripheral blood smear.

She admitted to the inpatient infection diseases clinic for further diagnosis of pancytopenia with fever and followed without antibiotics.

- The sera of the patient was sent to the reference laboratory for detection of SFV.
- The other possible causes of infection considered in the differential diagnosis including; Brucella, viral hepatitis, HIV, Toxoplasma, Epstein Barr virus, Cytomegalovirus, Rubella and Parvovirus were excluded with serological tests.
- Growth did not occur in the blood and urine cultures.
- Fever declined on the day after hospitalization and Blood analysis confirmed an acute infection with sandfly virus according to positivity of sandfly IgM and IgG antibodies.

On the third day;

- Hemoglobin 8.8 g/dL (12.5-16)
- CRP 6 mg/L (0-5)
- white blood cell count 2000/mm³ (4000-10.500)
- platelet count 127000/mm³ (150.000- 450.000)
- Creatinin Kinase 35 U/L (<172)
- LDH 123 U/L (<248)
- ALT 13 U/L (0-50)
- AST 15 U/L (10-50)

In the follow-up, weakness was subsided. Her general status improved and complaints regressed.

The patient was discharged with recommendations and included in outpatient follow-up after one week.

- In this case, a female who was presented with high fever, fatigue and diagnosed with sandfly fever with positive specific IgM and IgG antibodies is reported because of the importance of arbovirus diseases and to emphasize that sandfly fever should be considered in the differential diagnosis of fever with unknown origin together with other infectious diseases, and especially when there is an underlying disease that worsens the patients condition, travel-associated infection or an outbreak.

- Antalya province is a coastal touristic city located in the Mediterranean region with abundance of sandflies especially in places without proper insect control. Prevention from sandfly bites and their control of breeding are necessary for the elimination of the disease.

