



DOMESTICALLY ACQUIRED LEGIONNAIRES' DISEASE:

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Background

- Legionnaires' disease is believed to be acquired by inhalation or aspiration from water systems colonized by *Legionella* spp.
- Legionnaires disease has epidemiological importance because decolonizing the water system may prevent further cases.
- The colonization of water distribution systems by *Legionella* species depends on a combination of several factors, including water temperature, commensal microflora and sediment accumulation.
- Solar energy utilization for domestic hot water is increasing in worldwide.
- Due to low sunny period, old systems and not appropriate maintenance, a solar thermal heating system may heat water to warmness; supporting growth of *Legionella*.

Aim

- Here two sporadic Legionnaires' disease cases are reported in which the patients' house hot water system was heated by solar energy and was colonized by *Legionella pneumophila*.

Case 1

- A 60 year old female patient with chronic bronchitis and diabetes mellitus
 - presented with high fever, abdominal pain and diarrhea in our emergency hospital.
 - denied recent any hospitalization or travel within the last month.
- Physical examination revealed rales and her chest radiograph showed a homogeneous density of the left lung (Figure 1).
- The *Legionella* urinary antigen test was positive and the serum antibody titer was 1/520 positive for *L. pneumophila* serogrup 1 by IFAT
- Levofloxacin 1000 mg/day was started.
- She was discharged at the 7th day .
- The patient lived at a building estate consisting of two apartment blocs. The hot water storage tanks was supplied by a central solar heating system (Figure 2) .
- The patient also used an electrical device in the bathroom to heat the water when solar energy alone was insufficient.
- Cultures of the hot water samples running the bathroom from the solar heating system in patient's house showed growth of *L. pneumophila* serogrup 1.

Case 2

- A 66 year old male patient with diabetes mellitus and history of smoking
 - was treated for community acquired pneumonia at another hospital (Figure 3)
 - upon worsening of general condition, and requiring mechanical ventilation, the patient was sent to our hospital
 - didn't have travel history and wasn't hospitalised prior to the pneumonia
- The *Legionella* urinary antigen test was positive.
- Ciprofloxacin 1200 gr/day and clarithromycin 1 gr/day were started.
- He was disconnected from the mechanical ventilator at the 7th day and discharged at the 18 th day of admission.
- The patient lived in a single house. The hot water was supplied by a solar heating system and a tank at the roof which was more than 10 years old (Figure 4). The patient also used an electrical device in the bathroom to heat the water when solar energy alone was insufficient.
- Cultures of water samples of the tank water, the water running to the bathroom from the solar heating system, the water from the shower head showed growth *L. pneumophila* serogrup 1.

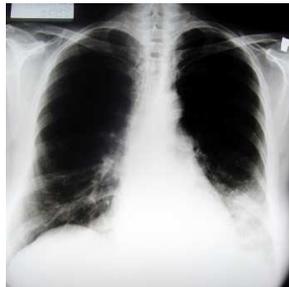


Figure 1



Figure 2

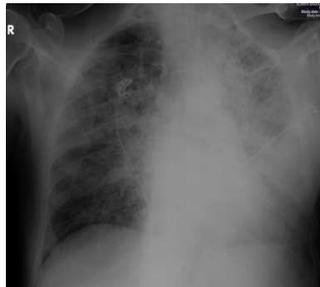


Figure 3



Figure 4

Conclusions

- Legionnaires disease must be definitely thought of in patients that are treated for community acquired pneumonia.
- The domestic water systems heated by solar energy system should be kept in mind as a possible source of that infection.
- Storage tank temperature heated by solar energy must be enough to kill *Legionella* and also rutin maintenance should be performed by under regulation.