TIMELINE OF ROCKY MOUNTAIN SPOTTED FEVER (RMSF) SIGNS AND SYMPTOMS

RMSF can be fatal within 7-9 days. All patients with suspected RMSF should receive immediate antibiotic treatment with doxycycline. Use of antibiotics other than doxycycline is associated with a higher risk of fatal outcome from RMSF.

Incubation period of 3-12 days following the bite of an infected tick

<table>
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<th>Days from illness onset</th>
<th>Signs and symptoms</th>
<th>Laboratory indicators</th>
<th>Images</th>
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<tbody>
<tr>
<td>Days 1-2</td>
<td>Abrupt onset of high fever, Headache, myalgia, and malaise</td>
<td>Laboratory results (white blood cells [WBC], platelets, sodium) generally within normal limits</td>
<td>Brown dog tick, American dog tick</td>
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<tr>
<td>Days 2-4</td>
<td>Faint macular rash begins on wrists and ankles and spreads centrally, Abdominal pain, nausea/vomiting, Cough, Calf tenderness, Periorbital and peripheral edema (more common in children)</td>
<td>Mildly elevated transaminases and mild thrombocytopenia, WBC usually within normal limits</td>
<td>Photo credit: G. Alvarez Hernandez</td>
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**Doxycycline is most effective at preventing severe illness and death if administered within the first 5 days of symptoms**

| Days 5-7                | Progression in symptoms from days 2-4: Fever typically ≥104°F, Worsening respiratory status, Worsening abdominal pain (may mimic acute appendicitis or cholecystitis), Rash becomes petechial and more widespread, typically involves palms and soles | Worsening thrombocytopenia, Elevated hepatic transaminases, mild to moderate Hyponatremia | |
| Days 7-9                | Further progression from days 5-7: Rash becomes diffuse and coalesces (forming purpura), Necrosis of the digits leading to peripheral gangrene, Septic shock, Myocarditis and cardiac arrhythmias, Renal failure, Pulmonary edema or Acute Respiratory Distress Syndrome (ARDS), Cerebral edema, meningoencephalitis, altered mental status, coma, seizures | Severe thrombocytopenia, Elevated creatinine, creatinine kinase and lactate acid, WBC mildly to moderately elevated | Photo credit: G. Alvarez Hernandez |

20-25% of untreated cases of RMSF will be fatal with most deaths occurring within the 7th to 9th day of illness.

People who survive could have severe sequelae, including necrosis necessitating amputation, profound neurologic deficits, and permanent organ damage.

Note: RMSF disease progression varies widely. Not all patients will develop all of the above-listed signs or symptoms or progress exactly as described in the above timeline.

**Summary**
- Doxycycline is the drug of choice for treating RMSF in people of all ages.
- Empiric treatment with doxycycline is recommended in patients of all ages with suspected RMSF.
- Treatment is most effective at preventing death and severe RMSF when doxycycline is started within the first 5 days of symptoms.
- Use of antibiotics other than doxycycline is associated with a higher risk of fatal outcome from RMSF.

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