

High-altitude pulmonary oedema in native highlanders

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DESCRIPTION

A 28-year-old Ladakhi police personnel, native highlander, serving at high altitude (~12 000 ft) presented with a short history of cough and breathlessness while on leave for 10 days at the same altitude. There was no history of deinduction to lower altitudes in the past 10 years. Symptoms were preceded by a history of unaccustomed exertion (farming). There was no associated history of fever, expectoration and chest pain with the above symptoms or any past cardiopulmonary comorbidity.

On examination, the mesomorphic man (height 162 cm and weight 58 kg) was tachypnoeic with coarse crepitations on the right hemithorax. His peripheral saturation was 74% in ambient air. Chest X-ray (CXR) (07/10/13) showed a non-homogenous opacity suggestive of lobar consolidation in right upper zone (RUZ) with interlobar fissural oedema (figure 1). All haematological and biochemical parameters were normal with fibrin degradation products (FDP) and D-dimer being negative.

The patient was managed only with oxygen therapy,¹ considering a possibility of high-altitude pulmonary oedema (HAPO). The patient's clinical condition returned to normalcy by day 3 (D3). His serial CXR showed a progressive resolution (figures 2 and 3) of opacity characteristic of HAPO with D7 CXR being normal (figure 4).

The radiological opacities in pneumonitis resolve on antibiotic treatment in 2–6 weeks,² whereas in our case, opacities started resolving by D3 as commonly seen in HAPO.³ Important differentials for a patient with breathlessness, tachypnoea and cough in high altitude include HAPO, pulmonary thromboembolism and pneumonitis. The other differentials were carefully excluded in this case.

This image demonstrates the likelihood of the development of HAPO in a well-adapted native highlander on unaccustomed strenuous exertion in high-altitude area. This image also signifies varied radiological manifestations of HAPO aping pneumonic consolidation.



Figure 1 Chest X-ray of a case of high-altitude pulmonary oedema on the day of admission showing non-homogenous opacity suggestive of lobar consolidation in RUZ with interlobar fissural oedema.



Figure 3 Chest X-ray on day 5 of admission showing resolution of opacities compared with previous X-rays.



Figure 2 Chest X-ray on day 3 of admission showing resolution of opacities compared with previous X-rays.

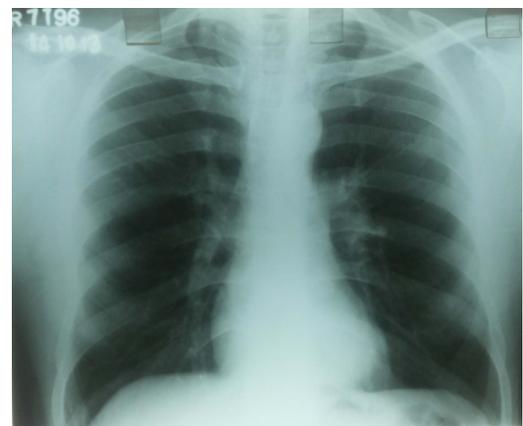


Figure 4 Chest X-ray on day 7 of admission showing a complete resolution of opacities.



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Learning points

- ▶ Native highlanders are not immune to the development of high-altitude pulmonary oedema (HAPO).
- ▶ It is not the duration of stay but the unaccustomed exertion which is crucial in determining the susceptibility to HAPO.
- ▶ Radiological presentation of HAPO can masquerade as lobar pneumonic consolidation and pulmonary thromboembolism's wedge opacities which are important differentials.

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REFERENCES

- 1 Luks AM, McIntosh SE, Grissom SE, *et al.* Wilderness medical society consensus guidelines for the prevention and treatment of acute altitude illness. *Wilderness Environ Med* 2010;21:146–55.
- 2 Mittl RL Jr, Schwab RJ, Duchin JS, *et al.* Radiographic resolution of community acquired pneumonia. *Am J Respir Crit Care Med* 1994;149:630–5.
- 3 Vock P, Brutsche MH, Nanzer A, *et al.* Variable radiomorphological data of high altitude pulmonary oedema. Features from 60 patients. *Chest* 1991;100:1306–11.

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