# Diffuse Alveolar Hemorrhage in Systemic Lupus Erythematosus

Gisele Zandman-Goddard MD[1], Michael Ehrenfeld MD[2], Yair Levy MD[1] and Sigal Tal MD[3]

[1]Department of Medicine B, [2]Department of Medicine C, and [3]Department of Radiology, Sheba Medical Center, Tel Hashomer, Israel
Affiliated to Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

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A 24 year old woman was admitted due to dyspnae, hemoptysis and severe anemia. One month prior to admission, systemic lupus erythematosus was diagnosed based on arthritis, skin rash, a positive antinuclear factor and elevated titers of anti-dsDNA antibodies. The physical examination at admission included tachypnea, tachycardia, hypoxia, and diffuse inspiratory crackles over both lungs. Laboratory tests showed hemoglobin 4 g/dl, an elevated creatinine level, a positive ANF, elevated anti-dsDNA antibody titer, and low complement levels. On the second day of hospitalization the chest X-ray revealed some alveolar opacities. Figures 1 and 2 depict a subsequent chest X-ray and chest computerized tomography.

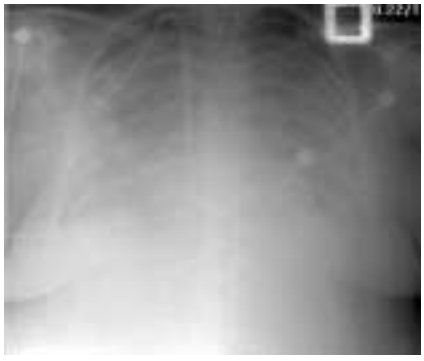

**Figure 1.** The chest X-ray on day 5 of hospitalization reveals confluent alveolar opacities in all lung fields, with an air bronchogram. These findings are compatible with acute diffuse alveolar hemorrhage.

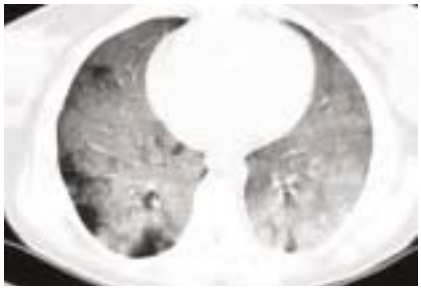

**Figure 2.** A pulmonary view of the chest CT depicts diffuse bilateral alveolar opacities.

Diffuse alveolar hemorrhage is described elsewhere in this issue of *IMAJ*. A case report of DAH in a patient with ulcerative colitis expands on the various diseases where DAH may be a complication [1]. In the editorial, we discuss DAH as a complication of autoimmune diseases [2].

Pulmonary involvement in SLE patients may be due to various causes, including infection, pleurisy, acute interstitial pneumonitis, bronchiolitis obliterans organizing pneumonia, pulmonary embolism, pulmonary hypertension, pleural effusion, necrotizing vasculitis, pulmonary edema, and alveolar hemorrhage [3]. DAH occurs in <2–5.4% of lupus patients and is responsible for 1.5–3.7% of hospital admissions [4]. Acute alveolar hemorrhage in SLE may also occur as a pulmonary-renal syndrome [3,5]. DAH in SLE is associated with a poor prognosis [2–4].

The radiographic pattern of diffuse pulmonary hemorrhage consists of patchy airspace consolidation scattered fairly evenly throughout the lungs. The opacities are confluent in many areas. An air bronchogram should be identifiable. The distribution is usually widespread, but may be more prominent in the perihilar regions and in the middle and lower lung zones. Pleural effusion is rare. Serial X-rays obtained in the first weeks after an acute episode usually reveal a highly predictable progressive change in the pattern. The opacities characteristic of acinar consolidation disappear within 2 to 3 days and are replaced by a reticular pattern with a distribution that is identical to the airspace disease. With repeated episodes of hemorrhage, increasing amounts of hemosiderin are deposited in the interstitial tissue resulting in interstitial fibrosis [6].

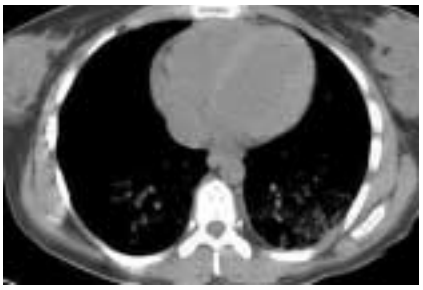

**Figure 3.** A mediastinal view of the chest CT reveals blood in the heart chambers appearing hypodense, when compared to the interventricular septum. This is an indication of severe anemia.

ANF = antinuclear factor
DAH = diffuse alveolar hemorrhage
SLE = systemic lupus erythematosus

High resolution CT may reveal a centrilobular location suggestive of disease [6]. Anemia can be identified by CT [Figure 3].

## References

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**Correspondence:** Dr. G. Goddard, Dept. of Medicine B, Sheba Medical Center, Tel Hashomer 52621, Israel.
Phone: (972-3) 530-2434
Fax: (972-3) 535-2855
email: gzgodd01@sheba.health.gov.il