



## Severe Anemia Diagnosed on Computed Tomography

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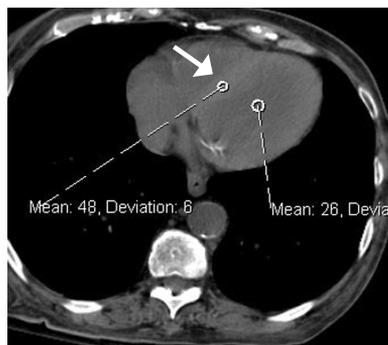
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**Key words:** anemia, computed tomography

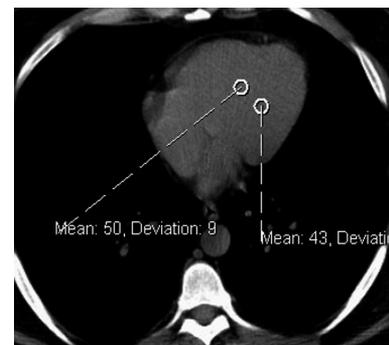
IMAJ 2006;8:363

A 64 year old woman presented with chest pain and weakness. The patient had diabetes, hypertension, renal failure and severe peripheral vascular disease, for which she was being treated with warfarin. The patient had a 3 day history of weakness, shortness of breath and exertional chest pain.

Blood tests revealed a hemoglobin level of 3.6 g/dl and an INR of 10.0. A detailed history and physical examination failed to reveal the source of the blood loss. An abdominal computerized tomography scan without contrast material injection was performed due to suspected retroperitoneal hematoma. An axial image at the level of the heart revealed a hypodense blood filling the heart (Hounsfield units 26) [Figure 1, arrow] surrounded by a normal soft tissue density cardiac muscle (HU1 48), which is a sign of severe anemia. In patients with normal hemoglobin level (more than 14 g/dl for men and 12 g/dl for women), the blood filling the heart will be isodense to the cardiac muscle (HU1 40-50) [Figure 2]. No retroperitoneal hematoma or



**Figure 1.** Axial CT image at the heart level demonstrating the hypodense blood filling the heart and the soft tissue density cardiac muscle (arrow) in a patient with severe anemia.



**Figure 2.** Axial CT image at the heart level demonstrating the same density of the blood filling the heart and the cardiac muscle in a patient with a normal hemoglobin level.

intraperitoneal hemorrhage was found on the abdominal CT scan. The patient was treated with multiple blood transfusions and fresh frozen plasma. She was discharged from the hospital a few days later feeling well. The warfarin treatment was discontinued.

There is a known linear correlation between the blood attenuation in the heart on CT and the patient's hemoglobin level [1].

## References

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