

## Collateral vascular network in a case of cardiac lymphoma: anatomo-clinical considerations

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Primary cardiac tumours have an incidence of 0.2%<sup>1</sup>. Lymphomas represent 1.3% of all malignant primary cardiac tumours<sup>2</sup> and are highly aggressive neoplasms. We describe a case of a rare primary cardiac tumor and the establishment of a collateral circulation. A 62-year-old white man referred to our clinical center with sinus tachycardia, congestion in the face and neck, pathologic jugular turgor, and hypovolemia in the superior caval system. Laboratory investigations revealed no abnormalities, except for a slight anemia and a moderate increase in carcinoembryonic antigen and in the lactate dehydrogenase level. The Multislice Computed Tomography (MSCT) revealed a right atrial infiltrative mass and superior vena cava (SVC) syndrome, due to obstruction of SVC drainage. In one week, after admission and without any therapy, congestion and turgor progressively disappeared because venous collaterals were recruited and dilated, offering alternative pathways through the parietal and mediastinal veins, from the superior (brachiocephalic system) to the inferior caval system (countercurrent or retrograde flow). On the other hand, from the inferior vena cava (IVC), the venous blood followed the normal route to the right atrium. In other words, three compensatory venous circles, anterior (ventral), posterior (dorsal), and confluent posterior-anterior, were constituted. A transjugular endomyocardial biopsy revealed that the mass was a large B-cell non-Hodgkin lymphoma, and positron emission tomography was positive for a primitive location, without any evidence of extracardiac involvement. The patient underwent 6 cycles of R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisone) chemotherapy. After 8 months, CT venous phase venography with 64-detector CT angiography revealed that the superior caval-right atrium flow was restored, along with depletion of the anastomotic circles that had secured the return of retrograde flow through the IVC. After treatment, the patient experienced complete remission, and no recurrence has been observed to date. MSCT has proven to be very useful in the early detection of a cardiac mass and it allows for a noninvasive evaluation of the vascular network. In our case, no other older diagnostic tool would have been able to detect the reversal of venous blood flow from the cephalic district to the heart using the IVC. The images obtained by MSCT confirm that the vascular system responds to the functional needs of organs.

### References

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### Keywords

Cardiac lymphoma; collateral circulation; 64-MSCT.