Superior vena cava syndrome: a 3D CT-scan reconstruction

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A 75-year-old-female was emergently admitted for superior vena cava syndrome due to right atrial primary B-cell lymphoma occluding superior vena cava and sub-occluding the inferior one (Fig. 1). Right atrium reappeared at post-operative CT-scan (Fig. 2) after tumor excision and equine pericardium wall reconstruction. She is asymptomatic at 6 months.

Fig. 1. (A) Preoperative coronal bi-dimensional CT-scan view. Right atrium is totally refilled by the tumor mass (T). The superior vena cava (SVC) is completely obstructed. Ao: ascending aorta; PA: pulmonary artery; LV: left ventricle. (B) Preoperative 3D CT-scan reconstruction: it is noteworthy the lack of right atrium visualization due to the lack of contrast dye on this volume rendering threshold commonly used for CT angiography. The mass extended from superior vena cava (T) to tricuspid valve (#), making posterior anatomical structures visible: right superior pulmonary vein (RSPV), right inferior pulmonary vein (RIPV), right pulmonary artery (RPA), left atrium (LA). SVC: superior vena cava; IVC: inferior vena cava; PA: pulmonary artery; LV: left ventricle. (C) Intraoperative view of SVC and right atrium neoplastic infiltration; right atrium oppendage seems not to be involved in the process.

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Fig. 2. (A) Intraoperative final view of reconstruction with right atrial appendage sparing. (B) Postoperative coronal bi-dimensional CT-scan view. Right atrium (RA) is visualized after surgical reconstruction. SVC: superior vena cava; Ao: ascending aorta; PA: pulmonary artery; LV: left ventricle. (C) Postoperative 3D CT-scan reconstruction: right atrium (RA) filling is present in absence of more posterior anatomical structures visualization. Right ventricle (RV) reappeared. SVC: superior vena cava; Ao: ascending aorta; PA: pulmonary artery.