

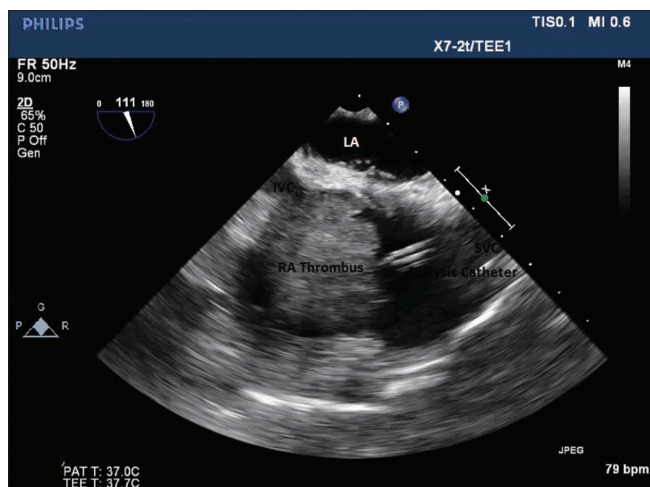
## **Permanent dialysis catheter-related right atrial mass: A case report**

Madam,

One of the common complications associated with permanent dialysis catheters is catheter-related atrial thrombus (CRAT). The mortality rate due to thrombus associated complications

reaches 100% in untreated patients. Thus, early diagnosis and treatment are important.<sup>[1]</sup> Atrial thrombi must be differentiated from myxomas because of distinct treatment strategies.

A 34-year-old patient with autosomal dominant polycystic kidney disease had renal impairment for 4 years with serum creatinine level of 5.6 mg/dl. He required hemodialysis twice weekly via permanent dialysis catheter inserted through an internal jugular vein. He was admitted for renal transplantation.

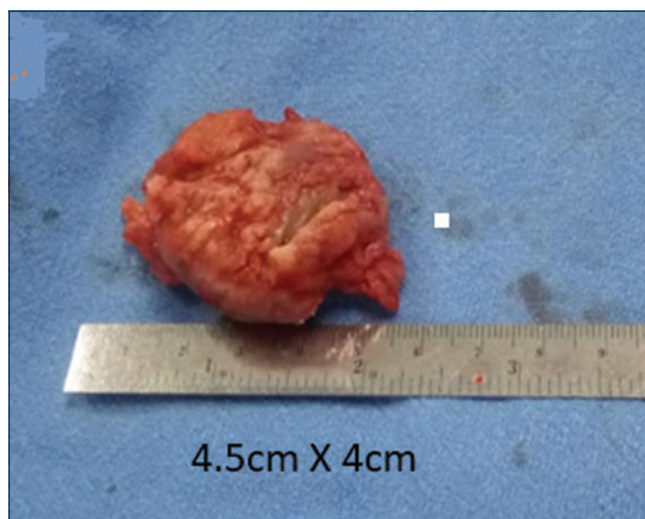


**Figure 1:** ME bicaval view (transesophageal echocardiography) showing right atrial mass attached to dialysis catheter. RA-Right Atrium, LA-Left Atrium, SVC-Superior vena cava, IVC-Inferior vena cava

As a part of preanesthetic evaluation, two-dimensional (2D) transthoracic echocardiography (TTE) was done which revealed right atrial (RA) mass measuring 4.5 × 4 cm, originating from RA free wall. The mass was asymptomatic and was not interfering with tricuspid valve function. With the provisional diagnosis of RA myxoma, he was referred to cardiac surgery. Intraoperative 2D transesophageal echocardiography (TEE) revealed that the mass was attached to tip of dialysis catheter in the RA [Figure 1], and it was removed by open-heart surgery. The gross findings of the mass suggested the organized thrombus [Figure 2] which was later confirmed by histopathology. The dialysis catheter was removed and temporary dialysis catheter was inserted via femoral route, and patient was referred for renal transplantation.

The use of long-term dialysis catheters is increasing. One of the complications of these catheters is thrombus formation in RA. CRAT may be asymptomatic initially, but it may lead to pulmonary embolism, infection, arrhythmias, or systemic embolization in the presence of an intracardiac shunt.<sup>[2]</sup> The incidence of the CRAT ranges from 8–13% in oncological patients and 5.4% in dialysis patients.<sup>[3]</sup> Stavroulopoulos *et al.* found an incidence of pulmonary embolism of 14% and a mortality rate of 18.3% in dialysis patients with RA thrombus.<sup>[4]</sup>

The differential diagnosis of RA thrombus includes benign or malignant tumors and tricuspid valve vegetations. The most common primary benign cardiac neoplasm is myxoma. About 75% of myxomas arise in the left atrium, 20% in RA, and the remaining 5% in ventricles. Majority of atrial myxomas are attached to the fossa ovalis part of interatrial septum. Second, most myxomas are symptomatic, while detection of thrombus is



**Figure 2:** Right atrial mass (organized thrombus)

an incidental finding. Third, myxomas are often pedunculated, and the presence of stalk typically confirms the diagnosis of myxoma. Potential errors in the diagnosis can be made, especially if the attachment site is ill-defined, as happened in this patient. Furthermore, prolapse through the atrioventricular valve is a feature of myxoma. Although diagnosis of atrial mass is generally made by TTE, TEE has better sensitivity and specificity. Computed tomography (CT) imaging is complementary to TEE and cardiac magnetic resonance imaging but has the disadvantage of nephrotoxicity.<sup>[5]</sup>

Catheter removal after attaining anticoagulation is the treatment of choice in most cases of CRAT. Surgical thrombectomy is recommended in those with a thrombus size >6 cm, contraindication to anticoagulation or cardiac abnormalities like endocarditis.<sup>[4]</sup> Thrombolysis is recommended in managing hemodynamically unstable patients with pulmonary thromboembolism. In conclusion, the RA thrombus due to dialysis catheter can be mistaken for RA myxoma. When the differential diagnosis is difficult and thrombus is a possibility, confirmation with TEE or CT imaging may be helpful, and a trial of anticoagulation may be advised.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given his consent for his images and this clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

### Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

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<b>Quick Response Code:</b>	<b>Website:</b> www.joacp.org
	<b>DOI:</b> 10.4103/joacp.JOACP_130_19

**How to cite this article:** Singh A, Shrestha BK, Mehta Y, Trehan N. Permanent dialysis catheter-related right atrial mass: A case report. *J Anaesthesiol Clin Pharmacol* 2020;36:280-2.

**Submitted:** 03-May-2019 **Accepted:** 28-Oct-2019 **Published:** 15-Jun-2020  
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