Central catheter related right atrial thrombus (CRAT)

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SPOLEČNOST PRO PORTY A PERMANENTNÍ KATÉTRY

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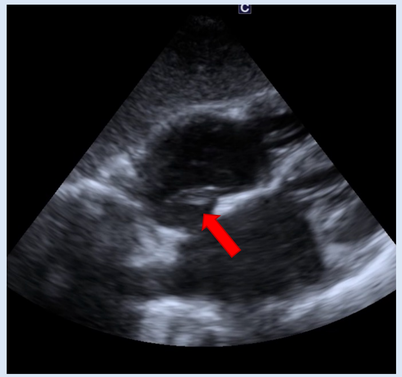
Introduction: CRAT is an underdiagnosed entity, which is described mainly in connection with permcath. The incidence in the literature is reported from 2 to 29%. CRAT can lead to serious complications (pulmonary, septic or systemic embolism, heart failure). The mortality reported in the literature ranges from 18 to 45%. A uniform management of CRAT has not yet been established.

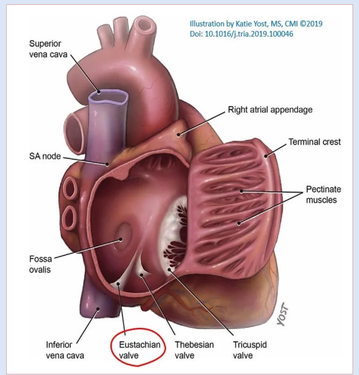
Method: We report three cases of right atrial (RA) formation associated with central venous catheters, which were recorded in 2024-2025. We describe the diagnostic and subsequent treatment procedure and patients outcomes.

Case 1

81 years old oncologic patient (folicular lymphoma) referred for PET CT detected PICC associated mural defect in the contrast filling of the superior vena cava. On transthoracic echocardiography (TTE) undulating formation in RA possibly connected to catheter tip. Treatment: enoxaparine. Delayed catheter extraction was performed as catheter was no longer necessary. No thrombus was detected at catheter tip, but undulating mass remained in the RA after extraction (v.s. Eustachian valve).



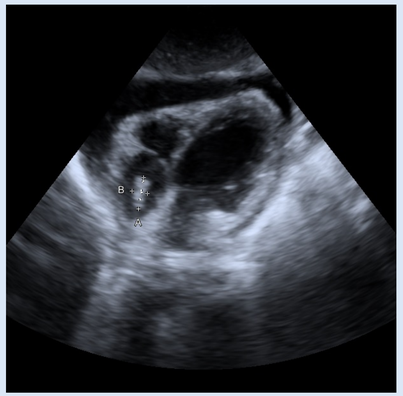
Undulating formation in right atrium (TTE)



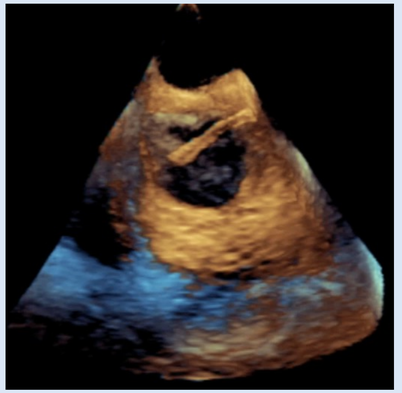
Eustachian valve

Case 2

20 years old patient with central conducting lymphatic anomaly. Patient was reffered for febrilias when intravenous port had been in place for two years (home parenteral nutrition). Catheter thickening of 15x5mm was detected on TTE, simultaneously PWO was detected. Hemocultivation showed Hemofilus influensae. Treatment: targeted antibiotics (pip/taz), enoxaparine, taurolidin and 4% EDTA locks. Infection cured, catheter preserved, catheter patency restored (v.s. fibroblastic sleeve).



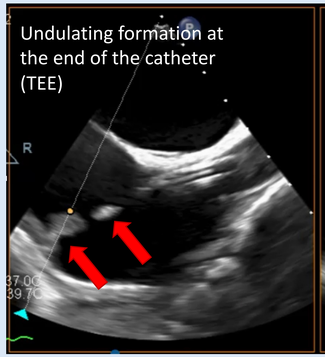
Before treatment (TTE)

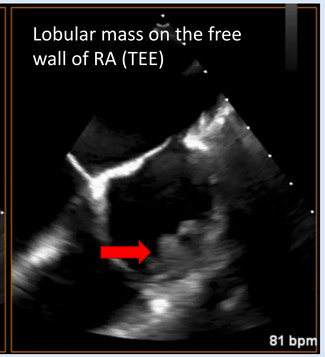


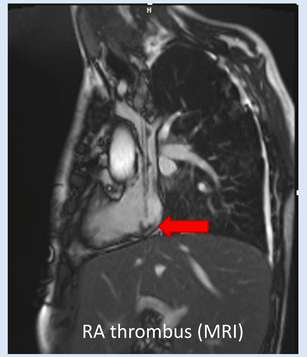
After treatment (TTE 3D)

Case 3

25 years old immunosuppressed patient after lung transplantation. PICC and permcath had been in place for 6 months. Patient examined for recurrent pneumonia. Undulating formation 4x3mm on the tip of permcath and lobular mass 20x10mm on the free wall of RA were detected on TEE, confirmed by MRI. Hemocultivation was negative. Treatment: enoxaparine, broad-spectrum antibiotics, taurolidin locks. For unsatisfactory clinical course PICC and permacath were explanted. Cultivation of both catheter tips was negative. New permanent dialysis catheter was inserted later on.







PWO – persistent withdrawal occlusion, RA – right atrium,
TEE – transesophageal echocardiography,
TTE – transthoracal echocardiography

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