20. Calming the Storm Over Storm: Using Autotransfusion in Right Ventricular Perforation After Catheter Ablation For VT Storm

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Body

Background: Cardiac tamponade is a rare but fatal complication of catheter ablation. Surgery is indicated in repeated or fast growing pericardial effusion. Autotransfusion may be used as a mean to preserve blood lost while preparing for surgery.

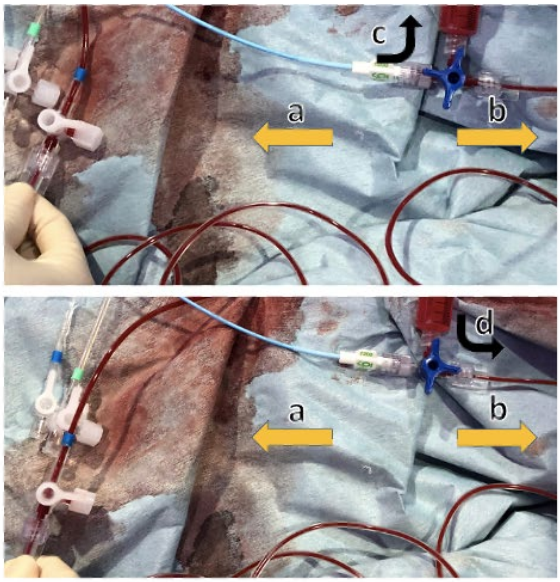
Case: A 73-years-old male was ablated due to VT storm. He had acute myocardial infarct with an episode of VT 1 month prior. The 12-lead electrocardiogram during VT showed right bundle branch block-like pattern with positive inferior lead and negative I-aVL leads, transition zone in V5, suggestive of VT originating from anterior-mid wall of the left ventricle (LV).

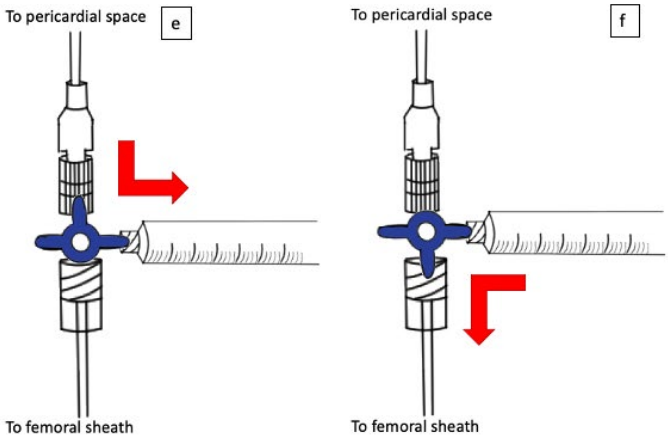
Electroanatomical mapping of LV showed a large area of low voltage in posterolateral area. A 5 fr quadripolar fixed curve catheter was put on right ventricle (RV) apex to help induce VT. Due to inability to induce VT even using RV and LV S1S3 combined with isoproterenol infusion, we proceed with Isochronal Late Activation Mapping based ablation and Local Abnormal Ventricular Activities elimination throughout the borderzone of low voltage area in LV.

We observed a sudden drop in blood pressure immediately after RV catheter removal, prompting fluid resuscitation. A bedside echocardiogram showed pericardial effusion, subsequent pericardial puncture revealed blood in the pericardial space. A 6-Fr sheath with pigtail was then inserted, blood was evacuated, but tamponade reoccur within 5 minutes.

In the face of rapid recurring tamponade, open surgery was prepared. In the meantime, we device autotransfusion using a three way at the end of pigtail, connected to male-to-male connector which was then connected to the femoral vein sheath's end. This procedure was able to stabilize his hemodynamic condition and save blood loss. RV graphy showed a leak at the site of previous RV lead placement. This was confirmed by the surgeon later on. Patient was discharged 3 weeks after surgery.

Discussion: Autotransfusion has life-saving potential in managing pericardial effusion after catheter ablation. Unfortunately, blood filtering systems may not always available. In our patient, a direct whole blood transfusion was done as a bridging therapy before surgery and was able to temporarily stabilize his hemodynamic condition.





Autotransfusion.
a. Pigtail connected to pericardial space of the patient.
b. Male to male connector connected to the femoral sheath
c. Withdrawing blood from the pericardial space
d. Transfusing blood to the femoral vein via femoral sheath
e. Schematic illustration of blood withdrawal from the pericardial space
f. Schematic illustration of blood transfusion to the femoral vein via femoral sheath