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Reviewer A

Comment 1. Definitions: SVC syndrome is not defined in the text (and differentiation from SVC occlusion). Symptoms, diagnostic tools and requirements for diagnosis are missing.

Reply 1. Thank you for your comment. I described symptoms, diagnostic tools and requirements for diagnosis of SVC syndrome according to a past report as follows on pages 3-4, line 45-53:

“The most common presenting symptoms include facial and neck edema, distended neck and chest veins, watering eyes, and dizziness, particularly when leaning forward [1]. The clinical presentation varies depending on the severity, location, and rapidity of the onset of the obstruction and the establishment of collateral veins. The diagnosis of SVC syndrome is based on the clinical symptoms and imaging. Imaging modalities include chest radiography, contrast-enhanced computed tomography (CT), duplex ultrasound, conventional catheter-based digital subtraction venography, and magnetic resonance venography [1].”

Comment 2. Guidelines: Specific recommendations of guidelines should be included in the text, for example the maximum number of leads to be implanted in a SVC, criteria for lead extraction in SVC syndrome, indications for CIEDs that do not use the SVC (sICD/leadless pacing). Furthermore, current position papers (such as EHRA) have concise recommendations not to use V. subclavia for primary puncture.

Reply 2. I added “The maximum number of leads that can be implanted in a vein with an acceptably low risk of complications is controversial.” (2017 HRS expert consensus, Heart Rhythm 2017 Dec;14(12):e503) “ (page 4, lines 58-59), and the following text on page 5, line 59-63:

“There are few data on the lead burden that results in venous access issues and SVC syndrome, and consensus documents are based on expert opinion as to the numbers of abandoned leads that justify extraction; i.e., a total of more than four leads on one side or five leads through the SVC [2018 EHRA expert consensus, Europace (2018) 20, 1217].”

Comment 3. Structure of the manuscript could be updated.

Reply 3. The main headings are 1 (Device therapy for patients with SVC obstruction) and 2 (Therapeutic strategy for SVC occlusion after lead implantation) because this manuscript consists of these themes. In accordance with the reviewer's opinion, we have also created sections 1-1. *Avoidance of SVC obstruction*, and 1-3, 3) *Management of terminally ill patients and others*.

Comment 4. Inadequate arrhythmia discrimination, such as oversensing, is much more common in sICD compared to vascular ICD.

Reply 4. As you mentioned, the problem of inappropriate therapy of the SCD has been rising. “Problems with inappropriate therapy of the SCD have been reported [Eur Heart J 2014;35:1657], and attempts are being made to reduce the problems with these devices [J Cardiovasc Electrophysiol 2015;26(4):417].” I added this description to maintext (page 8, lines 132-134).

Comment 5. The importance of venography before puncture in cases with history of SVC occlusion or venous thrombosis should be highlighted.

Reply 5. I agree and added the statement at pages 4-5, lines 63-65: “Performing a venography examination prior to the puncture is important in cases of SVC occlusion or pre-existing venous thrombosis.”

Reviewer B

Comment 1. In terminally ill patients, in justified cases, external endocavitary stimulation may be used. Indications for pacemaker and ICD implantation are included in the guidelines, short patient survival is a contraindication to implantation of a permanent ICD. Considering the title in the manuscript, there should be a more extensive part devoted to electrotherapy, taking into account the recommendations contained in the HRS and ESC guidelines.

Reply 1. I fully agree with your comment, and I added new section of text entitled “1-3. 3). Management for terminally ill patients and others” on pages 8-9. The 2018 ACC/AHA/HRS Guidelines are also now cited; Page 8, lines 129-139:

“In terminally ill patients, in justified cases, external endocavitary stimulation may be used. Indications for pacemaker or ICD implantation are included in the American College of Cardiology/ American Heart Association guidelines for patients with indications for permanent pacing but also for those with significant comorbidities such that pacing therapy is unlikely to provide meaningful clinical benefit; if a patient’s care goals strongly preclude pacemaker therapy, the implantation or replacement of a pacemaker should not be performed [Circulation. 2019;140(8):e333]. In patients who are expected to have a shortened life span because of a terminal progressive illness, the benefits of pacing support may not be realized and are unlikely to positively impact the overall outcome [Circulation 2019;140(8):e382]”.

Comment 2. In addition to the subcutaneous ICD, it is worth mentioning the possibility of implanting a defibrillating electrode into the azygos vein, pericardial sac, retrosternally, as well as defibrillating vests as an option not only for patients with advanced cancer.

Reply 2. Thank you for your comment. I added the following text on page 9, lines 145-148:

“For patients with advanced cancer, in addition to a subcutaneous ICD, the possibility of implanting a defibrillating electrode into the azygos vein or pericardial sac retrosternally as well as a defibrillating vest might be considered an option.”

Comment 3. Reading the following articles may be helpful in proofreading a review paper.

1. Czajkowski M, Jacheć W, Polewczyk A, Kosior J, Nowosielecka D, Tułeczki Ł, Stefańczyk P, Kutarski A. Severity and Extent of Lead-Related Venous Obstruction in More Than 3000 Patients Undergoing Transvenous Lead Extraction. *Vasc Health Risk Manager*. 2022 Aug 17;18:629-642. doi: 10.2147/VHRM.S369342. PMID: 36003848; PMCID: PMC9393197.

2. Czajkowski M, Jacheć W, Polewczyk A, Kosior J, Nowosielecka D, Tułeczki Ł, Stefańczyk P, Kutarski A. The Influence of Lead-Related Venous Obstruction on the Complexity and Outcomes of Transvenous Lead Extraction. *Int J Environ Res Public Health*. 2021 Sep 13;18(18):9634. doi: 10.3390/ijerph18189634. PMID: 34574558; PMCID: PMC8465436.

3. Czajkowski M, Jacheć W, Polewczyk A, Kosior J, Nowosielecka D, Tułeczki Ł, Stefańczyk P, Kutarski A. Risk Factors for Lead-Related Venous Obstruction: A Study of 2909 Candidates for Lead Extraction. *J Clin Med*. 2021 Nov 3;10(21):5158. doi: 10.3390/jcm10215158. PMID: 34768676; PMCID: PMC8584439.

Reply 3. Thank you for your recommendation. I now quoted three of these papers as references and added the following text on page 13, lines 214-220:

“In a retrospective analysis of 3,002 venograms from patients awaiting transvenous lead extraction, Czajkowski et al. observed that SVC occlusion was rare [31]. Their research group also described risk factors for lead-related venous obstruction and the influence of lead-related venous obstruction on the complexity and outcomes of lead extraction [32, 33]. Clinicians need to be familiar with these risk factors and review patients’ venography findings to ensure safe lead removal.”.

Reviewer C

Comment 1. The title is misleading. The paper really deals with SVC obstruction.

Reply 1. I had changed the title to: "Superior vena cava obstruction and cardiovascular implantable electronic devices" according to your comment.

Comment 2. The English is often unclear.

Reply 2. The manuscript has been proofread and corrected by a native English speaker.

Comment 3. Line 44-svc syndrome is the result of svc obstruction and not the cause.

Reply 3. I agree and have deleted the wording "as in SVC syndrome".

Comment 4. Line 87-"a long time " is not precise . i.e.-how many years, who first did it, etc

Reply 4. I changed the sentence to "Myocardial electrodes do not pass through the intravascular space" (page 6, lines 98-99).

Comment 5. Line 93-by definition leadless pacemakers do not require leads and the sentence is superfluous.

Reply 5. I agree and have deleted that text.

Comment 6. Lines 129-135-did the thrombus disappear or did the patient develop collaterals? What was the mechanism of improvement?

Reply 6. The authors described "the patient was free of symptoms and a chest CT angiography revealed complete resolution of the thrombosis" and "the thrombosis was not acute, and hypothesized that anticoagulation should restore a favorable balance between thrombosis persistence and physiologic fibrinolysis, leading to thrombus resolution." I added these points to the text on page 10, lines 166-171.

Comment 7. Line 138-what exactly does "earlier symptom improvement" mean?

Reply 7. I deleted the wording "the earlier".

Comment 8. Lines 142-143. I don't understand the sentence.

Reply 8. Thank you for pointing out my error. I changed coronary artery to SVC obstruction (page 11, line 180).

Comment 9. Lines 153-156 appear to be out of place.

Reply 9. I moved these sentences to another section (page 10, lines 156-159).

Comment 10. Line 159-What type of revascularization did patient undergo?

Reply 10. Of the remaining four, three patients were treated with venoplasty alone, and 1 patient underwent surgical SVC reconstruction. I added this description (page 12, lines 197-199).