

## EP CASE REPORT

# Cardioneuroablation of the right anterior ganglionated plexus in symptomatic sinus bradycardia after extensive weight loss

David Reek \*, Michael Deiß, and Hind El Bouchikhi

Department of Cardiology, Augsburg University Hospital, Stenglinstr. 2, 86156 Augsburg, Germany

\* Corresponding author. Tel: +49821400161182. E-mail address: david.reek@uk-augsburg.de

After extensive weight loss, a 30-year-old male patient suffered from dizziness, headache, and experienced one syncope clinically suspicious for neurocardiogenic syncope. When symptoms aggravated, significant sinus bradycardia (35–40 b.p.m.) was documented in an emergency department; additionally, Holter electrocardiograms (ECGs) revealed a slow frequency profile (baseline 40–50 b.p.m.), no atrio-ventricular (AV) block.

Sinus bradycardia after weight loss is a frequent finding<sup>1</sup> but symptoms are rare. As the patient was highly symptomatic, we decided to perform a cardioneuroablation (CNA) of the right anterior ganglionated plexus (RAGP) in order to increase his baseline sinus heart rate.

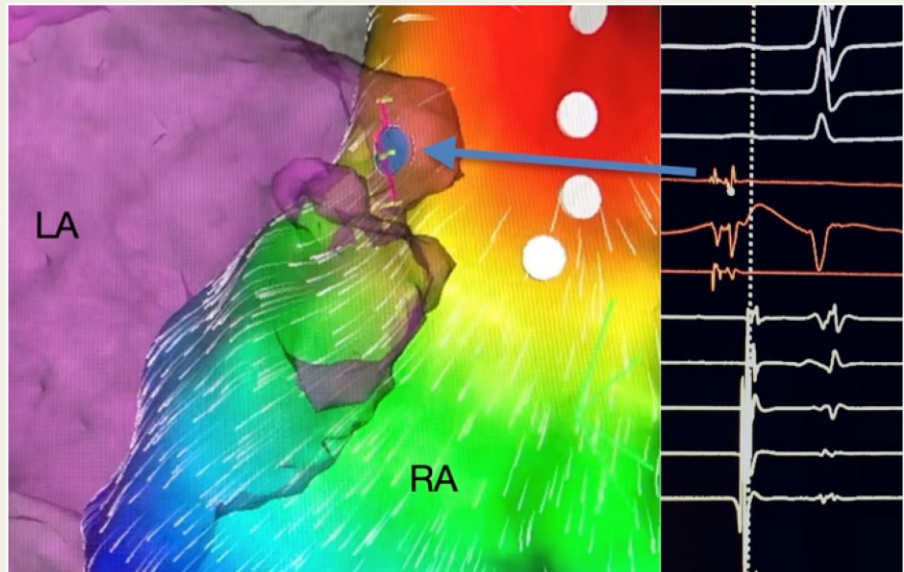
Protocols including success criteria for CNA of the RAGP have been described before.<sup>2</sup> We used a prior computed tomography (CT) for anatomical guidance. The middle third of the anterior antrum of the right superior pulmonary vein was marked ('target line', Figure) and the CT was merged with a three-dimensional activation map of the right atrium (RA) using the CARTO 3 V7 system with a Lasso-catheter and an ablation catheter (BiosenseWebster SmartTouch SF). Additionally, the course of the phrenic nerve (PN) was identified by pacing. We found prolonged electrograms of relatively low amplitude with marked fractionation in the RA, facing the 'target line'. This pattern was described as helpful for identifying ganglionated plexus.<sup>3</sup> Ablation there was conducted at 30 W for 90s. The cycle length immediately decreased from 1260 to 850 ms and was thereafter stable at around 880 ms (-30% to baseline). Interestingly, the PQ interval prolonged to a first-degree AV block of 262 ms (196 ms at baseline), indicating that there was no effect on the AV node. After a waiting time of 20 min, an Atropine challenge was performed. In contrast to the response before ablation, there was no relevant increase in heart rate. However, the PQ interval was normalized, showing a clear response to medical vagolysis of the AV node, but not of the sinus node, thus, ablation was considered successful.

On the second day after ablation, an exercise ECG and another Atropine challenge were performed. Both showed a significantly higher baseline sinus heart rate around 88 b.p.m., as well as an adequate increase of heart rate under exercise, but no response of the sinus node to medical vagolysis.

During a 2-month follow-up, baseline heart rate remained increased with preserved rise in another exercise test and the patient was asymptomatic.

This is a very rare case of highly symptomatic sinus bradycardia after extensive weight loss. Cardioneuroablation of the RAGP, formerly performed to treat neurocardiogenic syncope, seems to be an effective and easy treatment option by inducing persistent and specific vagolysis of the sinus node.

**Conflict of interest:** none declared.



## References

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