e - ISSN - 2349 - 8005

INTERNATIONAL JOURNAL OF ADVANCES IN CASE REPORTS

Journal homepage: www.mcmed.us/journal/ijacr

VERTEBRAL ARTERY OCCLUSION AFTER ROUTINE ELECTRIC CARDIOVERSION OF ATRIAL FIBRILLATION IN A PATIENT AT LOW RISK FOR STROKE (CHA_2DS_2-VASC = 0) – ARE WE ON THE RIGHT TRACK?

Maximilian König[1*], Christian H. Nolte[2], Ulf Landmesser[1], Ursula Rauch[1]

[1]Department of Cardiology, [2]Department of Neurology, Charité - Universitätsmedizin Berlin, Campus Benjamin Franklin, Hindenburgdamm 30, 12203 Berlin.

Corresponding Author: **Maximilian König**
E-mail: koenig.maximilian@charite.de

Article Info
Received 15/11/2015
Revised 27/11/2015
Accepted 03/12/2015

Key words: Atrial fibrillation, Antithrombotic therapy.

ABSTRACT
Cardioversion (CV) of atrial fibrillation (AF) is associated with an increased risk of stroke. Patients undergoing cardioversion are routinely receiving antithrombotic therapy. Hereby, the incidence of stroke in connection with CV can be reduced significantly. However the guidelines are not clear as to the procedure concerning low risk patients with newly onset atrial fibrillation (< 48 h). Here we present a case of a truly low risk patient with AF duration < 48h, who suffered a stroke following CV despite proper anticoagulation.

INTRODUCTION

Cardioversion of atrial fibrillation is associated with an increased risk of stroke. Patients undergoing cardioversion are routinely receiving antithrombotic therapy. Hereby, the incidence of stroke in connection with CV can be reduced significantly. However the guidelines are not distinct concerning low risk patients with newly onset atrial fibrillation (< 48 h).

CASE REPORT

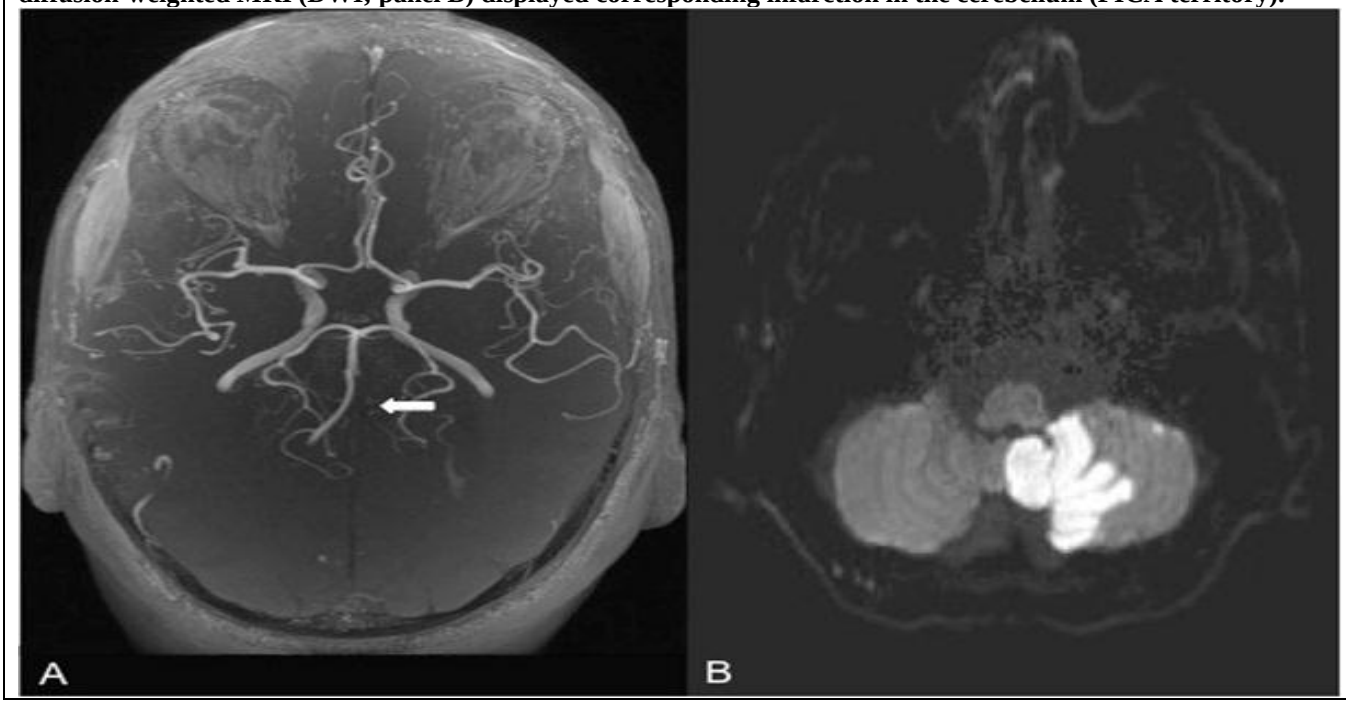
An otherwise healthy 64-year-old man presented to the emergency department with newly onset symptomatic atrial fibrillation since 12 hours. Transesophageal echocardiography was performed to rule out left atrial thrombi and electrical cardioversion (CV) was successfully performed to restore sinus rhythm. The patient received effective anticoagulation (low-molecular-weight heparin) pre and post CV and left hospital in subjective well-being the next day after CV. Two hours after discharge, he presented again to the emergency department with dizziness, nystagm, lateropulsion and left hemiataxia. MRI revealed a cerebellar stroke due to embolic left vertebral artery occlusion without signs of dissection or relevant arteriosclerosis on MRI or ultrasound [Panel A/B] - although being on full anticoagulation.

DISCUSSION AND CONCLUSION

About 0.5-1% of patients suffer thromboembolism following CV despite proper anticoagulation [1]. The occurrence of thromboembolic complications despite proven freedom of thrombi suggests that cardioversion itself may trigger thrombus formation. Studies have demonstrated new spontaneous echo contrast in the left atrium in 33% of patients after CV, with a recovery of atrial function requiring up to 30 days [2]. Moreover, failing of echocardiography to detect thrombi or other sources of emboli must be considered. There is persisting uncertainty about anticoagulation in low risk patients. The guidelines state that patients with AF duration < 48h with a CHA2DS2-VASc = 0 may only receive anticoagulation directly pre- and post-

cardioversion, or even no anticoagulation at all [3,4]. Given a significant risk of thromboembolic complications after CV even in very low risk individuals, which is not well reproduced by the CHA_2DS_2-VASc, a reliable anticoagulation for a period of 4 weeks post CV appears indispensable. There is evidence that most strokes following cardioversion occur in patients with newly onset atrial fibrillation not using oral anticoagulation before [5]. Thus even in very low risk patients an anticoagulation-period of 4 weeks preceding CV may increase the safety of the procedure.

Panel A. Complete occlusion of the left vertebral artery (VA) in a 64-year-old man one day after routine electric cardioversion of newly onset atrial fibrillation. MR- angiogram showed complete occlusion of the left VA (→) and diffusion-weighted MRI (DWI; panel B) displayed corresponding infarction in the cerebellum (PICA territory).



ACKNOWLEDGEMENT: None

CONFLICT OF INTEREST:

The authors declare that they have no conflict of interest.

STATEMENT OF HUMAN AND ANIMAL RIGHTS

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

REFERENCES

1. Klein AL, Grimm RA, Murray RD, Apperson-Hansen C, Asinger RW, Black IW et al. (2001). Use of transesophageal echocardiography to guide cardioversion in patients with atrial fibrillation. *N Engl J Med*, 344, 1411–1420.
2. Grimm RA, Leung DY, Black IW, Stewart WJ, Thomas JD, Klein AL. (1995). Left atrial appendage "stunning" after spontaneous conversion of atrial fibrillation demonstrated by transesophageal Doppler echocardiography. *Am Heart J*, 130, 174-176.
3. January CT, Wann LS, Alpert JS, Calkins H, Cigarroa JE, Cleveland JC Jr. et al. (2014).AHA/ACC/HRS guideline for the management of patients with atrial fibrillation, a report of the American College of Cardiology/American Heart Association Task Force on practice guidelines and the Heart Rhythm Society. *Circulation*, 130, 2071-2104.
4. Camm AJ, Lip GY, De Caterina R, Savelieva I, Atar D, Hohnloser SH, et al. (2012). Focused update of the ESC Guidelines for the management of atrial fibrillation, An update of the 2010 ESC Guidelines for the management of atrial fibrillation-developed with the special contribution of the European Heart Rhythm Association. *Europace*, 14, 1385–1413.
5. Palomäki A Mustonen P, Hartikainen JE, Nuotio I, Kiviniemi T, Ylitalo A et al. (2015). Strokes after cardioversion of atrial fibrillation – The FibStroke study. *Int J Cardiol*, 203, 269-273.