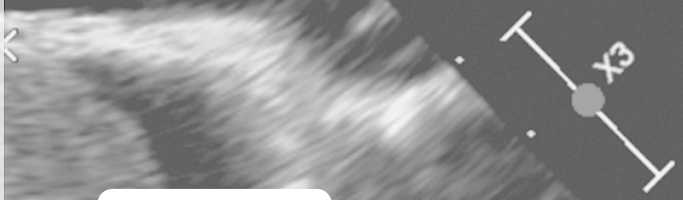
Journal für
Kardiologie
Austrian Journal of Cardiology
Österreichische Zeitschrift für Herz-Kreislauferkrankungen

Editorial Commentary: Patent Foramen Ovale and Pulmonary Embolism

Auer J, Gabriel H, Huber K

Journal für Kardiologie - Austrian Journal of Cardiology 2026; 33 (11-12), 236

Homepage:
www.kup.at/kardiologie
Online-Datenbank
mit Autoren-
und Stichwortsuche



ÖKG Österreichische Kardiologische Gesellschaft
Offizielles Partnerjournal der ÖKG

EUROPEAN SOCIETY OF CARDIOLOGY®
Member of the ESC-Editor's Club

Offizielles Organ des Österreichischen Herzfonds

ACVC Association for Acute CardioVascular Care
In Kooperation mit der ACVC

Indexed in ESCI part of Web of Science

Indexed in EMBASE

Krause & Pachernegg GmbH • Verlag für Medizin und Wirtschaft • A-3003 Gablitz
P.b.b. 02Z031105M, Verlagsort: 3003 Gablitz, Linzerstraße 177A/21 Preis: EUR 10,–

Medtronic

E2E 2027

WAVES OF INNOVATION

14.-16. Jänner 2027

Courtyard by Marriott Linz

EXPERT 2 EXPERT 2027

For personal use only. Not to be reproduced without permission of Krause & Pachernegg GmbH.

Patent Foramen Ovale and Pulmonary Embolism

J. Auer[1], H. Gabriel[2], K. Huber[3, 4]

[1]Abteilung für Innere Medizin I mit Kardiologie und Intensivmedizin, KH St. Josef, Braunau, [2]Wiener Privatklinik, Wien, [3]Österreichischer Herzfonds, Wien, und [4]Medizinische Privat-Universität Burgenland (MPUB GmbH), Pinkafeld, Österreich

This well-presented case report contains important information but deserves some comments in order to give readers a balanced view of interventional PFO occlusion in clinical practice.

Life-long oral anticoagulation is clearly indicated in a patient like this with recurrent pulmonary embolisms (PE) as paradoxical embolism occured exclusively during periods without oral anticoagulation (OAC), which might have been significantly reduced with uninterrupted OAC. As some residual risk of recurrent paradoxical embolism could remain despite OAC, additional closure of a "high-risk" PFO may further reduce this risk despite long-term oral anticoagulation and should be considered during an interdisciplinary team-based decision-making process [1].

The authors suggest that "*…to eliminate a PFO is practically risk-free. …the PFO should be occluded in all cases in the sense of a mechanical vaccination against further paradoxical embolism.*" This view seems to be not fully balanced and is not supported by current literature including the European position paper on the management of patients with patent foramen ovale [1]. Similarily to other interventional cardiovascular procedures, PFO occlusion is also associated with well-known procedural complications that occur in about 2.6% in randomized clinical trials [2]. The most frequent late complication is device thrombosis occuring in about 1.0–2.0% [3]. Device embolism is a very serious event that occurs at a rate of 0.9–1.3% [3, 4]. Atrial wall erosions have been reported in several case reports. The risk of death or the need for cardiac surgery is less than one in 1000 procedures [1]. The most frequent adverse event following device-based PFO occlusion is atrial fibrillation (AF). In a meta-analysis of randomized clinical trials AF occured in 4.6% during 3.8 years of follow-up [4]. AF incidence after PFO occlusion mainly depends on the methods followed for rhythm monitoring. Device-related AF is considered benign and usually transient [5].

Recently published registry data of patients who underwent transcatheter PFO closure between 2010 and 2015 at the Medical University Vienna revealed a procedure-related complications rate of 2.4%. Adverse events included pericardial effusion in 0,6%, acute coronary syndrome in 0,3%, pseudoaneurysm at the puncture site that needed surgical patch repair in 0,3%, and new-onset atrial fibrillation in 3% [6].

Finally, we wish to congratulate the authors for this outstanding case report and the presentation of important teaching points for readers of our journal.

References:

1. Pristipino C, Sievert H, D'Ascenzo F, Louis Mas J, Meier B, Scacciatella P, et al. European position paper on the management of patients with patent foramen ovale. General approach and left circulation thromboembolism. Eur Heart J 2019; 40: 3182–95.

2. Turc G, Calvet D, Guérin P, Sroussi M, Chatellier G, Mas J, CLOSE Investigators. Closure, anticoagulation, or antiplatelet therapy for cryptogenic stroke with patent foramen ovale: systematic review of randomized trials, sequential meta-analysis, and new insights from the CLOSE study. J Am Heart Assoc 2018; 7: e008356.

3. Abaci A, Unlu S, Alsancak Y, Kaya U, Sezenoz B. Short- and long-term complications of device closure of atrial septal defect and patent foramen ovale: Meta-analysis of 28,142 patients from 203 studies. Catheter Cardiovasc Interv 2013; 82: 1123–38.

4. Wahl A, Tai T, Praz F, Schwerzmann M, Seiler C, Nedeltchev K, Windecker S, Mattle HP, Meier B. Late results after percutaneous closure of patent foramen ovale for secondary prevention of paradoxical embolism using the Amplatzer PFO occluder without intraprocedural echocardiography – effect of device size. JACC Cardiovasc Interv 2009; 2: 116–23.

5. Apostolos A, Tsiachris D, Drakopoulou M, Trantalis G, Oikonomou G, Ktenopoulos N, Simopoulou C, Katsaros O, Tsalamandris S, Aggeli C, Tsivgoulis G, Tsioufis C, Toutouzas K. Atrial fibrillation after patent foramen ovale closure: incidence, pathophysiology, and management. J Am Heart Assoc 2024; 13: e034249.

6. Goessinger B, Greisenegger S, Kastl S, Rosenhek R, Serles W, Hengstenberg C, Gabriel H, Schrutka L. Stroke recurrence after transcatheter PFO closure in patients with cryptogenic stroke. Int J Stroke 2025; 20: 450–60.

Corresponding author:
Prim. Univ. Prof. Dr. Johann Auer
Abteilung für Innere Medizin I mit Kardiologie und Intensivmedizin
A.ö. KH St. Josef Braunau
A-5280 Braunau, Ringstraße 60
E-mail: johann.auer@khbr.at

Mitteilungen aus der Redaktion

Besuchen Sie unsere Rubrik

☑ Medizintechnik-Produkte



Neues CRT-D Implantat
Intica 7 HF-T QP von Biotronik



Artis pheno
Siemens Healthcare Diagnostics GmbH



Philips Azurion:
Innovative Bildgebungslösung



Aspirator 3
Labotect GmbH



InControl 1050
Labotect GmbH

e-Journal-Abo

Beziehen Sie die elektronischen Ausgaben dieser Zeitschrift hier.

Die Lieferung umfasst 4–5 Ausgaben pro Jahr zzgl. allfälliger Sonderhefte.

Unsere e-Journale stehen als PDF-Datei zur Verfügung und sind auf den meisten der marktüblichen e-Book-Readern, Tablets sowie auf iPad funktionsfähig.

☑ Bestellung e-Journal-Abo

Haftungsausschluss

Die in unseren Webseiten publizierten Informationen richten sich **ausschließlich an geprüfte und autorisierte medizinische Berufsgruppen** und entbinden nicht von der ärztlichen Sorgfaltspflicht sowie von einer ausführlichen Patientenaufklärung über therapeutische Optionen und deren Wirkungen bzw. Nebenwirkungen. Die entsprechenden Angaben werden von den Autoren mit der größten Sorgfalt recherchiert und zusammengestellt. Die angegebenen Dosierungen sind im Einzelfall anhand der Fachinformationen zu überprüfen. Weder die Autoren, noch die tragenden Gesellschaften noch der Verlag übernehmen irgendwelche Haftungsansprüche.

Bitte beachten Sie auch diese Seiten:

Impressum **Disclaimers & Copyright** **Datenschutzerklärung**