

Two Blocks and A Broken Heart: Takotsubo Syndrome with Complete Atrioventricular Block and Small Bowel Obstruction - A Case Report

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DOI: <https://doi.org/10.36347/sjmcr.2026.v14i10.037>

| Received: 18.08.2026 | Accepted: 14.10.2026 | Published: 15.10.2026

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Abstract

Case Report

Takotsubo syndrome (TTS), complete atrioventricular (AV) block, and acute extracardiac illness may coexist, obscuring their causal sequence. A 64-year-old woman presented with severe epigastric pain and vomiting, high-sensitivity troponin of 340 ng/L peaking at 1,581 ng/L, B-type natriuretic peptide of 540 pg/mL, and high-grade AV block progressing to complete block. Echocardiography showed circumferential mid-apical akinesis with basal hyperkinesis and a left ventricular ejection fraction (LVEF) of 30%, while urgent coronary angiography demonstrated normal epicardial coronary arteries. Persistent gastrointestinal symptoms prompted abdominal computed tomography, which identified acute small bowel obstruction with concern for early bowel compromise. Bowel transit resumed with conservative treatment. Cardiac magnetic resonance showed apical ballooning and myocardial edema without perfusion defect or late gadolinium enhancement, supporting TTS. Before permanent pacing, LVEF improved to 44%, but complete AV block persisted with an intrinsic ventricular rate of 35–38 beats/min; a dual-chamber pacemaker was subsequently implanted. Small bowel obstruction may have triggered TTS, whereas the AV block may have been a consequence, an additional trigger, or pre-existing conduction disease. The early dissociation between partial myocardial recovery and persistent AV block shows that electrical recovery cannot be inferred from LVEF improvement and that pacing decisions require independent assessment of conduction.

Keywords: Takotsubo syndrome, complete atrioventricular block, small bowel obstruction, cardiac pacing, cardiac magnetic resonance, physical stress.

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INTRODUCTION

Takotsubo syndrome (TTS) is characterized by acute, usually reversible ventricular dysfunction that often extends beyond one coronary territory and can mimic acute coronary syndrome. Physical illness is a recognized trigger [1]. Complete atrioventricular (AV) block is uncommon in TTS, and whether it precedes or follows myocardial stunning may remain uncertain [2,3]. We report the concurrent presentation of TTS, persistent complete AV block, and acute small bowel obstruction, highlighting the need to avoid premature diagnostic closure.

CASE REPORT

A 64-year-old woman with hypertension treated with oral amlodipine 5 mg once daily presented with severe nonradiating burning epigastric pain and vomiting that awakened her from sleep. She had no previous

abdominal surgery. She reported presyncope approximately two years earlier without a documented rhythm diagnosis and no syncope during the current episode.

She was alert and hemodynamically stable (blood pressure 140/60 mmHg; heart rate 42 beats/min), without clinical heart failure. Electrocardiography showed high-grade AV block with deep anterior T-wave inversion. A repeat electrocardiogram demonstrated complete atrioventricular block, accompanied by a change in the repolarization pattern, with positive T waves in the anterior leads (Figure 1A and B). Available tracings did not establish unequivocal inferior ST-segment elevation. High-sensitivity cardiac troponin was 340 ng/L on admission, corresponding to 20 times the assay upper reference limit of 17 ng/L, and subsequently peaked at 1,581 ng/L, corresponding to 93 times that limit. B-type natriuretic peptide was 540 pg/mL (reference value <100 pg/mL).

Citation: El Khaboté, O., Hassani, A., Mesfioui, Y., Fertat, O., Doghmi, N., & Cherti, M. (2026). Two Blocks and A Broken Heart: Takotsubo Syndrome with Complete Atrioventricular Block and Small Bowel Obstruction - A Case Report. *Sch J Med Case Rep*, 14(10), 2281-2285. <https://doi.org/10.36347/sjmcr.2026.v14i10.037>

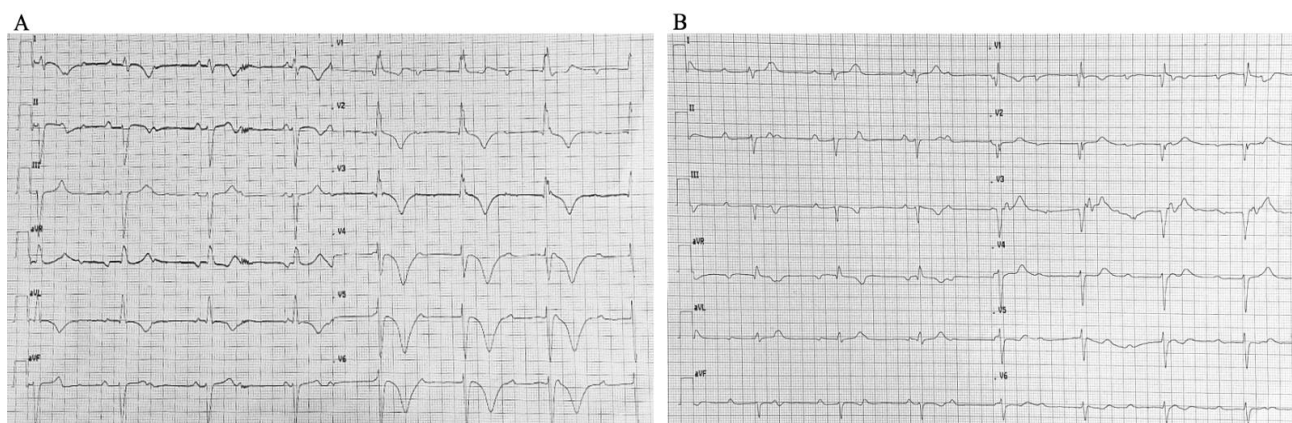


Figure 1: Electrocardiographic evolution. (A) Initial electrocardiogram showing high-grade atrioventricular block with deep anterior T-wave inversion. (B) Repeat electrocardiogram showing complete atrioventricular block with positive T waves in the anterior leads

Because acute coronary syndrome remained a concern, temporary transvenous pacing was instituted before urgent coronary angiography. Transthoracic echocardiography showed circumferential mid-apical akinesis with basal hyperkinesis, producing a mid-apical ballooning pattern (Figure 2A and B), with an estimated

left ventricular ejection fraction (LVEF) of 30%. Coronary angiography showed no obstructive epicardial coronary artery disease (Figure 3A and B). The non-coronary wall-motion pattern and normal coronary arteries raised a strong suspicion of TTS.

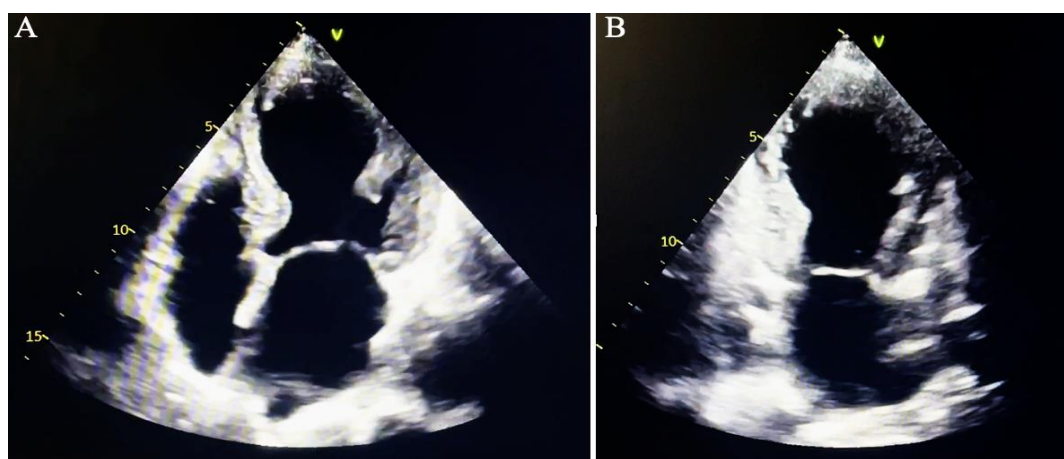


Figure 2: Transthoracic echocardiography at admission. (A) Apical four-chamber view and (B) apical two-chamber view showing circumferential mid-apical akinesis with basal hyperkinesis, consistent with the mid-apical pattern of Takotsubo syndrome

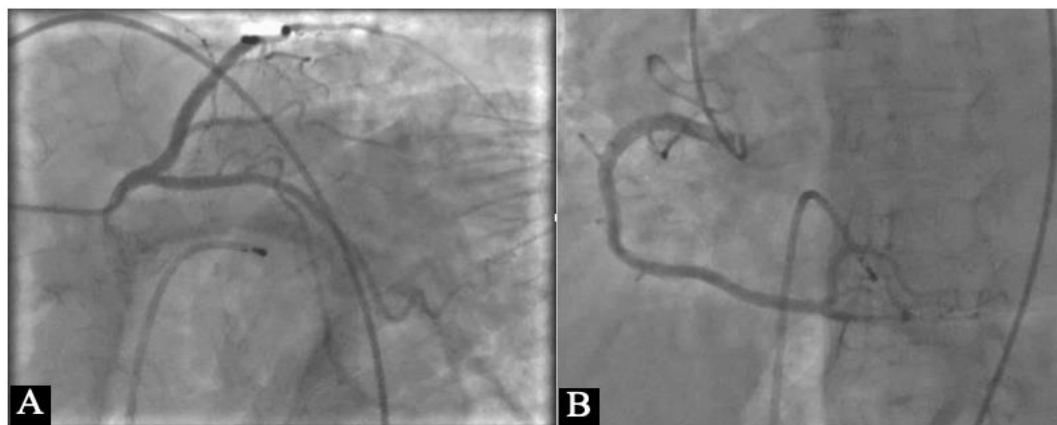


Figure 3: Coronary angiography showing normal epicardial coronary arteries. (A) Caudal view showing the left main coronary artery, left anterior descending artery, and left circumflex artery. (B) 30° right anterior oblique view showing the right coronary artery. A temporary transvenous pacing lead is visible in both views

Persistent vomiting and impaired bowel transit prompted abdominal computed tomography. Dilated small-bowel loops, transition zones, a collapsed colon, bowel-wall and mesenteric inflammatory changes, localized pneumatosis, and a small volume of intraperitoneal fluid indicated acute small bowel

obstruction with concern for early compromise (Figure 4A and B). The patient was transferred urgently for surgical assessment. Bowel transit resumed during observation and symptoms regressed; conservative management was continued without surgery.

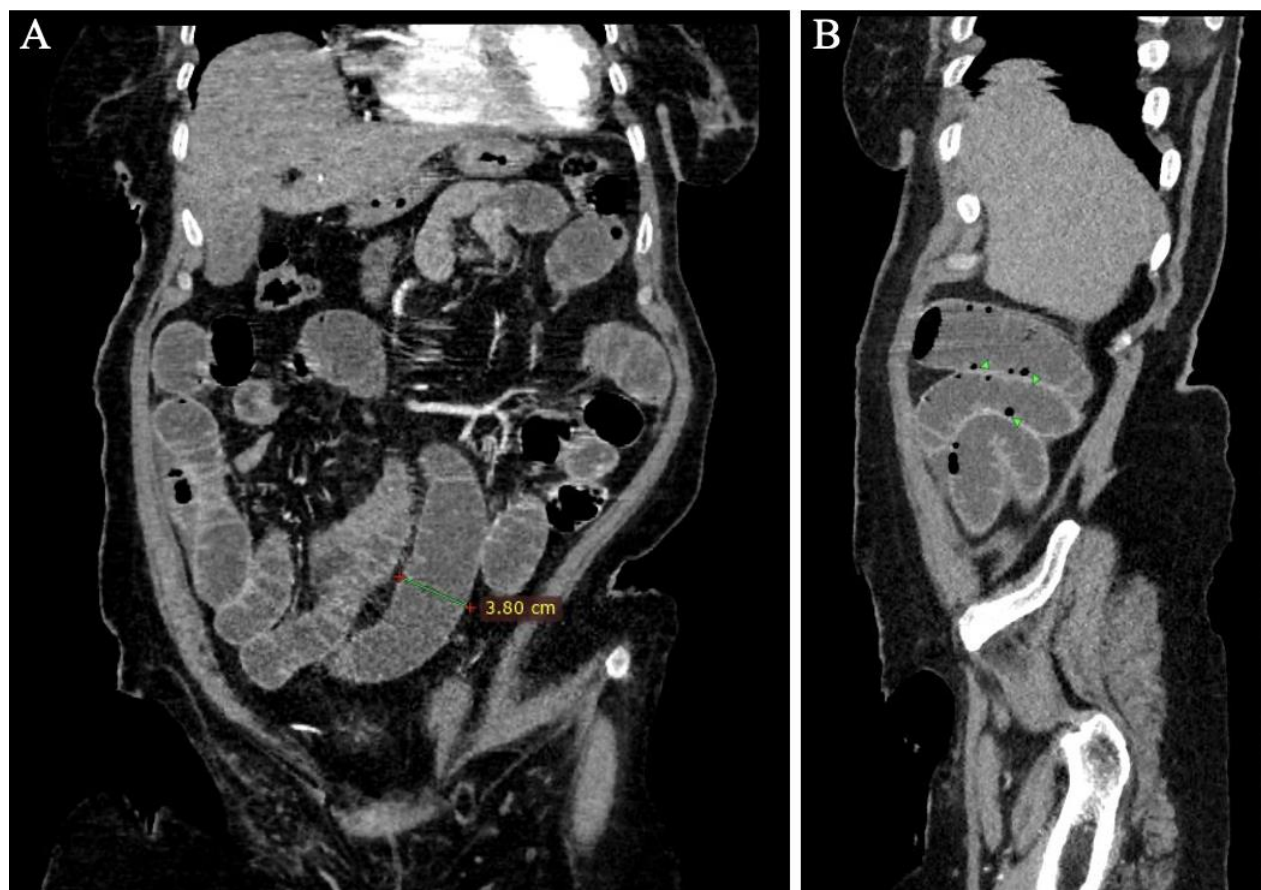


Figure 4: Abdominal computed tomography findings of small bowel obstruction. (A) Coronal reconstruction showing dilated, predominantly fluid-filled small-bowel loops. (B) Sagittal reconstruction showing dilated small-bowel loops with small gas locules highlighted by green arrowheads

After digestive improvement, cardiac magnetic resonance demonstrated apical ballooning and myocardial edema without a first-pass perfusion defect or early or late gadolinium enhancement. These findings supported TTS and argued against infarction or typical myocarditis [4]. On day 10, follow-up echocardiography showed early partial myocardial recovery, with LVEF improving from 30% to 44%. Complete AV block nevertheless persisted, with an intrinsic ventricular rate of 35–38 beats/min. A dual-chamber permanent pacemaker was therefore implanted, and the patient was discharged in stable condition with restored bowel transit.

DISCUSSION

The distinctive feature of this case is not simply the coexistence of TTS and complete AV block, but the sequence of three potentially interrelated events: acute small bowel obstruction, transient ventricular

dysfunction, and persistent conduction failure. The ventricular pattern, unobstructed coronary arteries, cardiac magnetic resonance findings, and subsequent improvement in LVEF supported TTS [1,4]. The remaining question is which event initiated the sequence and whether the AV block belonged to the reversible myocardial process.

Small bowel obstruction was a plausible initial trigger. Severe visceral pain, vomiting, and acute abdominal illness can produce marked sympathetic activation and catecholamine release, central mechanisms in TTS [1]. Small bowel obstruction has previously been reported as a physical trigger [5], and our patient had no operation or other intervening stressor before the cardiac presentation. On this interpretation, the abdominal disorder triggered TTS and the AV block developed during the acute cardiac phase. Autonomic imbalance, catecholamine-mediated injury, microvascular dysfunction, and myocardial edema have

all been proposed as mechanisms of conduction disturbance in TTS [2]. Nevertheless, the mid-apical wall-motion abnormality was anatomically remote from the AV node and proximal His-Purkinje system. A direct effect of the regional myocardial stunning on AV conduction is therefore not sufficient to explain the block.

An alternative sequence is that AV block preceded and contributed to TTS. Profound bradycardia can reduce cardiac output and provoke a compensatory catecholaminergic response capable of triggering myocardial stunning. Rathore *et al.* documented normal ventricular function at the onset of complete AV block followed by development of a Takotsubo pattern, providing temporal support for this mechanism [6]. In our patient, presyncope two years earlier raises the possibility of pre-existing conduction disease, although no electrocardiogram was available from that episode. Degenerative AV conduction disease and bowel obstruction-related TTS may thus have occurred in parallel. The presentation may also have resulted from more than one stressor, with abdominal pain, vomiting, and severe bradycardia jointly increasing adrenergic burden.

The in-hospital chronology provides the most useful clue. Gastrointestinal symptoms and bowel transit improved first. Myocardial recovery then began, with LVEF increasing from 30% to 44% by day 10, whereas complete AV block and a slow escape rhythm of 35–38 beats/min remained. This early dissociation between mechanical and electrical recovery makes a purely transient effect of ventricular stunning less convincing and favors either pre-existing conduction disease or more persistent injury to the conduction system. It is not conclusive, however, because AV conduction can recover later than systolic function. Wakiya *et al.* similarly reported a patient with midventricular ballooning in whom wall motion normalized within approximately 10 days but complete AV block persisted, requiring pacemaker implantation on day 18; ventricular pacing was still present at one year [7]. That case closely parallels the discordant recovery observed here, although the extracardiac trigger in our patient adds another component to the causal sequence.

The literature shows that neither persistence nor recovery of AV block can be predicted from the ventricular course alone. In a cohort of 286 patients with TTS, eight had complete AV block; among pacemaker recipients with regular device assessment, high-grade block persisted after ventricular recovery [3]. Conversely, a systematic review of 50 reported cases found sustained AV-conduction recovery in 15 patients [8]. Younger age, an identifiable trigger, and earlier LVEF recovery were more frequent among patients who recovered conduction, but the evidence was derived from heterogeneous case reports and does not provide a validated waiting period [8]. Our patient had a clear

physical stressor and early partial LVEF improvement, features that might suggest potential reversibility, yet she continued to have complete AV block with a slow escape rhythm. This combination illustrates the practical difficulty: features associated with possible recovery may coexist with an immediate and clinically important bradyarrhythmic risk.

Permanent pacing was therefore considered after myocardial recovery had already begun, not merely because the presumed abdominal trigger had resolved. The decision rested on persistent complete AV block, the slow intrinsic escape rhythm, and the inability to predict when or whether AV conduction would return. This approach is consistent with pacing guidance for third-degree AV block while acknowledging that device decisions in TTS require individualized assessment [9,10]. Implantation does not settle the causal question, and later recovery would not necessarily mean that the initial decision was inappropriate. Serial pacemaker interrogation is essential to document intrinsic conduction, quantify pacing dependence, and refine the retrospective interpretation of the sequence. Its absence during subsequent follow-up is an important limitation of this report. Paired follow-up of LVEF and AV conduction, rather than myocardial imaging alone, is therefore the clinically relevant lesson from this case.

CONCLUSION

In TTS with complete AV block and acute extracardiac illness, diagnostic and therapeutic decisions should not depend on a single causal explanation. Persistent symptoms warrant independent investigation, and the need for pacing should be judged separately from ventricular recovery.

Acknowledgments

The authors have no acknowledgments to report. This work has not been previously presented at any scientific meeting. The authors received no financial support or funding for the research, authorship, or publication of this article.

Conflict of interest

The authors declare that there is no conflict of interest.

Patient consent statement

Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work, the authors used OpenAI Codex to improve the manuscript's structure and language. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

REFERENCES

- Ghadri, J. R., Wittstein, I. S., Prasad, A., Sharkey, S., Dote, K., Akashi, Y. J., Cammann, V. L., Crea, F., Galiuto, L., Desmet, W., Yoshida, T., Manfredini, R., Eitel, I., Kosuge, M., Nef, H. M., Deshmukh, A., Lerman, A., Bossone, E., Citro, R., ... Templin, C. (2018). International expert consensus document on Takotsubo syndrome (part I): Clinical characteristics, diagnostic criteria, and pathophysiology. *European Heart Journal*, 39(22), 2032–2046. <https://doi.org/10.1093/eurheartj/ehy076>
- Ghadri, J. R., Wittstein, I. S., Prasad, A., Sharkey, S., Dote, K., Akashi, Y. J., Cammann, V. L., Crea, F., Galiuto, L., Desmet, W., Yoshida, T., Manfredini, R., Eitel, I., Kosuge, M., Nef, H. M., Deshmukh, A., Lerman, A., Bossone, E., Citro, R., ... Templin, C. (2018). International expert consensus document on Takotsubo syndrome (part II): Diagnostic workup, outcome, and management. *European Heart Journal*, 39(22), 2047–2062. <https://doi.org/10.1093/eurheartj/ehy077>
- Stiermaier, T., Rommel, K. P., Eitel, C., Möller, C., Graf, T., Desch, S., Thiele, H., & Eitel, I. (2016). Management of arrhythmias in patients with Takotsubo cardiomyopathy: Is the implantation of permanent devices necessary? *Heart Rhythm*, 13(10), 1979–1986. <https://doi.org/10.1016/j.hrthm.2016.06.013>
- Citro, R., Okura, H., Ghadri, J. R., Izumi, C., Meimoun, P., Izumo, M., Dawson, D., Kaji, S., Eitel, I., Kagiya, N., Kobayashi, Y., Templin, C., Delgado, V., Nakatani, S., & Popescu, B. A. (2020). Multimodality imaging in Takotsubo syndrome: A joint consensus document of the European Association of Cardiovascular Imaging and the Japanese Society of Echocardiography. *Journal of Echocardiography*, 18(4), 199–224. <https://doi.org/10.1007/s12574-020-00480-y>
- Benyovszky, A., Berman, L., Provenzano, N., Nelluri, B., & Fredd, S. (2022). Gut feelings and broken hearts: A case of small bowel obstruction causing Takotsubo cardiomyopathy. *Cureus*, 14, Article e25707. <https://doi.org/10.7759/cureus.25707>
- Rathore, A., Banavalikar, B., Shenthur, J., Acharya, D., Parvez, J., & Setty Srinivasa, K. H. (2018). An unusual case of complete atrioventricular block causing Takotsubo syndrome. *Indian Pacing and Electrophysiology Journal*, 18(3), 123–125. <https://doi.org/10.1016/j.ipej.2018.01.002>
- Wakiya, M., Hara, H., Iwano, M., Nakagawa, T., Kayo, T., Kamimura, M., Ikeda, N., Tamori, Y., Yamamoto, M., Ito, S., Okazaki, O., & Moroi, M. (2013). Complete atrioventricular block associated with not apical but midventricular ballooning. *Journal of Cardiology Cases*, 7(4), e109–e113. <https://doi.org/10.1016/j.jccase.2012.12.003>
- Hussein, H., Derias, P., Kassem, H., Ali, W., Tran, P., & Kuehl, M. (2026). Predictors of high-grade atrioventricular block recovery in Takotsubo cardiomyopathy: A systematic review of case reports. *Open Heart*, 13(1), Article e004035. <https://doi.org/10.1136/openhrt-2026-004035>
- Glikson, M., Nielsen, J. C., Kronborg, M. B., Michowitz, Y., Auricchio, A., Barbash, I. M., Barrabés, J. A., Boriani, G., Braunschweig, F., Brignole, M., Burri, H., Coats, A. J. S., Deharo, J. C., Delgado, V., Diller, G. P., Israel, C. W., Keren, A., Knops, R. E., Kotecha, D., ... ESC Scientific Document Group (2021). 2021 ESC guidelines on cardiac pacing and cardiac resynchronization therapy. *European Heart Journal*, 42(35), 3427–3520. <https://doi.org/10.1093/eurheartj/ehab364>
- Yalta, K., Madias, J. E., Kounis, N. G., Y-Hassan, S., Polovina, M., Altay, S., Mebazaa, A., Yilmaz, M. B., Lopatin, Y., Mamas, M. A., Gil, R. J., Thamman, R., Almaghraby, A., Bozkurt, B., Bajraktari, G., Fink, T., Traykov, V., Manzo-Silberman, S., Mirzoyev, U., ... Seferovic, P. M. (2024). Takotsubo syndrome: An international expert consensus report on practical challenges and specific conditions (part 1: Diagnostic and therapeutic challenges). *Balkan Medical Journal*, 41(6), 421–441. <https://doi.org/10.4274/balkanmedj.galenos.2024.2024-9-98>