

**Left ventricular aneurysm associated with stroke: a rare complication**  
**Aneurisma ventricular izquierdo asociado a accidente cerebrovascular agudo**

**To the Editor,**

Ventricular aneurysms are defined as a dyskinetic or akinetic segment of a dilated area of the heart that causes decreased ventricular function, commonly resulting from a myocardial infarction. The lesion can be described as a bulging of a localized portion on the outer surface of the left ventricle, extending beyond the rest of the cardiac surface, with simultaneous protrusion of the cavity in the same direction.<sup>1</sup>

Anatomically, the ventricular wall is thinner than the adjacent myocardium and is composed of necrotic and fibrotic tissue interspersed with viable myocardium. In a pseudoaneurysm, there is an incomplete rupture of the wall, which is contained by the pericardium.<sup>1</sup> Left ventricular aneurysm is a fatal mechanical complication, commonly associated with acute myocardial infarction.<sup>2</sup> Its prevalence ranges between 10% and 35% in non-revascularized patients, and around 0.3% in revascularized ones.<sup>3</sup> It is a rare entity, infrequent, with no clear clinical signs, and is usually an incidental finding.<sup>4</sup>

The presence of associated mural thrombi appears

to have decreased with the use of aggressive antiplatelet therapy, although they are still present in silent ischemia.<sup>5</sup>

Few published cases relate a silent ischemic event to the development of left ventricular aneurysmal lesions complicated by thromboembolic events.

A 56-year-old man with no relevant past medical history presented to the emergency department (ED) with a several-hour history of general malaise and low-grade fever. A fever of 39°C was recorded, without other associated symptoms. While waiting and receiving antipyretic treatment, he experienced a presyncopal episode associated with right upper limb weakness (3/5), left-sided mouth deviation, and mild motor aphasia.

A stroke code was activated, and a computed tomography (TC) angiography revealed a left periorlandic penumbra area and calcified atheromatous plaques in both common carotid bifurcations, with adequate distal opacification. In addition, an emergency echocardiogram showed a pericardial effusion and a mass in the left ventricle; therefore, thrombolysis was ruled out.

Given these findings, a color Doppler echocardiogram was performed, revealing a slightly dilated left ventricle with posterobasal akinesia, probable pseudoaneurysm, and a 48 mm × 35 mm mass or thrombus inside; global LV function was slightly depressed, with mild-to-moderate mitral regurgitation, a slightly dilated left atrium, and a mod-

erate circumferential pericardial effusion of 18 mm without hemodynamic compromise (Figure 1).

Based on these findings, a thoracoabdominal CT scan was performed, showing a subendocardial perfusion defect in the basal inferolateral and mid-left ventricular regions, along with a marked contained aneurysmal wall thinning and a 4.5 cm sac. There was an extensive non-contrast-enhancing filling defect inside, compatible with an intracavitary thrombus. In conclusion, an ischemic lesion was observed in the circumflex artery territory with a thrombosed aneurysm.

The cardiac surgery team intervened, performing exclusion of the ventricular aneurysm and removal of the intracavitary thrombus (Figures 2 and 3).

Postoperatively, the patient's hemodynamic status improved, but his neurological condition did not. A repeat cranial CT scan showed established infarcts in both cerebral hemispheres and the posterior fossa. Clinically, right hemiparesis and dysarthria persisted, requiring neurological rehabilitation.

Ventricular aneurysms are rare and are categorized as congenital or acquired. In the latter, the main cause is acute coronary syndrome, particularly those involving the left anterior descending coronary artery.<sup>3</sup> The prevalence of this second group has decreased since the introduction of percutaneous coronary reperfusion therapy.<sup>6</sup> However, they must be considered in the differ-

**Authors:**

Elena Auriolés García<sup>1</sup>,  
 Jorge Pedraza García<sup>2</sup>,  
 Manuel Porras Pantojo<sup>3</sup>,  
 Patricia Vidal Malia<sup>1</sup>

**Author Affiliations:**

<sup>1</sup>Área Sanitaria Norte Córdoba, Spain.  
<sup>2</sup>Servicio de Urgencias, Hospital Comarcal Pozoblanco, Córdoba, Spain.  
<sup>3</sup>Unidad de Cuidados Intensivos, Hospital Comarcal Pozoblanco, Córdoba, Spain.

**E-mail:**

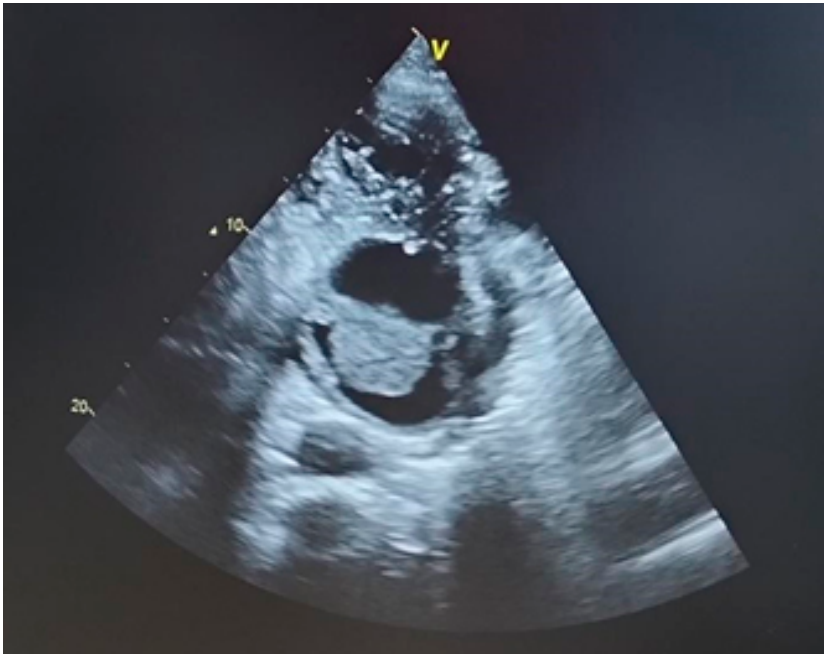
elenaag.93@gmail.com

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Fernando Rosell Ortiz.



**Figure 1.** Echocardiogram: 48 mm × 35 mm mass/thrombus within the left ventricle.

tial diagnosis of patients with thrombotic phenomena, which can occur in various anatomical regions, most frequently in the brain and lower limbs.

Normally, aneurysms are symptomatic, but there are also cases—such as the one presented in this article—that are diagnosed incidentally during the evaluation of another disease.<sup>7</sup> The asymptomatic form is associated with a higher risk of complications, which are also related to the degree of dilatation and its location.

The most sensitive and specific di-

agnostic tool is echocardiography. Cardiac magnetic resonance imaging also allows precise localization of the dilatation site. Both studies enable differentiation between aneurysm and pseudoaneurysm, guiding the appropriate therapeutic approach.<sup>2</sup>

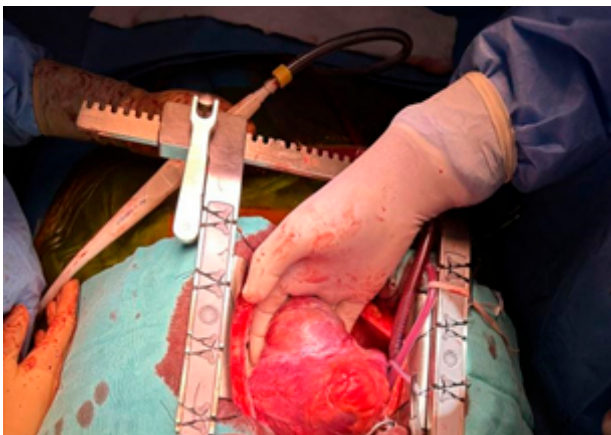
Surgical repair aims to preserve cardiac physiology, with a 30-day mortality rate ranging from 0% to 19%. Surgical treatment is effective, improving both survival and quality of life, especially when accompanied by myocardial revascularization.

The uniqueness of this case of ischemic stroke lies in its rare association with a ventricular aneurysm, underscoring the importance of considering all possible etiologic differential diagnoses, even those with lower clinical prevalence.

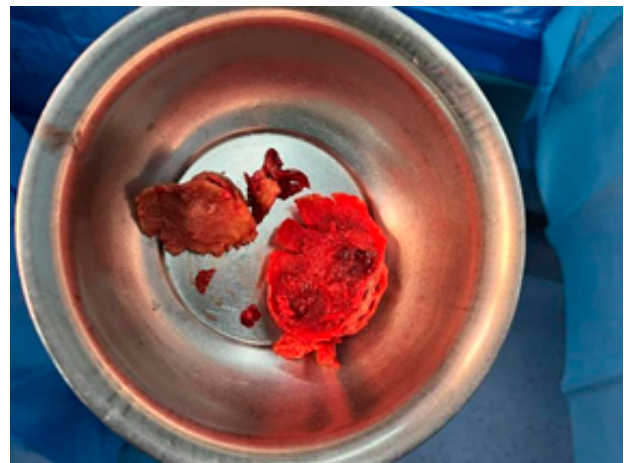
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## REFERENCES

1. Quitian Moreno J, Ariza Rodríguez DJ, Rugeles T, Bermúdez López LM. Complicaciones mecánicas del infarto agudo de miocardio: aunque infrecuentes, potencialmente letales. *Revista Colombiana Cardiología.* 2017;24:505-9.
2. Kutty RS, Jones N, Moorjani N. Mechanical complications of acute myocardial infarction. *Cardiology Clinics.* 2013;31:519-31.
3. Gil L, Estévez F, Acosta F, Perea C, García Iturralde L, Cattáneo J. Aneurisma ventricular izquierdo asociado a trombo mural: una complicación poco frecuente del IAMCEST. *CONAREC.* 2020;35:265-7.
4. Della Rocca DG, Forleo GB, Stazi CA, Franco G, Volpe GA, Romeo F. Massive left ventricular pseudoaneurysm 20 years after acute myocardial infarction. *J Am Coll Cardiol.* 2013;62:e523
5. Velasco-Castro JC, García-Agudelo L, Niño-Moreno MP, Vargas-Rodríguez LJ. Aneurisma ventricular izquierdo después de infarto transmural silente. *Rev Salud Bosque.* 2023;13:1-8.
6. Khanna S, Bhat A, Mardini M, Tan TC. Left ventricular aneurysm: a rare complication of an acute myocardial infarction in the modern era. *Oxf Med Case Reports.* 2020;9:omaa080.
7. Roberts CE Jr, Rana HN, Wood B, Hussain Z. Incidental Discovery of a Left Ventricular Aneurysm After a Syncopal Episode. *Cureus.* 2021;13:e17979.



**Figure 2.** Cardiac surgery performed on the patient; the pseudoaneurysm is visible prior to exclusion for thrombotic material removal.



**Figure 3.** Thrombotic material removed from the patient's left ventricle.

## On the review "Mild head trauma and biomarkers of acute brain injury"

### *Sobre "traumatismo craneoencefálico leve y biomarcadores de lesión cerebral aguda"*

#### To the Editor,

Following the publication of the review by Temboury *et al.*<sup>1</sup> on biomarkers of acute brain injury after traumatic brain injury (TBI), we would like to make some comments.

The absence of specific signs and symptoms in patients presenting to the emergency department with mild traumatic brain injury (mTBI), the differences between clinical guidelines, and the lack of robust evidence make the management of this condition heterogeneous<sup>2</sup>—particularly regarding the indication for urgent cranial computed tomography (CT). In our center, we do not currently have access to acute brain lesion (ABL) biomarkers; therefore, we sought to assess the degree of adherence to the most widely used international guideline, the NICE<sup>3</sup>, and to the algorithm proposed by Temboury *et al.*, estimating how many patients could potentially benefit from the use of biomarkers according to those recommendations.

We retrospectively analyzed patients treated for mTBI in our department over a 6-month period (February to July 2023). A total of 545 patients were evaluated, of whom 286 (52.6%) were women, with a mean age of 68.5 years (SD, 21.3). Cranial

CT was performed in 377 patients (69.2%), revealing disease in 56 (10.3%). Only one patient who did not undergo CT showed evidence of lesions during follow-up (1 month). The median time to completion of the CT report was 2.1 hours (SD, 1.2). Surgery was required in 3 cases (0.6%), and 4 (0.7%) were admitted to the intensive care unit (ICU). After 1 month, 7 patients (1.3%) had died.

According to NICE/SEMES criteria, in our sample, CT would have been indicated in 258 (47.3%) and 510 (93.6%) cases, respectively. With criteria differing from those in the guidelines, we found 167 (30.6%) cases, of which 143 (85.3%) were due to performing CT when not indicated by NICE, and 157 (28.8%) cases where CT was not performed in 145 (92.4%) patients according to SEMES. These results highlight the disparity between both algorithms and the contrast with real clinical practice in the management of mTBI.

Furthermore, according to the algorithm proposed by Temboury *et al.*<sup>1</sup>, a total of 470 (86.2%) patients would have been eligible for the use of ABL biomarkers. Applying the results of the study by Bazarian *et al.*<sup>4</sup> (negative test in 34% of patients), we would obtain a reduction of 160 (29.3%) CT scans—indicating 350 during the study period—interestingly, an intermediate number between both protocols and close to the actual number of CTs performed in our study.

As a counterpoint, according to the study by Bazarian, in 66% of cases where ABL biomarkers were used, a subsequent CT would still be indicated. This would delay

imaging, prolong average stay (noting that in our study, the median time to CT report was 2.1 hours), and negatively impact efficiency and perceived patient care quality. What we do consider valuable in the protocolized indication of ABL biomarkers is the reduction of unnecessary CT requests (and their associated risks), but above all, the added certainty and objectivity in managing this patient group—previously inconsistent—thus contributing to the homogenization of clinical decision-making.

Therefore, we encourage continued research that takes into account the particular conditions of our emergency departments and assesses the real benefits of ABL biomarker use.

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## REFERENCES

1. Temboury F, Moya F, Arráez MA, Arribas I, Vicente A, Gallego FJ, *et al.* Traumatismo craneoencefálico leve y biomarcadores de lesión cerebral aguda. *Rev Esp Urg Emerg.* 2024;3:31-6.
2. Rubiano AM, Lee K. Traumatic brain injury research: homogenising heterogeneity. *Lancet Neurol.* 2023;22:973-5.
3. National Institute for Health and Care Excellence (NICE): Head injury: assessment and early management. Publicado el 18 de mayo de 2023. (Accessed 1 February 2022). Available at: <https://www.nice.org.uk/guidance/ng232>
4. Bazarian JJ, Biberthaler P, Welch RD, Lewis LM, Barzo P, Bogner-Flatz V, *et al.* Serum GFAP and UCH-L1 for prediction of absence of intracranial injuries on head CT (ALERT-TBI): a multicentre observational study. *Lancet Neurol.* 2018;17:782-9.

#### Authors:

Pedro Ángel de Santos Castro<sup>1</sup>  
Carlos del Pozo Vegas<sup>1</sup>  
David de Santos Sánchez<sup>2</sup>.

#### Author Affiliations:

<sup>1</sup>Servicio de Urgencias, Hospital Clínico Universitario de Valladolid, Spain.

<sup>2</sup>Facultad de Medicina, Universidad de Valladolid, Valladolid, Spain.

#### E-mail:

vidmendo@gmail.com

#### Ethical Responsibilities:

All authors have confirmed their authorship, the nonexistence of external funding, and the maintenance of confidentiality and respect for patients' rights in the author's responsibilities document, publication agreement, and assignment of rights to *Revista Española de Urgencias Emergencias*.

#### Editor in Charge:

Guillermo Burillo-Putze.

## Author's reply: Mild head trauma and biomarkers of acute brain injury

### Respuesta de los autores: Biomarcadores de lesión cerebral aguda en el traumatismo craneoencefálico leve

#### To the Editor,

In relation to the letter published by De Santos Castro *et al.* in this issue,<sup>1</sup> I would like to make a few clarifications.

As indicated in our work, the management of traumatic brain injury (TBI) is highly heterogeneous, and the use of protocols for requesting computed tomography (CT) varies considerably among emergency departments (EDs)<sup>2</sup>. When developing our multidisciplinary consensus on the management of mild TBI, incorporating the use of TBI biomarkers, we were clear that patient safety had to be our main objective, and that the protocol should be applicable to all clinical settings, since access to cranial CT is not uniform across different EDs. The signs and symptoms included in the algorithm of the 2023 NICE guideline for requesting cranial CT in mild TBI are similar to those in other algorithms and to those included in our consensus. Therefore, the marked difference in CT indication rates—47.3% according to NICE and 93.6% according to our algorithm—seems excessive to us.

There are still few EDs currently using TBI biomarkers. The first analyses from hospitals with greater expe-

rience in their use highlight that they reduce the length of the ED stay.<sup>3,4</sup> For instance, data presented by Morell *et al.*<sup>3</sup> from *Hospital Son Espases* (Majorca, Spain) in the communication "Implementation of new serum biomarkers of acute brain injury: diagnostic-therapeutic implications in Emergency Department" at Wordlab-Euromedlab (Rome, May 2023) compared average patient stay times before and after the introduction of TBI biomarkers and concluded that the use of TBI tests can reduce the length of the ED stay by nearly 50%.<sup>3</sup>

Likewise, Gutiérrez Pérez, Álvarez Corral *et al.* from *Hospital de Neurotraumatología Virgen de las Nieves* (Granada, Spain)—a provincial reference center for patients with severe trauma, TBI, and spinal cord injury—have shared preliminary aspects of their extensive experience with TBI biomarkers, initiated in March 2022.<sup>4</sup> During this period, they have treated approximately 7,300 patients with TBI or polytrauma with TBI; of these, 4,254 have been evaluated with TBI biomarkers. In their analysis of the period from March 30<sup>th</sup>, 2022 to September 2023<sup>rd</sup>, of 2,463 patients with TBI who met criteria for cranial CT and were initially assessed with TBI biomarkers, 1,678 (68%) had positive results. Among these, in 299 (19%) cranial CT was not performed because the biomarker results were very close to normal. Moreover, of the 785 (32%) patients with negative TBI biomarkers, 514 (65%) did not undergo cranial CT and were discharged directly, while

271 (35%) did; findings were normal in 270 (99.6%) and pathological in 1 (0.4%)—a patient with chronic alcoholism and frequent ED visits for recurrent polytrauma, whose CT revealed subacute lesions. When measuring the mean length of the ED stay, the following results were obtained: patients discharged without biomarkers or cranial CT: 2.5 hours; patients with negative TBI biomarkers and no cranial CT: 3 hours; patients with negative TBI biomarkers and normal CT: 6 hours; patients with positive TBI biomarkers and normal CT: 6 hours; and patients without TBI biomarkers and normal CT: 9 hours. With the use of TBI biomarkers, cranial CT was avoided in 813 patients, all of whom were discharged, and only 1 (0.1%) reconsulted for the same reason. The authors concluded that the use of biomarkers (GFAP and UCH-L1) has a negative predictive value of 99.6%, avoids unnecessary cranial CT and radiation exposure in approximately 700 patients per year in their ED, and reduces average patient stay time by around 4 hours.

We agree that the use of our consensus-based recommendations, endorsed by the scientific societies involved in TBI care, will reduce unnecessary CT requests, add certainty and objectivity to clinical decision-making and diagnosis, and promote standardization across EDs.

The next step should be the development of a registry in hospitals implementing TBI biomarker use,<sup>5,6</sup> since the results of clinical studies must be validated

#### Authors:

Francisco Temboury Ruiz<sup>1</sup>,  
Eva Gutiérrez Pérez<sup>2</sup>,  
Gemma Álvarez Corral<sup>3</sup>,  
Daniel Morell-García<sup>4</sup>,  
José Roberto Penedo Alonso<sup>5</sup>,  
Francisco Moya Torrecilla<sup>6</sup>

#### Author Affiliations:

<sup>1</sup>Servicio de Urgencias, Hospital Universitario Virgen de la Victoria, Málaga, Spain.

<sup>2</sup>Servicio de Urgencias de Neurotraumatología, Hospital Virgen de las Nieves, Granada, Spain.

<sup>3</sup>Servicio de Análisis Clínicos, Hospital Virgen de las Nieves, Granada, Spain.

<sup>4</sup>Servicio de Análisis Clínicos, Hospital Universitario Son Espases, Mallorca, Spain.

<sup>5</sup>Servicio de Urgencias, Hospital Universitario Ramón y Cajal, Madrid, Spain.

<sup>6</sup>Servicios Médicos Internacionales, Hospital Vithas Xanit Internacional, Málaga, Spain.

#### E-mail:

pacotemboury@gmail.com

#### Ethical Responsibilities:

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#### Editor in Charge:

Guillermo Burillo-Putze.

with real-world data that reflect the conditions, variability, and idiosyncrasies of each ED.

With the consensus recommendations, our goal has been to provide a practical guide for EDs incorporating TBI biomarkers in the management of mild TBI. However, we recognize that much remains to be explored and investigated, which will allow us to adapt and modify relevant aspects as needed.

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## REFERENCES

1. De Santos Castro PA, del Pozo Vegas C, de Santos Sánchez D. Sobre "traumatismo craneoencefálico leve y biomarcadores de lesión cerebral aguda". *Rev Esp Urg Emerg* 2024;3:130.
2. Temboury Ruiz F, Moya Torrecilla F, Arráez Sánchez MA, Arribas Gómez I, Vicente Bártulos A, Gallego España FJ, et al. Traumatismo craneoencefálico leve y biomarcadores de lesión cerebral aguda. *Rev Esp Urg Emerg.* 2024;3:31-6.
3. Morell-García D, Ortega J, Viles M, Santes Berto M, Ballesteros A, Marin M, et al. Implementation of new serum biomarkers of acute brain injury: diagnostic-therapeutic implications in Emergency Department. *Wordlab-Euromedlab, Roma*, 2023.
4. Gutiérrez Pérez E, Galvez López R, Huertas Vilchez A, Karastosa Valentín K, Rueda Rodríguez P, Vilchez Campillos P. Uso de rutina de ubiquinina C-terminal Hidrolasa-L1 (UCH-L1) y proteína ácida glial fibrilar (GFAP) como biomarcadores de daño cerebral en la evaluación de pacientes con traumatismo craneoencefálico leve en urgencias hospitalarias. 34 Congreso Nacional SEMES, Madrid, 2023.
5. Martín Fernández De Basoa MC, Concepción Masip MT, González Romero PM, Fernández Del Castillo Ascanio M, Marichal Hernández CA, Nuñez Vila P. Navidades en el manejo del traumatismo craneoencefálico leve a través de nuevos biomarcadores de laboratorio, XVII Congreso Nacional del Laboratorio Clínico, Zaragoza 2023.
6. González Hermoso I, Escalante Reyes M, Sirera Sirera P, Alfayate Guerra R, Llorens Soriano P, Armero Jarava A. Análisis comparativo de S100B y GFAP/UCH-L1 para predecir el daño neurológico en pacientes con TCE leve. XVII Congreso Nacional del Laboratorio Clínico, Zaragoza 2023.

## Kounis syndrome NSTEMI after a Vespa velutina sting *Síndrome de Kounis. scasesst tras picadura de avispa velutina*

### To the Editor,

Kounis syndrome (KS), first described by Kounis and Zavras in 1991, consists of an acute coronary syndrome (ACS) or unstable angina occurring in the context of an anaphylactic reaction triggered by various factors such as medications, foods, or environmental exposures like hymenoptera stings.<sup>1-4</sup>

KS manifests as anaphylactic shock involving the coronary arteries, which can lead to the onset of an ACS. However, not all patients with anaphylaxis develop a concomitant coronary event, and the factors determining this difference have not yet been clearly established.<sup>2</sup>

A key diagnostic requirement is a close cause-effect relationship between the

triggering factor and clinical presentation, the latter consisting of signs and symptoms characteristic of a severe allergic reaction followed by an ACS, regardless of the presence or absence of pre-existing structural heart disease.<sup>1,2</sup>

Its treatment remains controversial due to the lack of standardized clinical practice guidelines, and management is generally based on the use of pharmacologic agents targeting each condition separately, which in turn carries the risk of aggravating either one.<sup>2,5</sup>

The relevance of this syndrome lies in its diagnostic complexity and its potential impact on the morbidity and mortality of affected patients. This underscores the need for further studies providing data to guide the appropriate management of each specific case.

This is the case of a 64-year-old man who, after sustaining multiple stings from the Asian hornet (*Vespa velutina*), developed severe anaphylaxis presenting

with syncope and secondary traumatic brain injury. On initial assessment by the Emergency Medical Services, the patient was noted to be cold and pale, with hypotension (82/54 mmHg) and tachycardia (heart rate 113 bpm). He was administered adrenaline (1 mg), hydrocortisone (200 mg), methylprednisolone (80 mg), and dexchlorpheniramine (5 mg). An electrocardiogram revealed abnormalities involving the inferolateral wall of the heart (Figure 1).

In view of these findings, dual antiplatelet therapy with acetylsalicylic acid (ASA) and clopidogrel was initiated, and the patient was immediately transferred to the emergency department of our hospital under suspicion of anaphylactic shock and non-ST-segment elevation acute coronary syndrome. He was admitted to the intensive care unit (ICU). Laboratory tests confirmed elevated troponin and tryptase levels. Given the suspicion of KS, coro-

### Authors:

Myrian González Álvarez ,  
Ana Latorre Díez ,  
Miguel Ángel Núñez Viejo .

### Author Affiliations:

Servicio de Medicina Interna.  
Complejo Hospitalario  
Universitario de Ourense.  
Ourense, Spain.

### E-mail:

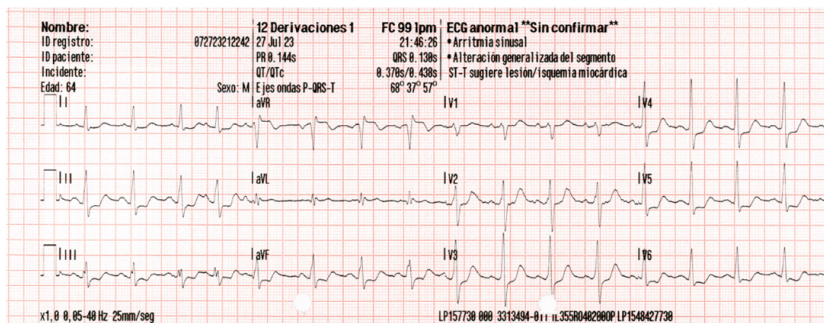
myrian.gonzalez.alvarez@  
segas.es

### Ethical Responsibilities:

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### Editor in Charge:

Fernando Rosell Ortiz.



**Figure 1.** Electrocardiogram performed during the syncopal episode showing ST-segment depression in leads II, III, aVF, and V3–V6, corresponding to the inferolateral wall of the heart, with reciprocal changes in leads aVR and V1.

nary angiography was performed, which ruled out structural coronary pathology. The patient was ultimately diagnosed with type I KS.

In conclusion, we believe that KS is likely an underdiagnosed entity and should be considered in the differential diagnosis of patients presenting with severe reactions to hymenoptera stings. A high index of suspicion may be decisive, particularly in regions where the incidence of severe *Vespa velutina* stings has increased in recent

years, such as northern Spain<sup>5,6</sup> and other areas of Europe.<sup>7</sup>

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## REFERENCES

1. Kounis NG, Zavras GM. Histamine-induced coronary artery spasm: the concept of allergic

1. angina. *Br J Clin Pract.* 1991;45:121-8.
2. Fassio F, Losappio L, Antolin-Amerigo D, Peveri S, Pala G, Preziosi D, et al. Kounis syndrome: A concise review with focus on management. *Eur J Intern Med.* 2016;30:7-10.
3. Gallego Muñoz C, Ferreira Alfaya FJ, Guerrero Navarro N, Olmos Gutiérrez L. Síndrome de Kounis secundario a la picadura de una avispa. *Rev OFIL.* 2017;27:312-5.
4. Jara Vidal M, López García MC, Quílez Toboso RP. Síndrome de Kounis tras administración de hierro intravenoso. *Med Clin.* 2023;161:130-1.
5. Castro Jiménez A, Olivencia Peña L, García García R, Florido López F, Torres Sánchez E, Molina Navarro E. Manejo terapéutico en Síndrome de Kounis: tratamiento inmunológico coadyuvante al tratamiento antitrombótico. *Emergencias.* 2021;33:247-8
6. Toranzo Nieto S, Brage Allegue E, Martínez Paz E, Toranzo Nieto I. Infarto agudo de miocardio tipo 2 inducido por adrenalina. Síndrome de Kounis. *Rev Esp Urg Emerg.* 2022;1:52-3.
7. Roa Alonso D, Fong Ruiz F, Mohedano Gómez A, Díaz Abad R. Síndrome de Kounis por contraste yodado. *Rev Esp Urg Emerg.* 2024;3:64-6.
8. Ramos Jovani M, Vázquez S, Regueiro Cueva A, Ferrero M. Vasoespasmo inducido por metamizol: síndrome de Kounis, un diagnóstico que suele pasarse por alto. *Emergencias.* 2022;34:155-6.
9. Feás X. Human fatalities caused by hornet, wasp and bee stings in Spain: Epidemiology at state and sub-state level from 1999 to 2018. *Biology.* 2021;10:73.

## Authors:

Sergio Yago Ríos<sup>1</sup>,  
Carmen Casal Angulo<sup>2</sup>

## Author Affiliations:

<sup>1</sup>Máster en Urgencias, Emergencias y Críticos en Enfermería.

<sup>2</sup>Servicio de Emergencias Sanitarias Comunidad Valenciana. Facultad Enfermería y Podología. Universidad de Valencia, Spain.

## E-mail:

sergiyago00@gmail.com

## Ethical Responsibilities:

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María Elena Castejón-de la Encina.

## Current situation of prehospital use of ultrasound by nurses

### Estado actual de la enfermería prehospitalaria en el manejo de la ecografía

#### To the Editor,

Ultrasound technology has proven to be one of the most relevant technological advances in the development of modern medicine, as it allows us to improve diagnosis and tailor treatment for patients while being completely harmless. Since its inception, this technology has continuously evolved to the point that

it is now available in portable form (under the English-derived term "point-of-care ultrasound"), enabling its use in both prehospital and hospital settings. Some studies have also demonstrated its effectiveness in aerial and military environments.<sup>1,2</sup>

Beyond this, nursing professionals are increasingly incorporating ultrasound into their daily practice, as it is extremely useful in their day-to-day work—particularly for the cannulation of difficult vascular access, often complicated by patient anatomy. In Europe, several countries already have specific legal frameworks and terminology that include these skills as part of nurs-

ing professional development.<sup>3</sup>

In this context, we sought to determine the current situation of prehospital nursing professionals in Spain (EMS nurses) through an ad hoc online survey, aimed at assessing the availability of this technology in their workplaces, the training received in this field, and their opinions on its usefulness. The survey was disseminated through social networks, obtaining 41 responses from 13 Autonomous Communities (Aragón, Canary Islands, Cantabria, Castile and León, Castile-La Mancha, Catalonia, Community of Madrid, Valencian Community, La Rioja, Basque Country, and Region of Murcia).

**Table 1.** Sample characteristics and responses to the ultrasound survey

Demographic data			
Age (years)	n (%)	Experience (years) n (%)	
20-39	21 (51.2)	< 1	4 (9.8)
40-59	19 (46.3)	1-5	11 (26.8)
> 60	1 (2.4)	5-10	6 (14.6)
		> 10	20 (48.8)
Type of resource		Sex	
ALS	28 (68.3)	Female	18 (43.9)
ALSNU	13 (31.7)	Male	23 (56.1)
Ultrasound data			
Availability of ultrasound device		Training in ultrasound	
Yes	21 (51.2)	Yes	27 (63.9)
No	20 (48.8)	No	14 (34.1)
Opinion on ultrasound use		Time since ultrasound training (months)	
Delays definitive treatment	9 (22)	< 6	6 (22.2)
Important for diagnosis	39 (95.1)	6-24	17 (63)
Important for appropriate treatment	39 (95.1)	> 24	4 (14.8)

ALS: Advanced Life Support; ALSNU: Advanced Life Support Nursing Unit.

Table 1 shows the demographic and ultrasound-related data. Of the respondents, 31.7% worked specifically in advanced life support nursing units (ALSNU), and although 51.2% reported having access to an ultrasound device, it was not available in any of the ALSNU units. A total of 63.4% had received ultrasound training, though only 44.4% of this training was provided by their EMS; the remainder consisted of self-directed learning. In 85.2%, the training had taken place over the past 2 years. The most frequent use of ultrasound in EMS was for the assessment of free abdominal fluid (53.7%), followed by vascular access (24.4%) and cardiocirculatory evaluation (12.2%). About 22% of respondents believed that performing ultrasound in EMS settings delays de-

finite treatment. No statistically significant differences were found when comparing ultrasound training by resource type ( $P = .76$ ), age ( $P = .74$ ), or sex ( $P = .78$ ).

When comparing these results with the study by Bobbia *et al.*<sup>4</sup>—very similar in design—it was found that only 28% of French prehospital services had ultrasound equipment available. Moreover, despite an increase in ultrasound resources compared to previous years, health care professionals still underutilized this technology in their daily clinical practice.

Therefore, despite acknowledging the limitations posed by the small sample size, differences exist among Spanish EMS nurses regarding access to ultrasound equipment. Additionally,

there is evidence of a lack of formal training provided by EMS systems, particularly within ALSNU resources, even though most professionals recognize its clinical usefulness. Broader studies are needed, both in terms of sample size and focused specifically on advanced nursing practice.<sup>5,6</sup>

**Note of the editors:** This is a BOWMAN-generated English translation of the officially indexed Spanish-language article, which should be cited as *Rev Esp Urg Emerg.* 2024;3:132-133. In this translated version, the editors have supervised the process; however, it cannot be ruled out that some errors resulting from the artificial intelligence translation process may have gone unnoticed.

## REFERENCES

1. Bøtker MT, Jacobsen L, Rudolph SS, Knudsen L. The role of point of care ultrasound in pre-hospital critical care: a systematic review. *Scand J Trauma Resusc Emerg Med.* 2018;26:51.
2. Villén Villegas T, Campo Linares R, Alonso Viladot JR, Martínez Mas R, José Luque Hernández MJ, Ruiz Durán M, et al. Competencias básicas de la ecografía clínica en los servicios de urgencias y emergencias. *Emergencias.* 2022;34:377-87.
3. Castellano G, Barranco R. Ecografía como herramienta en la enfermería extrahospitalaria, una revisión bibliográfica. (Accessed 18 December 2023). Available at: <https://crea.ujaen.es/handle/10953.1/179572021>.
4. Bobbia X, Abou-Badra M, Hansel N, Pes P, Petrovic T, Claret PG, et al. Changes in the availability of bedside ultrasound practice in emergency rooms and prehospital settings in France. *Anaesth Crit Care Pain Med.* 2018;37:201-5.
5. Díaz Acosta J, Sanz Villorojo J. El futuro profesional de la enfermería de urgencias y emergencias española. *Emergencias.* 2010;22:163-4.
6. Small V. El desarrollo de un rol de práctica avanzada en enfermería de urgencias y emergencias: reflexiones desde la experiencia en Irlanda. *Emergencias.* 2010;22:220-5.