

negative (since it is not the first contact with the virus [live, but attenuated in the vaccine]) and RT-PCR may not be able to detect the virus due to a lower viral load, probably due to a faster and more effective immune response that limits its ability to multiply in the previously vaccinated host. For the characterisation of vaccine failure, the IgG avidity test is crucial,⁷ as it differentiates between the first contact with the virus (low avidity, which in vaccinated people would indicate primary failure) and a new contact (high avidity, indicative of secondary failure in vaccinated individuals).^{7,9} Sometimes, as occurred with this patient, despite complete vaccination, IgG can be negative in the acute phase (probably due to the decrease to undetectable and non-protective levels). Seroconversion with specific high-avidity IgG would be the consequence of the booster effect caused by natural infection. So, in this case, which met confirmation criteria, both epidemiological (link with a measles case) and microbiological (IgG seroconversion),¹⁰ but which produced results that could be seen as discrepant (negative IgM and RT-PCR), the determination of high IgG avidity in the second sample indicated that the vaccine failure was secondary.

Conflicts of interest

The authors declare that they have no conflicts of interest in relation to this article. This work is a consequence of the surveillance activity carried out within the framework of the plan for the elimination of measles, rubella and congenital rubella syndrome in the Autonomous Region of Madrid, in Spain.

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References

- Twelfth meeting of the European Regional Verification Commission for measles and rubella elimination: 8–11 September 2023 Copenhagen, Denmark: meeting report. Copenhagen: WHO Regional Office for Europe; 2024. Licence: CC BY-NC-SA 3.0 IGO. [Accessed 14 June 2024]. Available from: <https://iris.who.int/bitstream/handle/10665/376606/WHO-EURO-2024-9722-49494-74055-eng.pdf?sequence=1>
- VI Encuesta de Serovigilancia de la Comunidad de Madrid. Año 2022. Boletín Epidemiológico de la Comunidad de Madrid. Volumen 28. Suplemento. [Accessed 13 June 2024]. Available from: <https://gestion3.madrid.org/bvirtual/BVCM051156.pdf>.

- Masa-Calles J, López-Perea N, Godoy P. Perfil epidemiológico del sarampión en España: casos en adultos, secundarios a la importación y asociados con la asistencia sanitaria. *Semergen*. 2020;46:77–80. <http://dx.doi.org/10.1016/j.semerg.2019.12.012>.
- Pampaka D, López-Perea N, Fernández-García A, Huertas-Zarco I, Castellanos-Martínez M, Villatoro-Bongiorno K, et al. An interregional measles outbreak in Spain with nosocomial transmission November 2017 to July 2018. *Euro Surveill*. 2023;28:2200634. <http://dx.doi.org/10.2807/1560-7917.ES.2023.28.17.2200634>.
- Dunn JJ, Baldanti F, Puchhammer E, Panning M, Perez O, Harvala H. Measles is back – considerations for laboratory diagnosis. *J Clin Virol*. 2020;128:104430. <http://dx.doi.org/10.1016/j.jcv.2020.104430>.
- Arima Y, Oishi K. Letter to the editor: measles cases among fully vaccinated persons. *Euro Surveill*. 2018;23:1800449. <http://dx.doi.org/10.2807/1560-7917.ES.2018.23.34.1800449>.
- Fappani C, Gori M, Canuti M, Terraneo M, Colzani D, Tanzi E, et al. Break-through infections: a challenge towards measles elimination? *Microorganisms*. 2022;10:1567. <http://dx.doi.org/10.3390/microorganisms10081567>.
- Wiedermann U, Garner-Spitzer E, Wagner A. Primary vaccine failure to routine vaccines: why and what to do? *Hum Vaccin Immunother*. 2016;12:239–43. <http://dx.doi.org/10.1080/21645515.2015.1093263>.
- Plan estratégico para la eliminación del sarampión y la rubeola en España 2021–2025. Consejo Interterritorial del Sistema Nacional de Salud. Plan estratégico para la eliminación del sarampión y la rubeola en España. Ministerio de Sanidad. Enero 2021. [Accessed 13 June 2024]. Available from: https://www.sanidad.gob.es/areas/promocionPrevencion/vacunaciones/sarampion-rubeola/docs/PlanEstrategico_SarampionyRubeola.pdf.
- Centro Nacional de Epidemiología-Instituto de Salud Carlos III/Red Nacional de Vigilancia Epidemiológica. In: Protocolos de la Red Nacional de Vigilancia Epidemiológica; 2013. Madrid. [Accessed 13 June 2024]. Available from: <https://www.isciii.es/QueHacemos/Servicios/VigilanciaSaludPublicaRENAVE/EnfermedadesTransmisibles/Documents/PROTOCOLOS/PROTOCOLOS%20EN%20BLOQUE/PROTOCOLOS.RENAVE-ciber.pdf>

Marta Pérez-Abeledo^a, Fernando Martín^b, Susana Jiménez^b, Juan Carlos Sanz^{a,c,*}

^a Unidad de Microbiología Clínica, Laboratorio Regional de Salud Pública de la Comunidad de Madrid, Dirección General de Salud Pública de la Comunidad de Madrid, Madrid, Spain

^b Área de Vigilancia y Control de Enfermedades Transmisibles, Subdirección General de Vigilancia en Salud Pública, Dirección General de Salud Pública de la Comunidad de Madrid, Madrid, Spain

^c CIBER de Epidemiología y Salud Pública (CIBERESP), ISCIII, Madrid, Spain

* Corresponding author.

E-mail address: juan.sanz@salud.madrid.org (J.C. Sanz).

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on behalf of Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica.

Characterization of wound infections among patients injured during the Russo-Ukrainian war in a Role 4 hospital



Caracterización de las infecciones de herida entre pacientes procedentes de la guerra ruso-ucraniana en un hospital Role 4

Dear Editor,

We have read with interest the article by Rodero-Roldán et al. entitled *Characterisation of wound infections among patients injured during the Russian-Ukrainian war in a Role 4 hospital*.¹ The title already includes a semantic inaccuracy with the use of the term “Role 4”, about which we would like to make several points.

Although the article focuses on an interesting characterisation of microbial patterns in war wounds of Ukrainian combat casualties treated at the Hospital General de la Defensa “Orad y Gajás” military hospital, in their discussion the authors include a brief contribution about the concept of medical care in the military field.

“Apoyo Sanitario en Operaciones” [Medical Support in Operations] is defined as the set of activities, both in terms of planning and execution, aimed primarily at providing everything necessary for the prevention of illness in a timely manner, and the promotion, maintenance and restoration of health during the deployment, support and withdrawal of a military operation, with the aim of achieving the operational capability necessary for the successful completion of the mission. This is a facilitator that provides support to the Forces, helping to maintain combat capability and freedom of action.²



Figure 1. Hospital Central de la Defensa “Gómez Ulla”, 9 January 2021. Photograph by the authors.

In this regard, the deployable component of medical support is organised in three echelons, parallel to the entity of the units of the Forces, in such a way that the first echelon is supported by the second and this in turn by the third. This allows for continuous and sustained medical assistance. This entire system is in turn supported by the fixed health centres that constitute the fourth echelon. A health echelon is understood to mean an organised set of human and material resources with a certain capability, which provides health support to an operational unit or organisation. While considering the term “echelon”, we must also consider the concept of “role”, which refers to functionality and describes the capability or level of care of a deployed healthcare facility. Four roles are described, with 1 denoting the least capability and 4 the greatest, each assuming the functions of the previous one.

According to the NATO (North Atlantic Treaty Organization) doctrine,³ Role 4 must cover the full spectrum of military healthcare, including definitive medical and surgical procedures, reconstructive surgery and rehabilitation. The aim of Role 4 is to provide definitive care to casualties strategically evacuated from the theatre of operations, either because the capabilities of the medical formations deployed in the area of operations are insufficient for the required treatment, or because the time expected for the recovery of the casualty exceeds that provided for by the evacuation standard agreed for the deployment.

In light of the above, we would like to conclude that, although Hospital General de la Defensa “Orad y Gajías” has the necessary human and material resources to qualify it for the fourth echelon of medical support as a deployment support medical centre

with Role 2 capability,⁴ Hospital Central de la Defensa “Gómez Ulla” (Fig. 1) is the only Spanish military hospital with Role 4 capability,⁵ and which also has the necessary human and material resources to qualify as a fourth echelon facility within the medical support for military operations.⁴

Conflicts of interest

The authors declare that they have no conflicts of interest.

References

1. Rodero-Roldán MM, Yuste-Benavente V, Martínez-Álvarez RM, López-Calleja AI, García-Lechuz JM. Caracterización de las infecciones de herida entre pacientes procedentes de la guerra ruso-ucraniana en un hospital Role 4. *Enferm Infecc Microbiol Clin*. 2024; <http://dx.doi.org/10.1016/j.eimc.2024.04.004>. In Press.
2. Publicación Doctrinal Conjunta PDC-4.10 «Doctrina Sanitaria en Operaciones». Estado Mayor de la Defensa; marzo 2021. p. 15–16.
3. Allied Joint Publication AJP-4.10, Edition C, Version 1, Allied Joint Doctrine for Medical Support. NATO Standardization Office; September 2019. p. 2–14. Disponible en: https://www.coemed.org/files/stanags/01_AJP/AJP4.10.EDC.V1.E.2228.pdf.
4. Instrucción 8/2024 de 16 de abril, de la Subsecretaría de Defensa, que modifica la Instrucción 49/2016, de 28 de julio, de la Subsecretaría de Defensa, por la que se describe la estructura orgánica básica y funciones de los hospitales, centros e institutos de la Red Sanitaria Militar. *Boletín Oficial del Ministerio de Defensa*. Núm. 76; 17 de abril de 2024. Sec. I. p. 10393.
5. Instrucción 48/2016, de 28 de julio, de la Subsecretaría de Defensa, por la que se modifica la Instrucción 2/2013, de 15 de enero, de la Subsecretaría de Defensa, por la que se asignan funciones y cometidos en el ámbito de la Inspección General de Sanidad de la Defensa y se describe su estructura orgánica. *Boletín Oficial del Ministerio de Defensa*. Núm. 149; 1 de agosto de 2016. Sec. I. p. 19266.

Rafael García-Cañas^{a,*}, Francisco Javier Areta-Jiménez^b

^a Servicio de Cirugía Ortopédica y Traumatología, Hospital Central de la Defensa «Gómez Ulla», Madrid, Spain

^b Hospital Central de la Defensa «Gómez Ulla», Madrid, Spain

* Corresponding author.

E-mail address: garciacanas@icloud.com (R. García-Cañas).

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Reply to “Characterization of wound infections among patients injured during the Russo-Ukrainian war in a Role 4 hospital”



Respuesta a “Caracterización de las infecciones de herida entre pacientes procedentes de la guerra ruso-ucraniana en un hospital Role 4”

Dear Editor,

In response to the letter to the editor submitted by García-Cañas and Areta-Jiménez,¹ we appreciate the explanation and clarifications on the concept of Role 4, and we acknowledge that we made a mistake in ranking the role of Hospital General de la Defensa Órdaz y Gajásin Zaragoza (HGDZ). We also appreciate the clarifications on medical support in operations and its meaning, as they are relevant and will prevent future errors.

Our article aimed to convey the complex clinical and epidemiological situation arising from the healthcare of these patients, and the complications in their management and antibiotic therapy due to the resistance of pathogens, mainly from war wounds. Despite being a hospital with a role inferior to other military hospitals, the commitment of HGDZ to treating patients from the war in Ukraine is exemplary and absolute.

Under the agreement between the Department of Health of the Autonomous Region of Aragon and Spain's Ministry of Defence,² with the collaboration of numerous departments of the Miguel Servet Hospital in Zaragoza and the mediation of the HGDZ administration, we have provided care that might well be classified as excellent. Although our hospital is not a “role 4” hospital, we have fulfilled all the necessary functions and material and human resource requirements, as demonstrated by the procedures performed by Plastic Surgery, Maxillofacial Surgery and Neurosurgery, or by the continuous work of other departments, such as Microbiology.

These efforts have been recognised by the Ministry of Defence, which continues to put its trust in our hospital, as demonstrated by the latest news articles published in the press.³ This reply serves to extol the virtues of international and national healthcare cooperation in times of war, the complexity of which has been accurately reflected by García-Cañas and Areta-Jiménez.

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References

- García-Cañas R, Areta-Jiménez FJ. Caracterización de las infecciones de herida entre pacientes procedentes de la guerra ruso-ucraniana en un hospital Role 4. *Enferm Infecc Microbiol Clin*. 2024. En prensa.
- Resolución 420/38118/2023, de 17 de marzo. Renovación del convenio entre el Ministerio de Defensa y la Comunidad Autónoma de Aragón para la utilización conjunta de recursos sanitarios. Boletín Oficial del Estado. 2023 Mar 17. Available from: https://www.boe.es/diario_boe/txt.php?id=BOE-A-2023-7844.
- Heraldo.es. Hospital Militar de Zaragoza acoge a militares ucranianos heridos. *Heraldo de Aragón* [Internet]. 2024 May 8 [cited 2024 Jun 13]; Available from: <https://www.heraldo.es/noticias/aragon/2024/05/08/hospital-militar-zaragoza-militares-ucranianos-heridos-1731882.html>.

María del Mar Rodero Roldán^{a,*}, Valentín Yuste Benavente^b, Ana Isabel López Calleja^c, Juan Manuel García-Lechuz^c

^a Servicio de Medicina Interna, Hospital General de la Defensa, Zaragoza, Spain

^b Servicio de Cirugía Plástica, Hospital Universitario Miguel Servet, Zaragoza, Spain

^c Servicio de Microbiología, Hospital Universitario Miguel Servet, Zaragoza, Spain

* Corresponding author.

E-mail address: mrodero.rolدان@hotmail.com (M.d.M. Rodero Roldán).

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