Журнал «Перспективи та інновації науки»
(Серія «Педагогіка», Серія «Психологія», Серія «Медицина»)
№ 5(51) 2025

СЕРІЯ «Медицина»

UDC 616.13-002.2-07:616-076:577.112.7

https://doi.org/10.52058/2786-4952-2025-5(51)-2453-2460

Chernylovskyi Andrii Volodymyrovych C.Med.Sc., Assistant Professor of the Department of Family Medicine, Postgraduate Education and Propedeutics of Internal Medicine, Dnipro State Medical University, Dnipro, tel: (050) 607-52-81, https://orcid.org/0000-0003-3544-6291.

CLINICAL CASE OF ANCA-ASSOCIATED VASCULITIS (GRANULOMATOSIS WITH POLYANGIITIS) WITH MULTISYSTEM INVOLVEMENT

Abstract. This article presents a clinical case of ANCA-associated vasculitis, specifically granulomatosis with polyangiitis (GPA), in a 73-year-old female patient with multisystem involvement. The disease was initially masked as isolated ENT pathology (otitis, sinusitis), leading to significant delays in diagnosis. The clinical picture gradually worsened, with the onset of systemic symptoms including anaemia, weight loss, ophthalmic disturbances, respiratory symptoms, and signs of renal syndrome. The final diagnosis of granulomatosis with polyangiitis, with high disease activity (as assessed by the BVAS scale), renal, ocular, upper respiratory tract, and haematological involvement, was established only after confirmation of high PR3-ANCA levels and exclusion of haematological pathology. The patient was hospitalised during the high-activity phase of the disease, with critically reduced glomerular filtration rate (GFR of 13 mL/min), significantly elevated C-reactive protein levels, haematuria, and proteinuria. Immunosuppressive therapy according to European guidelines (EULAR, KDIGO) was initiated, including pulse therapy with methylprednisolone, followed by maintenance doses of prednisolone in combination with azathioprine. This approach resulted in a positive clinical outcome: a reduction in creatinine levels, normalisation of inflammatory markers, partial recovery of renal function, and improvement in the patient's general condition. The described case highlights the typical clinical heterogeneity of ANCA-associated vasculitis and the challenges of early diagnosis, particularly in elderly patients with nonspecific manifestations. The successful stabilization of the patient without the need for dialysis underscores the effectiveness of timely treatment initiation and the importance of a multidisciplinary approach involving nephrologists, rheumatologists, ophthalmologists, and ENT specialists. The article

Журнал «Перспективи та інновації науки»
(Серія «Педагогіка», Серія «Психологія», Серія «Медицина»)
№ 5(51) 2025

emphasises the importance of early ANCA testing, comprehensive clinical-laboratory assessment, and dynamic monitoring to improve the prognosis in ANCA-associated vasculitis.

Keywords: ANCA-associated vasculitis, granulomatosis with polyangiitis, PR3-ANCA, multisystem involvement, renal failure, conjunctivitis, immunosuppressive therapy, glucocorticoids.

Черниловський Андрій Володимирович кандидат медичних наук, асистент кафедри сімейної медицини ФПО та пропедевтики внутрішньої медицини, Дніпровський державний медичний університет, м. Дніпро, тел.: (050) 607-52-81, https://orcid.org/0000-0003-3544-6291.

КЛІНІЧНИЙ ВИПАДОК ANCA-АСОЦІЙОВАНОГО ВАСКУЛІТУ (ГРАНУЛЕМАТОЗУ З ПОЛІАНГІЇТОМ) З МУЛЬТИСИСТЕМНИМ УРАЖЕННЯМ

Анотація. У статті розглядається клінічний випадок ANCA-асоційованого васкуліту — гранулематозу з поліангіїтом (ГзП) — у пацієнтки 73 років з мультисистемним ураженням. Захворювання тривалий час маскувалося під ізольовану ЛОР-патологію (отит, синусит), що зумовило значну затримку в постановці діагнозу. Клінічна картина поступово ускладнювалася появою системних проявів — анемії, зниження маси тіла, офтальмологічних порушень, респіраторних симптомів та ознак ренального синдрому. Лише після верифікації високого рівня PR3-ANCA та виключення гематологічної патології було встановлено остаточний діагноз: гранулематоз з поліангіїтом з високою активністю (за шкалою BVAS), ураженням нирок, очей, верхніх дихальних шляхів та системи крові. Пацієнтка була госпіталізована у фазі високої активності захворювання з критичним зниженням швидкості клубочкової фільтрації (ШКФ до 13 мл/хв), значним підвищенням рівня С-реактивного білка, гематурією та протеїнурією. Було призначено імуносупресивну терапію згідно з європейськими рекомендаціями (EULAR, KDIGO): пульс-терапія метилпреднізолоном, далі — перехід на підтримувальні дози преднізолону у комбінації з азатіоприном. Такий підхід дозволив досягти позитивної динаміки: зниження рівня креатиніну, нормалізацію запальних маркерів, часткове відновлення функції нирок та покращення загального стану. Описаний випадок демонструє типову клінічну гетерогенність ANCA-асоційованих васкулітів та виклики ранньої діагностики, особливо у пацієнтів літнього віку з неспецифічними проявами. Успішна стабілізація стану пацієнтки без потреби в діалізі підкреслює ефективність своєчасно розпочатої терапії та важливість мультидисциплінарного підходу із залученням нефролога, ревматолога, офтальмолога та ЛОР-спеціаліста. Стаття акцентує увагу на важливості раннього ANCA-тестування, комплексної клініко-лабораторної

оцінки та динамічного нагляду для покращення прогнозу при ANCA-асоційованих васкулітах.

Ключові слова: ANCA-асоційований васкуліт, гранулематоз з поліангіїтом, PR3-ANCA, мультисистемне ураження, ниркова недостатність, кон'юнктивіт, імуносупресивна терапія, глюкокортикостероїди.

Statement of the Problem in General Terms and Its Connection to Important Scientific or Practical Tasks. Systemic vasculitis, particularly ANCA-associated forms, remains a complex diagnostic and therapeutic challenge in clinical practice. Given the variability of the clinical picture, timely diagnosis and treatment initiation are crucial for prognosis. This is especially true in elderly patients, where symptoms may be subtle, initial manifestations may be atypical, or mimic other pathologies. The study of clinical cases with multisystem involvement helps increase clinician awareness and improve the quality of medical care. Granulomatosis with polyangiitis, previously known as Wegener's granulomatosis, is a rare systemic vasculitis affecting small and medium-sized vessels, characterised by chronic inflammation that can lead to damage of various organs, including the respiratory tract, kidneys, eyes, and skin [1,2].

According to available data, the prevalence of granulomatosis with polyangiitis in Europe is 5-10 cases per 1 million population, with an annual incidence of 2-14 cases per 1 million. In most cases (85-95%), positivity for PR3-ANCA is detected, which serves as an important diagnostic marker. However, even in the presence of this marker, diagnosis can be complicated due to the lack of specific symptoms in the early stages of the disease [3,4,5].

In clinical practice, it is crucial to recognise and treat granulomatosis with polyangiitis in a timely manner to prevent serious complications such as renal failure or damage to other vital organs. This requires heightened vigilance on the part of healthcare professionals and the use of modern diagnostic methods for early disease detection.

In addition to classical therapeutic methods, there is growing interest in the use of biological agents, particularly monoclonal antibodies targeting CD20 (rituximab), which have demonstrated high efficacy in achieving remission. The role of new biomarkers, such as complement C5a and its receptor, as potential therapeutic targets is also being studied. According to the RAVE study (Stone et al.), rituximab is comparable to cyclophosphamide in inducing remission in granulomatosis with polyangiitis and may have advantages in patients with relapses [6].

Analysis of Recent Research and Publications. Recent studies emphasise the importance of ANCA status in patients with granulomatosis with polyangiitis. Specifically, PR3-ANCA positivity is associated with a higher risk of relapses and certain clinical features. A large cohort study conducted by the French Vasculitis Study Group showed that PR3-ANCA positive patients had a higher relapse rate compared to MPO-ANCA positive and ANCA-negative patients [7].

Журнал «Перспективи та інновації науки»
(Серія «Педагогіка», Серія «Психологія», Серія «Медицина»)
№ 5(51) 2025

Another study based on the French Vasculitis Study Group registry demonstrated that 5-year and 10-year relapse-free survival rates were 37% and 17%, respectively, with PR3-ANCA positivity being an independent predictor of relapse [8].

In terms of treatment, current EULAR and KDIGO guidelines highlight the effectiveness of combined therapy with glucocorticoids and immunosuppressants such as azathioprine or rituximab, particularly in patients at high risk of relapse [9,10]. However, therapy selection should be individualized, considering ANCA status, renal function, and other clinical features.

Genetic studies also point to the role of HLA genes in the development of granulomatosis with polyangiitis. Specifically, the HLA-DPB1*0401 allele is associated with an increased risk of developing PR3-ANCA positive vasculitis, which may explain geographical differences in disease prevalence [11].

Thus, modern research highlights the need for early diagnosis and an individualized approach to the treatment of granulomatosis with polyangiitis, taking into account ANCA status, genetic factors, and clinical manifestations of the disease.

The aim of the article is to analyse the difficulties in the primary diagnosis of granulomatosis with polyangiitis with pronounced multisystem involvement (kidneys, eyes, respiratory tract) in an elderly patient.

Presentation of the Main Research Material. The patient, a 73-year-old retired female, was hospitalised in the nephrology department of the Municipal Clinical Hospital No. 4, Dnipro City, from 4th February 2025 to 14th February 2025, with complaints of general weakness, severe anorexia, weight loss of 20 kg over the past three months, eye burning and discomfort, photophobia, lacrimation, periodic rashes on the skin of the limbs and torso, and nasal congestion. She reported feeling unwell since September 2024, following an episode of otitis with ineffective outpatient treatment, after which symptoms of general intoxication, weakness, loss of appetite, and weight gradually worsened.

During further outpatient investigation in December 2024 (three months later), the following was found: blood creatinine of 131 μmol/L, proteinuria of 1 g/L, leukocyturia, and leukocytosis. Chest CT, CT of the orbit, and abdominal CT showed signs of solid nodules in both lungs with post-inflammatory changes, and a small amount of fluid in the pericardial cavity. She continued self-treatment, but with no improvement, and there were signs of lung involvement according to CT — multiple solid nodules in both lungs with post-inflammatory changes. Subsequently, creatinine levels increased to 408 μmol/L, along with proteinuria and leukocytosis. Two weeks before hospitalisation in the nephrology department, she developed eye burning, lacrimation, and photophobia. A hematologist excluded multiple myeloma. To verify the systemic process, the patient was referred by the nephrologist for testing for systemic vasculitis, which confirmed a high level of PR3-ANCA (>200).

Upon hospitalisation (five months after the first signs of illness), the patient was in a moderate condition, with pronounced asthenia, anaemic syndrome, signs of active conjunctivitis, and eyelid oedema. Laboratory findings included:

haemoglobin — 83 g/L, leukocytosis, glomerular filtration rate (GFR) — 13 mL/min (according to CKD-EPI), C-reactive protein (CRP) — 95.5 mg/L, proteinuria, and haematuria. The diagnosis was established as: Granulomatosis with polyangiitis, high activity (BVAS-II), acute course with renal, ocular, upper respiratory tract, and haematological involvement; Chronic kidney disease stage III (G3b; A3); Chronic renal failure stage I. Head CT showed signs of diffuse thickening of the mucous membranes of the nasal conchae and thickening of the lower walls of the nasopharynx. The patient was examined by an ophthalmologist, who concluded: Acute allergic dermatoconjunctivitis OU. Immature complicated cataract OU.

The patient was prescribed pulse therapy with methylprednisolone (250 mg IV, 3 doses), followed by maintenance therapy with prednisolone (Medrol 16 mg/day), azathioprine (Imuran 50 mg/day), along with concomitant pathogenetic, antioxidant, gastroprotective, and nephroprotective therapy.

During the course of treatment, positive dynamics in laboratory parameters were observed. After 14 days of therapy, haemoglobin increased to 96 g/L, creatinine decreased to 260 μmol/L, glomerular filtration rate (GFR) stabilised at 30 mL/min, and CRP reduced to 6.5 mg/L (Table 1). There was also a reduction in ophthalmological symptoms and an improvement in the patient's general condition, indicating the effectiveness of the chosen treatment regimen.

Table 1

Dynamics of Laboratory Parameters

Parameter	Before Treatment	After 14 Days of Treatment	Normal Range	Comment
Haemoglobin (g/L)	83	96	120–160	Increase in haemoglobin
Creatinine (μmol/L)	408	260	44–97	Improvement in kidney function
GFR (mL/min)	13	30	≥ 90	Stabilisation at stage G3b
CRP (mg/L)	95.5	6.5	< 6	Resolution of systemic inflammation

The presented clinical case illustrates the typical course of granulomatosis with polyangiitis (GPA) with involvement of multiple organs, while emphasizing the challenges in establishing the diagnosis due to nonspecific symptoms at the early stages. The choice of immunosuppressive therapy was determined by the presence of active vasculitis without signs of life-threatening complications. The positive dynamics observed confirm the effectiveness of the chosen treatment approach. The successful stabilization of the patient's condition allowed for the avoidance of dialysis. The prognosis remains cautiously favorable, and the patient requires long-term follow-up and laboratory monitoring. An important aspect of care is the interdisciplinary collaboration of specialists for the timely detection of the disease, recurrence, and therapy adjustment.

Журнал «Перспективи та інновації науки»
(Серія «Педагогіка», Серія «Психологія», Серія «Медицина»)
№ 5(51) 2025

Granulomatosis with polyangiitis belongs to ANCA-associated vasculitis and presents a challenge for clinicians due to its heterogeneous manifestation. The most common initial symptoms include chronic rhinosinusitis, otitis, conjunctivitis, and pulmonary infiltrates, which can be misinterpreted as infectious or oncological pathologies. Kidney involvement typically manifests as rapidly progressive glomerulonephritis. In this case, the long delay between the onset of symptoms and the correct diagnosis led to significant kidney tissue damage, with the glomerular filtration rate (GFR) declining to critical levels.

The appearance of high PR3-ANCA levels is an important diagnostic marker indicating the typical form of granulomatosis with polyangiitis. Notably, the multisystem nature of the disease is highlighted, with ophthalmologic manifestations (acute allergic conjunctivitis), sinusitis, hemorrhagic vasculitis, and a systemic inflammatory response. This underscores the need for a comprehensive, multidisciplinary approach involving nephrologists, rheumatologists, ophthalmologists, and ENT specialists.

The administration of immunosuppressive therapy with standard doses of glucocorticoids and azathioprine aligns with current European protocols (EULAR, KDIGO), particularly in the absence of life-threatening complications. The patient requires ongoing dynamic monitoring, with treatment adjustments based on the therapeutic response and laboratory findings.

This clinical case illustrates the difficulties of early diagnosis of ANCA-associated vasculitis in an elderly patient with nonspecific manifestations of granulomatosis with polyangiitis. Initial symptoms such as otitis and sinusitis were long considered isolated ENT pathologies. Only after progression to multisystem involvement, differential diagnosis excluding hematological and oncological diseases, and the determination of PR3-ANCA levels after five months was the final clinical diagnosis established. The activity index using the BVAS scale confirmed the high disease activity, justifying intensive immunosuppressive therapy. The choice of azathioprine over cyclophosphamide was based on the absence of life-threatening lesions and the patient's age. This case highlights the challenges of early diagnosis and the need for a multidisciplinary approach, with early involvement of nephrologists, rheumatologists, and other specialists to verify the final diagnosis.

Conclusions. This clinical case illustrates the difficulty of early detection of granulomatosis with polyangiitis in a 73-year-old patient, with a subtle clinical onset and prolonged differential diagnosis. It is important to remember that a high level of vigilance, proper interpretation of laboratory and imaging data, and timely ANCA testing allow for the identification of the pathology before irreversible changes develop, as evidenced in this clinical case. The initiation of therapy in the acute phase contributes to the reduction of inflammatory activity, preservation of kidney function, and improvement in the quality of life, as demonstrated in this case. The patient is recommended to undergo follow-up with relevant specialists, with therapy modifications based on tolerance, side effects, and changes in clinical and laboratory

status. This clinical case confirms the importance of early diagnosis of ANCA-associated vasculitis and the necessity of interdisciplinary collaboration in managing such patients.

References

1. Case report: Granulomatosis with polyangiitis patient presented with a mass in the aortic root / Y. Teng et al. *Frontiers in Immunology*. 2024. Vol. 15. URL: https://doi.org/10.3389/fimmu.2024.1373769 (date of access: 23.04.2025).

2. Aboulhosn R., Cooper F., Ah-See K. 265 Granulomatosis With Polyangiitis Manifesting as Acute Otitis Media: A Case Report and Review of Literature. *British Journal of Surgery*. 2023. Vol. 110, Supplement_7. URL: https://doi.org/10.1093/bjs/znad258.247 (date of access: 23.04.2025).

3. Granulomatosis with polyangiitis mimicking COVID-19 pneumonia: A case report / A. Basnet et al. *Clinical Case Reports*. 2023. Vol. 11, no. 10. URL: https://doi.org/10.1002/ccr3.8007 (date of access: 23.04.2025).

4. Kramarchuk V. V., Vysochyna I. L. Risk factors of recurrent respiratory infections in early school-age children. *Bukovinian Medical Herald*. 2023. Vol. 27, no. 3 (107). P. 25–29. URL: https://doi.org/10.24061/2413-0737.27.3.107.2023.5 (date of access: 23.04.2025).

5. Granulomatosis with polyangiitis presenting as a solitary renal mass: a case report / M. Higashihara et al. *BMC Nephrology*. 2023. Vol. 24, no. 1. URL: https://doi.org/10.1186/s12882-023-03276-1 (date of access: 23.04.2025).

6. Rituximab versus Cyclophosphamide for ANCA-Associated Vasculitis / J. H. Stone et al. New England Journal of Medicine. 2010. Vol. 363, no. 3. P. 221–232. URL: https://doi.org/10.1056/nejmoa0909905 (date of access: 23.04.2025).

7. ANCA-associated vasculitides: Recommendations of the French Vasculitis Study Group on the use of immunosuppressants and biotherapies for remission induction and maintenance / B. Terrier et al. *La Presse Médicale*. 2020. Vol. 49, no. 3. P. 104031. URL: https://doi.org/10.1016/j.lpm.2020.104031 (date of access: 23.04.2025).

8. Granulomatosis with polyangiitis: Study of 795 patients from the French Vasculitis Study Group registry / M. Iudici et al. *Seminars in Arthritis and Rheumatism*. 2021. Vol. 51, no. 2. P. 339–346. URL: https://doi.org/10.1016/j.semarthrit.2021.02.002 (date of access: 23.04.2025).

9. KDIGO Clinical Practice Guideline for the Management of ANCA-Associated Vasculitis Kidney Disease: Improving Global Outcomes (KDIGO). 2024.
https://kdigo.org/kdigo-announces-publication-of-the-2024-clinical-practice-guideline-for-antineutrophilic-cytoplasmic-antibody-anca-associated-vasculitis/

10. Joint European League Against Rheumatism and European Renal Association–European Dialysis and Transplant Association (EULAR/ERA-EDTA) recommendations for the management of adult and paediatric lupus nephritis / G. K. Bertsias et al. *Annals of the Rheumatic Diseases*. 2012. Vol. 71, no. 11. P. 1771–1782. URL: https://doi.org/10.1136/annrheumdis-2012-201940 (date of access: 23.04.2025).

11. HLA-DPB1 as a Risk Factor for Relapse in Antineutrophil Cytoplasmic Antibody-Associated Vasculitis: A Cohort Study / M. Hilhorst et al. *Arthritis & Rheumatology*. 2016. Vol. 68, no. 7. P. 1721–1730. URL: https://doi.org/10.1002/art.39620 (date of access: 23.04.2025).

Література:

1. Case report: Granulomatosis with polyangiitis patient presented with a mass in the aortic root / Y. Teng et al. *Frontiers in Immunology*. 2024. Vol. 15. URL: https://doi.org/10.3389/fimmu.2024.1373769 (date of access: 23.04.2025).

2. Aboulhosn R., Cooper F., Ah-See K. 265 Granulomatosis With Polyangiitis Manifesting as Acute Otitis Media: A Case Report and Review of Literature. *British Journal of Surgery*. 2023. Vol. 110, Supplement_7. URL: https://doi.org/10.1093/bjs/znad258.247 (date of access: 23.04.2025).

Журнал «Перспективи та інновації науки»
(Серія «Педагогіка», Серія «Психологія», Серія «Медицина»)
№ 5(51) 2025

3. Granulomatosis with polyangiitis mimicking COVID-19 pneumonia: A case report / A. Basnet et al. *Clinical Case Reports*. 2023. Vol. 11, no. 10. URL: https://doi.org/10.1002/ccr3.8007 (date of access: 23.04.2025).

4. Kramarchuk V. V., Vysochyna I. L. Risk factors of recurrent respiratory infections in early school-age children. *Bukovinian Medical Herald*. 2023. Vol. 27, no. 3 (107). P. 25–29. URL: https://doi.org/10.24061/2413-0737.27.3.107.2023.5 (date of access: 23.04.2025).

5. Granulomatosis with polyangiitis presenting as a solitary renal mass: a case report / M. Higashihara et al. *BMC Nephrology*. 2023. Vol. 24, no. 1. URL: https://doi.org/10.1186/s12882-023-03276-1 (date of access: 23.04.2025).

6. Rituximab versus Cyclophosphamide for ANCA-Associated Vasculitis / J. H. Stone et al. New England Journal of Medicine. 2010. Vol. 363, no. 3. P. 221–232. URL: https://doi.org/10.1056/nejmoa0909905 (date of access: 23.04.2025).

7. ANCA-associated vasculitides: Recommendations of the French Vasculitis Study Group on the use of immunosuppressants and biotherapies for remission induction and maintenance / B. Terrier et al. *La Presse Médicale*. 2020. Vol. 49, no. 3. P. 104031. URL: https://doi.org/10.1016/j.lpm.2020.104031 (date of access: 23.04.2025).

8. Granulomatosis with polyangiitis: Study of 795 patients from the French Vasculitis Study Group registry / M. Iudici et al. *Seminars in Arthritis and Rheumatism*. 2021. Vol. 51, no. 2. P. 339–346. URL: https://doi.org/10.1016/j.semarthrit.2021.02.002 (date of access: 23.04.2025).

9. KDIGO Clinical Practice Guideline for the Management of ANCA-Associated Vasculitis Kidney Disease: Improving Global Outcomes (KDIGO). 2024.

https://kdigo.org/kdigo-announces-publication-of-the-2024-clinical-practice-guideline-for-antineutrophilic-cytoplasmic-antibody-anca-associated-vasculitis/

10. Joint European League Against Rheumatism and European Renal Association–European Dialysis and Transplant Association (EULAR/ERA-EDTA) recommendations for the management of adult and paediatric lupus nephritis / G. K. Bertsias et al. *Annals of the Rheumatic Diseases*. 2012. Vol. 71, no. 11. P. 1771–1782. URL: https://doi.org/10.1136/annrheumdis-2012-201940 (date of access: 23.04.2025).

11. HLA-DPB1 as a Risk Factor for Relapse in Antineutrophil Cytoplasmic Antibody-Associated Vasculitis: A Cohort Study / M. Hilhorst et al. *Arthritis & Rheumatology*. 2016. Vol. 68, no. 7. P. 1721–1730. URL: https://doi.org/10.1002/art.39620 (date of access: 23.04.2025).