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From collective catering to the ward: Clinical and environmental analysis of a polymicrobial gastroenteritis outbreak

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Background. Foodborne and waterborne diseases represent a critical threat to immunocompromised patients, in whom reduced immune surveillance can exacerbate the clinical course of common pathogens [1]. This study analyzes a cluster of polymicrobial gastroenteritis stemming from a single point-source exposure, comparing the severity of clinical manifestations among patient with different clinical conditions.

Material And Methods. A 43-year-old woman undergoing active chemotherapy for cervical carcinoma was admitted in emergency with severe dehydration, incoercible vomiting, and profuse diarrhea, which onset five days after consuming a shared meal. Concurrently, three immunocompetent individuals from the same cohort developed gastrointestinal symptoms. Molecular investigations on the patient's stool samples and environmental epidemiological investigations at the catering site were performed to identify the etiological agents and the vehicle of infection.

Results. Stool analysis revealed a complex polymicrobial infection characterized by the co-presence of Campylobacter spp. and three distinct strains of Escherichia coli. The environmental investigation identified fecal contamination of the water supply, confirming water as the vehicle of contagion. While the healthy cohort presented a self-limiting course, albeit with minor long-term sequelae, the oncological patient required intensive therapeutic intervention due to marked systemic toxicity. The case highlights how the interaction between polymicrobial infection and iatrogenic immunosuppression can lead to a potentially fatal synergism [2].

Conclusions. This study emphasizes the need to implement stricter hygienic-sanitary surveillance protocols for public catering and reinforces the importance of specific nutritional counseling for oncological patients, aimed at minimizing the risk of exposure to unverified water and food sources.

References. Chavan, P., Vashishth, R. Antimicrobial resistance in foodborne pathogens: consequences for public health and future approaches. Discov Appl Sci 7, 623 (2025). https://doi.org/10.1007/s42452-025-07015-z Acheson D. Iatrogenic high-risk populations and foodborne disease. Infect Dis Clin North Am. 2013 Sep;27(3):617-29. doi: 10.1016/j.idc.2013.05.008. Epub 2013 Jul 17. PMID: 24011833.