

Mini-Narrative Review

Enterococcus thailandicus identified in respiratory samples in a critically ill patient: clinical report and mini review

Patricia Mester^{a,*}, Stephan Schmid^a, Arne Kandulski^a, Heidi Gschwendtner^a, Florian Weber^b, Martina Müller^a, Vlad Pavel^a

^a Department of Internal Medicine I, Gastroenterology, Hepatology, Endocrinology, Rheumatology, and Infectious Diseases, University Hospital Regensburg, Regensburg, Germany

^b Institute of Pathology, University of Regensburg, Regensburg, Germany

A B S T R A C T

Introduction: Enterococci are commensal bacteria of the digestive and genitourinary flora of humans and animals. In humans, enterococci can cause sepsis of urinary or abdominal origin. Compared to *Enterococcus faecium* and *Enterococcus faecalis*, *Enterococcus thailandicus* is one of the least characterized members of the genus *Enterococcus*. *E. thailandicus* has been rarely associated with human pathology.

Methods: We describe the first report of *E. thailandicus* in respiratory samples, and the third one in an intra-abdominal infected collection. Clinical isolates of *E. thailandicus* were cultured on Luria-Bertani medium at 37°C for 24 h. A review of the current literature regarding *E. thailandicus* in humans was performed. All published contributions on PubMed were found using the term “*Enterococcus thailandicus*”.

Results: We describe a 73-year-old patient with acute abdomen due to duodenal perforation. After surgical and endoscopic treatment, the patient developed pneumonia. Bronchoscopy showed diffuse purulent secretions and raised, cream-coloured pseudomembranes. Microbiological analysis from a subhepatic collection and respiratory samples identified *E. thailandicus*. Following adequate antibiotic treatment, the patient recovered. After six reports from Belgium, Romania, Spain, Germany and Japan, this is the seventh case of *E. thailandicus* in humans.

Conclusion: The current case describes the first report of *E. thailandicus* in respiratory samples in a critically ill patient and adds further evidence on the possible pathological impact of this bacterium in humans. Although *E. thailandicus* has a low clinical virulence today, continuous reporting of new potential pathogens could increase our understanding and improve interpretation of the role of rare enterococci in human pathology.

1. Introduction

Enterococci are facultatively anaerobic, gram-positive cocci that form part of the normal gastrointestinal and genitourinary microbiota in humans and animals. Although typically commensal, they can act as opportunistic pathogens and are a well-recognized cause of urinary tract infection, intra-abdominal infection, bacteremia, and endocarditis, particularly in healthcare-associated settings [1,2].

In parallel, enterococci are frequently detected in fermented foods and have been explored for technological and probiotic applications; however, their use remains controversial because some strains harbour virulence-associated traits or antimicrobial resistance determinants, necessitating careful strain-level safety evaluation [3].

Among the genus, *Enterococcus faecalis* and *Enterococcus faecium* account for the vast majority of human infections, whereas other species remain poorly characterized. *Enterococcus thailandicus*, first described in 2008 from fermented food in Thailand, is one such understudied species

[4]. Subsequent taxonomic work has refined its classification within the genus, but data on its ecological niche and pathogenic potential remain limited [5]. Experimental and genomic analyses suggest a heterogeneous profile, with some isolates lacking classical virulence determinants yet still demonstrating features that raise safety concerns, underscoring the need for cautious interpretation of its biological role [6].

To date, reports of *E. thailandicus* in human clinical samples are rare. Firstly identified in Belgium [2], further reports from Romania, Spain, Germany, Japan and Taiwan followed. The authors describe the identification of this potential pathogen in blood, peritoneal fluid, urine, bile, rectal swabs and tissue cultures from debridements [6–10].

Here we report the first isolation of *E. thailandicus* from respiratory samples in a critically ill patient who was admitted to the hospital with a perforated duodenal ulcer. Furthermore, we performed a review of the current literature. All published contributions on PubMed were found using the term “*Enterococcus thailandicus*”. Table 1 highlights these

* Corresponding author. Department of Internal Medicine I, Gastroenterology, Hepatology, Endocrinology, Rheumatology, and Infectious Diseases University Hospital Regensburg, Franz-Josef-Strauß-Allee 11, Regensburg, 93053, Germany.

E-mail address: patricia.mester@ukr.de (P. Mester).

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Table 1
Previous reports of *Enterococcus thailandicus* in humans.

Year	Authors	Title	Sample
2023	Mbouche et al. [2]	<i>Enterococcus thailandicus</i> , an unusual pathogen in humans encountered in an intra-abdominal infection	Peritoneal fluid
2025	Tsuda et al. [9]	Case report of <i>Enterococcus thailandicus</i> bacteremia, with genomic characterization of its clinical isolate	Blood, Urine
2026	Toc et al. [10]	First report of <i>Enterococcus thailandicus</i> isolated from routine vancomycin-resistant enterococci (VRE) screening samples	Rectal swabs
2026	Schlage et al. [8]	<i>Enterococcus thailandicus</i> in urine	Urine
2026	Wu et al. [6]	<i>Enterococcus thailandicus</i> as an uncommon pathogen in severe lower extremity trauma: a case report	Lower extremity debridements
2026	Vazquez-Ucha et al. [7]	<i>Enterococcus thailandicus</i> : Genomic evidence of a potential new player in enterococcal virulence and antimicrobial resistance	Bile, peritoneal fluid

previous publications.

2. Case report

A 73-year-old man presented to the emergency department with acute severe abdominal pain. Contrast-enhanced computed tomography (CT) showed pneumoperitoneum, and emergency surgery was undertaken. Intraoperatively, a perforated duodenal ulcer was identified, resected, and the defect closed. Histopathological examination confirmed extensive ulceration of the duodenal mucosa and full-thickness wall involvement with associated acute peritonitis (Fig. 1). Testing for *Campylobacter*-like organisms was negative.

On postoperative day 3, the patient developed melena with a decline in hemoglobin. Upper gastrointestinal endoscopy revealed additional duodenal ulcerations, including a Forrest IIa lesion, which was endoscopically treated with an over-the-scope clip device (Fig. 2).

Because of persistently increasing inflammatory markers, repeat CT

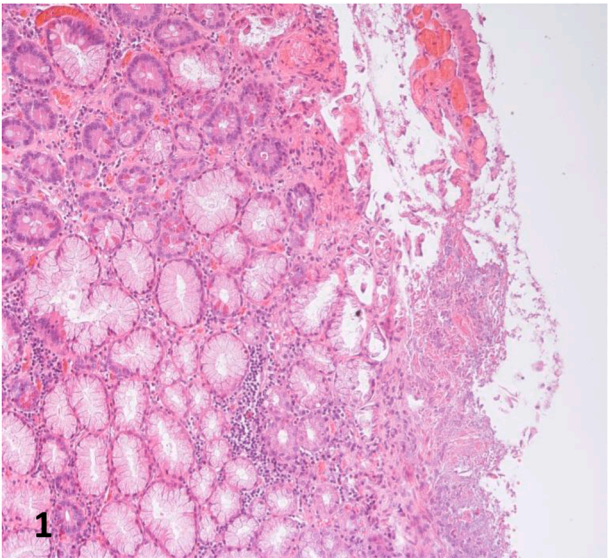


Fig. 1. Histology of the duodenal mucosa (haematoxylin and eosin stain; original magnification $\times 200$) showing an acute ulcer characterized by destruction of villi and crypts, with numerous neutrophils and fibrous exudate.

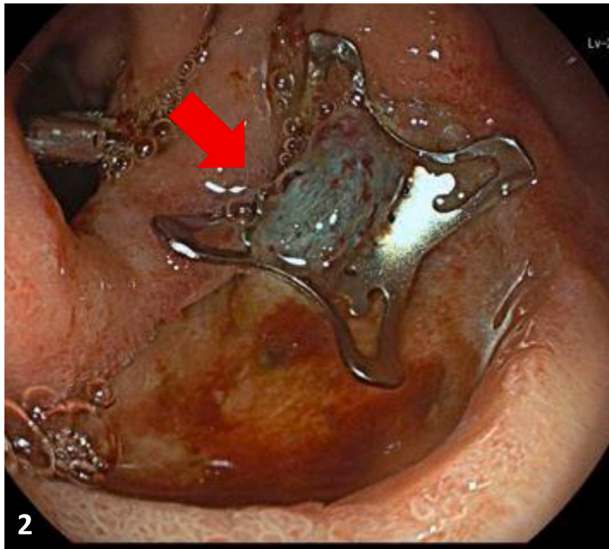


Fig. 2. Endoscopic image of duodenal ulcers with a Forrest IIa lesion treated with an over-the-scope clip device (arrow).

imaging was performed 2 weeks after surgery and demonstrated a 2×4 cm subhepatic collection (Fig. 3). The collection was percutaneously drained. Microbiological analysis of the drainage fluid identified *Enterococcus thailandicus* (Fig. 4). Antimicrobial susceptibility testing showed sensitivity to vancomycin, and targeted antimicrobial therapy was initiated.

The postoperative course was further complicated by critical illness polyneuropathy and pneumonia with prolonged ventilator dependence, necessitating tracheostomy, and vasopressor support. Bronchoscopy revealed diffuse purulent secretions and raised, cream-coloured pseudomembranes (Fig. 5). During mechanical ventilation the patient initially required a fraction of inspired oxygen of 50%, and a positive end-expiratory pressure of 9 mbar. Microbiological analysis of bronchial secretions identified *E. thailandicus* in addition to *Aspergillus fumigatus*. Combined antimicrobial and antifungal therapy with vancomycin and isavuconazole was administered. This treatment led to clinical improvement, and deescalation of invasive ventilation parameters. The patient could be progressively weaned from the ventilator, and from the

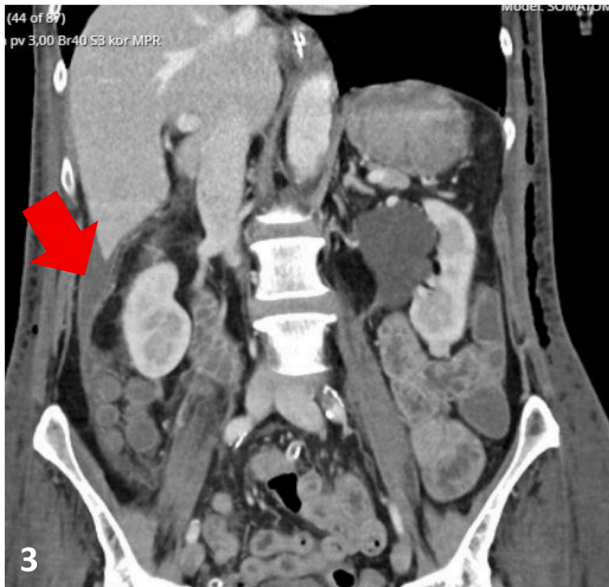


Fig. 3. CT scan showing a subhepatic collection (arrow).

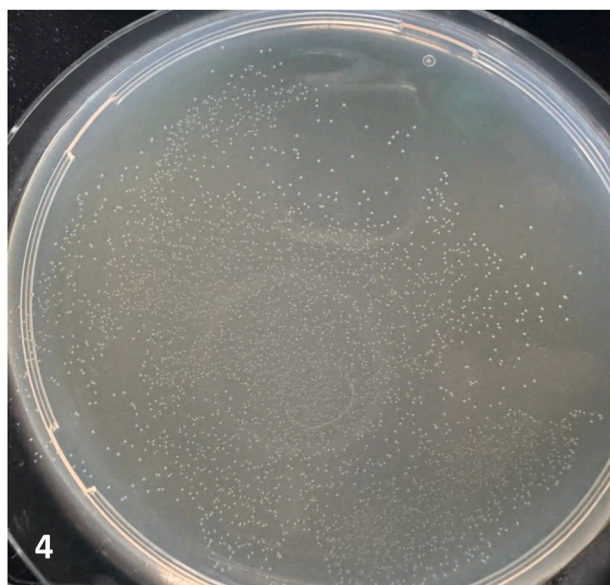


Fig. 4. Clinical isolates of *Enterococcus thailandicus* grown on Luria-Bertani medium at 37°C for 24 h.

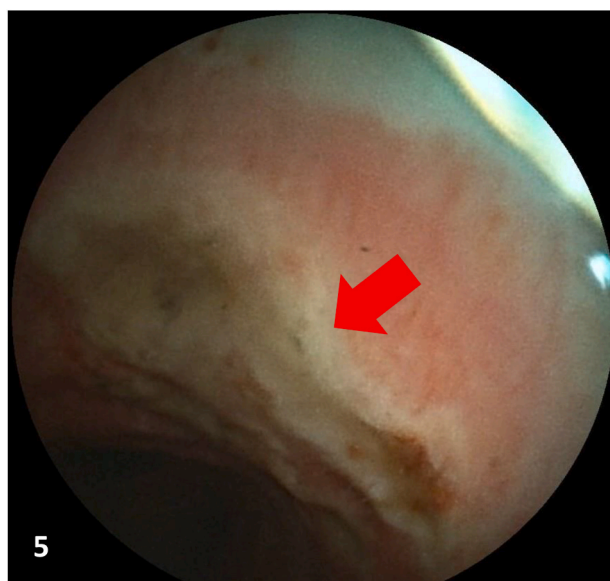


Fig. 5. Bronchoscopic image showing raised, cream-coloured thick pseudo-membranes (arrow).

vasopressor therapy. He was subsequently transferred to a rehabilitation facility after 3 weeks of intensive care stay.

3. Literature review

The present case expands the clinical spectrum of this species in two important aspects. First, it represents—to our knowledge—the third report of *E. thailandicus* identified in an intra-abdominal infected collection associated with gastrointestinal perforation [2]. Second, it is the first report of isolation from respiratory material in a human host, in the context of severe nosocomial pneumonia.

Reports of *Enterococcus thailandicus* in human clinical samples are scarce. The first description of its involvement in human disease was published in 2023, when Mbouche and colleagues identified the organism in two independent peritoneal fluid samples from a patient with

fecaloid peritonitis secondary to perforated sigmoid diverticulitis, in the context of a polymicrobial infection [2]. More recently, additional detections have been reported, including a case of bacteremia in a patient with Crohn's disease receiving immunosuppressive therapy and its isolation from rectal screening samples on chromogenic media in an intensive care setting [9,10]. Other reports describe the isolation of *E. thailandicus* from urine and tissue cultures from debridements in a patient with lower extremity injury [6,8]. Lately Vazquez-Ucha et al. describe the identification of *E. thailandicus* from bile in a patient with acute cholecystitis, and from other patients with small bowel perforation [7].

These observations suggest that *E. thailandicus* may be under-recognized in clinical microbiology, particularly in polymicrobial infections or when advanced identification methods are not routinely applied.

The recurrence of *E. thailandicus* in intra-abdominal infections following gastrointestinal perforation raises the question of a potential role in gastrointestinal pathology. However, causality remains speculative. Experimental data from animal models have shown that certain strains can induce intestinal alterations, including villous atrophy and crypt changes in pigs [11], but such findings were not observed in our patient.

Overall, this case adds to the limited but growing body of evidence suggesting that *E. thailandicus* may act as an opportunistic pathogen in humans. Although its virulence appears low compared with more common enterococcal species, continued reporting and accurate identification of such rare organisms are essential to improve understanding of their clinical relevance, particularly in polymicrobial infections and critically ill patients.

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Declaration

The authors declare no conflict of interest.

CRediT authorship contribution statement

Patricia Mester: Conceptualization, Data curation, Writing – original draft, Writing – review & editing. **Stephan Schmid:** Methodology, Validation, Visualization, Writing – review & editing. **Arne Kandulski:** Supervision, Validation, Writing – review & editing. **Heidi Gschwendtner:** Data curation, Investigation, Writing – review & editing. **Florian Weber:** Conceptualization, Data curation, Investigation, Writing – review & editing. **Martina Müller:** Validation, Visualization, Writing – review & editing. **Vlad Pavel:** Conceptualization, Data curation, Resources, Validation, Visualization, Writing – original draft.

Declaration of competing interest

No competing interests.

References

- [1] Lebreton F, Willems RJL, Gilmore MS. *Enterococcus* diversity, origins in nature, and gut colonization. In: Gilmore MS, Clewell DB, Ike Y, Shankar N, editors. *Enterococci: from commensals to leading causes of drug resistant infection*; 2014. Boston.
- [2] Mbouche P, Blairon L, Cupaiolo R, Zaouak Y, Hainaux B, Beukinga I, et al. *Enterococcus thailandicus*, an unusual pathogen in humans encountered in an intra-abdominal infection. *New Microbes New Infect* 2023;53:101137.
- [3] Franz CM, Stiles ME, Schleifer KH, Holzapfel WH. *Enterococci* in foods—a conundrum for food safety. *Int J Food Microbiol* 2003;88(2–3):105–22.
- [4] Tanasupawat S, Sukontasing S, Lee JS. *Enterococcus thailandicus* sp. Nov., isolated from fermented sausage ('mum') in Thailand. *Int J Syst Evol Microbiol* 2008;58(Pt 7):1630–4.

- [5] Shewmaker PL, Steigerwalt AG, Nicholson AC, Carvalho Mda G, Facklam RR, Whitney AM, et al. Reevaluation of the taxonomic status of recently described species of enterococcus: evidence that *E. thailandicus* is a senior subjective synonym of "*E. sanguinicola*" and confirmation of *E. caecae* as a species distinct from *E. silesiacus*. *J Clin Microbiol* 2011;49(7):2676–9.
- [6] Wu NJ, Yang CJ, Lin CH. *Enterococcus thailandicus* as an uncommon pathogen in severe lower extremity trauma: a case report. *BMC Infect Dis* 2026;26(1).
- [7] Vazquez-Ucha JC, Almeida-Santos AC, Velasco D, Rodriguez-Pallares S, Outeda-García M, Rodríguez-Coello A, et al. *Enterococcus thailandicus*: genomic evidence of a potential new player in enterococcal virulence and antimicrobial resistance. *New Microbes New Infect* 2026;70:101711.
- [8] Stefan S, Asseva G, Brands-Jordan U, Sedov E, Kuster J, Chhatwal P. *Enterococcus thailandicus* in urine. *New Microbes New Infect* 2026;70:101733.
- [9] Tsuda Y, Noguchi T, Yamamoto S, Shinohara K, Tsuchido Y, Yamamoto M, et al. Case report of *Enterococcus thailandicus* bacteremia, with genomic characterization of its clinical isolate. *ASM Case Rep* 2026;2(2).
- [10] Toc DA, Botan A, Colosi I, Costache C. First report of *Enterococcus thailandicus* isolated from routine vancomycin-resistant enterococci (VRE) screening samples. *New Microbes New Infect* 2026;70:101712.
- [11] Wu X, Wu B, Li Y, Jin X, Wang X. Identification and safety assessment of *Enterococcus thailandicus* TC1 isolated from healthy pigs. *PLoS One* 2021;16(7): e0254081.