Hungatella hathewayi

Hungatella hathewayi is a lesser-known bacterium that has garnered attention due to its potential clinical significance. This bacterium belongs to the Clostridia class and is part of the gut microbiota.

Key Characteristics of Hungatella hathewayi Taxonomy and Morphology:

Hungatella hathewayi was previously classified under the genus Clostridium as Clostridium hathewayi. It is an anaerobic, Gram-positive, rod-shaped bacterium. This bacterium is non-spore-forming, which is notable since many Clostridia are spore-forming. Habitat:

It is commonly found in the human gastrointestinal tract as part of the normal microbiota. It can also be isolated from various environmental sources. Pathogenesis and Clinical Relevance Potential Pathogenicity:

While Hungatella hathewayi is typically part of the normal gut flora, it has been implicated in certain clinical infections. Cases of bacteremia, abscesses, and other infections involving H. hathewayi have been reported, particularly in immunocompromised individuals or those with underlying health conditions. Symptoms and Diseases:

Bacteremia: Infection of the bloodstream, which can cause fever, chills, and systemic symptoms. Abscesses: Localized collections of pus that can occur in various body sites, leading to pain, swelling, and inflammation. Gastrointestinal Infections: Although less common, it may contribute to gastrointestinal disturbances in certain conditions. Diagnosis and Identification Laboratory Diagnosis:

Identification typically involves anaerobic culture techniques, given the bacterium's anaerobic nature. Molecular methods, such as 16S rRNA gene sequencing, are increasingly used for accurate identification. Differentiation:

Hungatella hathewayi can be differentiated from other anaerobes by its specific genetic and phenotypic characteristics, including its non-spore-forming nature and specific metabolic properties. Treatment and Management Antibiotic Sensitivity:

The treatment of infections caused by H. hathewayi often involves antibiotics effective against anaerobes. Antibiotic susceptibility testing is important, as resistance patterns can vary. Common choices may include metronidazole, beta-lactam/beta-lactamase inhibitors, and carbapenems. Clinical Management:

Management of infections involves not only appropriate antibiotic therapy but also addressing any underlying conditions that may predispose individuals to infection. In cases of abscesses, surgical drainage may be necessary. Prevention Infection Control: In healthcare settings, strict infection control measures are essential to prevent the spread of anaerobic bacteria. Gut Health: Maintaining a healthy gut microbiota through a balanced diet and possibly probiotics can help prevent dysbiosis and opportunistic infections. Conclusion Hungatella hathewayi is an anaerobic bacterium that is part of the normal human gut microbiota but can act as an opportunistic pathogen under certain conditions. Understanding its characteristics, potential pathogenicity, and appropriate management strategies is crucial for effectively dealing with infections caused by this bacterium. Further research is needed to fully elucidate its role in human

An imbalance within the intestinal microbiota, referred to as dysbiosis, was suggested to play a role in the formation, progression, and rupture of IA. As no systematic review on this topic exists, considering the significance of this matter and a lack of effective prophylaxis against IA or cerebral vasospasm, we aim to sum up the current knowledge regarding their associations with intestinal microbiome, identify the gaps, and determine future prospects. Scientific databases were systematically and independently searched by two authors from inception to 1st May 2023 for original articles regarding the role of intestinal microbiota in intracranial aneurysmal growth, aSAH occurrence, as well as in cerebral vasospasm following aSAH. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklist was followed in an abstraction process. The STROBE tool was applied to assess the risk of bias. This research was funded by the National Science Centre, Poland (grant number 2021/41/N/NZ2/00844). Of 302 records, four studies were included that fully met eligibility criteria. Studies reported (1) that the relative abundance of Hungatella hathewayi is a protective factor against aneurysm growth and rupture, resulting from the reduced inflammation and extracellular matrix remodeling in the cerebral arterial wall and from reduced metalloproteinase-mediated degradation of smooth muscle cells in cerebral vessels. (2) Relative abundance of Campylobacter ureolyticus is associated with aSAH. (3) No article has evaluated microbiota in relation to cerebral vasospasm following aSAH although there is an ongoing study. We concluded that intestinal microbiota might be a potential target for diagnostic and therapeutic tools to improve the management of cerebral aneurysms. However, more studies of prospective design are needed [1)].

1)
Klepinowski T, Skonieczna-Żydecka K, Pala B, Stachowska E, Sagan L. Gut microbiome in intracranial aneurysm growth, subarachnoid hemorrhage, and cerebral vasospasm: a systematic review with a narrative synthesis. Front Neurosci. 2023 Oct 19;17:1247151. doi: 10.3389/fnins.2023.1247151. PMID: 37928732; PMCID: PMC10620726.