

Imaging Findings in a Case of Bacteremia Caused by Non-Typhoidal *Salmonella* Associated with a Congenital Venous Malformation

Takashi Tani^{1,2}, Erika (Senda) Miyake², Kenta Sugino^{1,2}, Kazumasa Hashimoto^{1,2},
Tetsuya Kashiwagi¹, Yukinao Sakai¹ and Masato Iwabu¹

¹Department of Endocrinology, Metabolism and Nephrology, Graduate School of Medicine, Nippon Medical School, Tokyo, Japan

²Department of Internal Medicine, Tokyo Rinkai Hospital, Tokyo, Japan

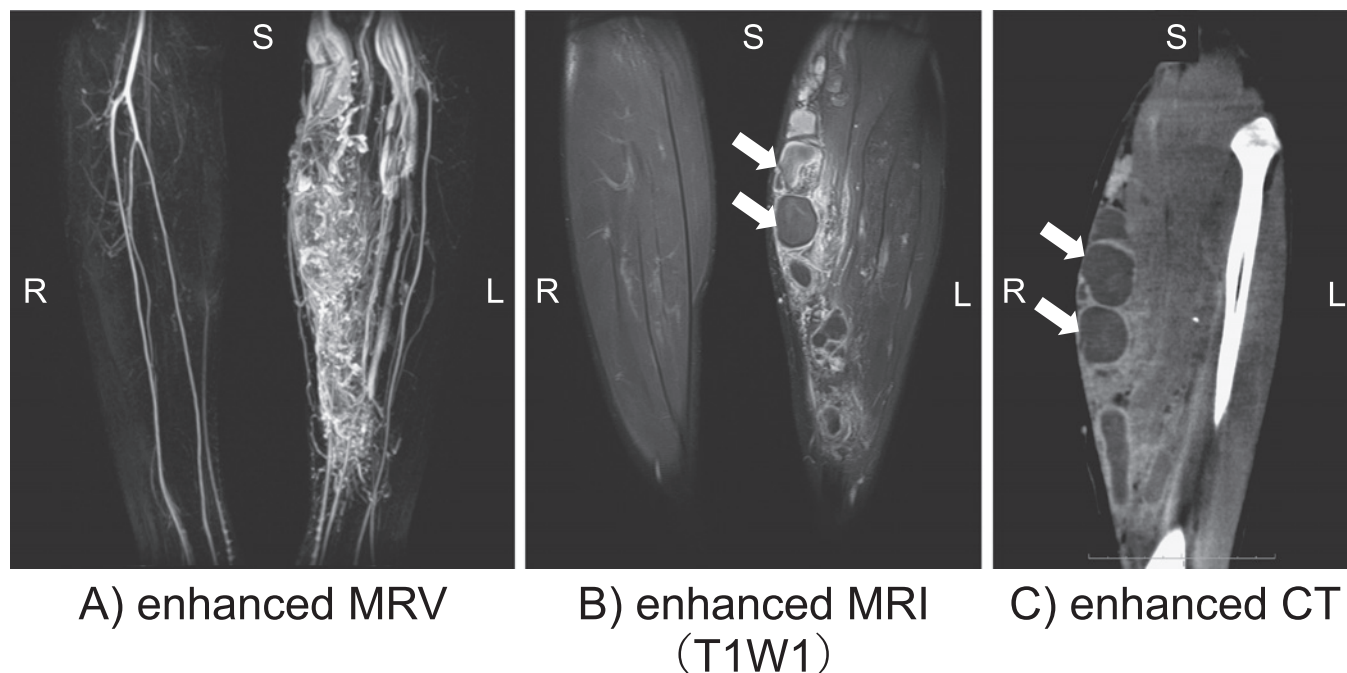


Fig. 1

Non-typhoidal *Salmonella* infection is a typical food-poisoning disease, which rarely causes bacteremia, except in immunocompromised individuals. We report the case of a healthy adult in whom a varicose vein associated with a lower-leg venous malformation was considered the source of *Salmonella* bacteremia. (J Nippon Med Sch 2022; 89: 570–571)

Key words: non-typhoidal *Salmonella*, vein malformation, varicose vein, bacteremia

A 20-year-old man visited the emergency outpatient department with a chief complaint of headache and high fever of approximately 40°C for 1 week. He had grilled meat for dinner two days before the onset of the disease. He had no history of traveling, exposure to contaminated water, or pet ownership. He also had no history of diabetes and was not taking steroids or other immunosuppressive drugs. He was diagnosed with varicose vein thrombosis in a left lower-leg venous malformation and was treated with apixaban 10 mg/day. On admission, increased inflammatory response (C-

Correspondence to Takashi Tani, Department of Endocrinology, Metabolism and Nephrology, Graduate School of Medicine, Nippon Medical School, 1-1-5 Sendagi, Bunkyo-ku, Tokyo 113-8602, Japan

E-mail: tani@nms.ac.jp

https://doi.org/10.1272/jnms.JNMS.2022_89-614

Journal Website (<https://www.nms.ac.jp/sh/jnms/>)

reactive protein, 17.4 mg/dL and procalcitonin >10 ng/mL), coagulation fibrinolysis disorders (D-dimer, 4.4 µg/mL and fibrin degradation products, 13.1 µg/mL), and thrombocytopenia were observed. The patient complained of tenderness in the left lower leg, and contrast-enhanced magnetic resonance imaging and contrast-enhanced computed tomography of the lower limbs revealed a subacute thrombus in the congenital left lower-leg venous malformation and varicose veins (Fig. 1). *Salmonella enterica* subsp. *enterica* serovar Enteritidis was detected in blood and left varicose vein puncture fluid cultures. The patient was diagnosed with thrombophlebitis of the varicose veins of the lower leg and non-typhoidal *Salmonella* bacteremia. Levofloxacin 500 mg/day was administered for a total of 4 weeks, until complete remission of symptoms.

Non-typhoidal *Salmonella* bacteremia is uncommon in healthy adults^{1,2}. Extraintestinal local infections secondary to *Salmonella* bacteremia are usually located in the spinal cord and bone marrow^{1,2}, and few intravascular lesions have been reported³. Furthermore, intravascular lesions are usually found in the arteries, and venous infection is rare³. Only four cases of thrombophlebitis of superficial varicose veins have been reported⁴⁻⁷, and to the best of our knowledge, this is the first case report of non-typhoidal *Salmonella* bacteremia associated with thrombophlebitis of a vascular malformation.

Conflict of Interest: None

Fig. 1 Contrast-enhanced Magnetic Resonance Venography (MRV) showed abnormal blood vessels in the lower extremities that were consistent with venous malformations in the left lower leg (Fig. 1A). Coronal contrast-enhanced T1 weighted image of Magnetic Resonance Imaging (MRI) and coronal contrast-enhanced Computed Tomography (CT) imaging showed abnormal vasodilation accompanied by thrombus formation (white arrows) and contrast-enhanced effects suggesting inflammatory changes in the surrounding area (Fig. 1B, 1C). R, right; L, left; S, superior.

References

1. Hoag JB, Sessler CN. A comprehensive review of disseminated *Salmonella arizonae* infection with an illustrative case presentation. *South Med J*. 2005 Nov;98(11):1123-9.
2. Di Bella S, Capone A, Bordi E, et al. *Salmonella enterica* ssp. *arizonae* infection in a 43-year-old Italian man with hypoglobulinemia: a case report and review of the literature. *J Med Case Rep [Internet]*. 2011 Jul 22;5(1):323. Available from: <https://doi.org/10.1186/1752-1947-5-323>
3. Carey J, Buchstein S, Shah S. Septic deep vein thrombosis due to *Salmonella johannesburg*. *J Infect*. 2001 Jan;42(1):79-80.
4. Salamon SA, Prag J. A case of superficial septic thrombophlebitis in a varicose vein caused by *Salmonella panama*. *Clin Microbiol Infect*. 2001 Jan;7(1):34-6.
5. Leccia MT, Aubry-Artignan S, Brion JP, Voirin L, Beani JC, Amblard P. [*Salmonella enteritidis* septicemia manifesting as a suppurated thrombophlebitis]. *Ann Dermatol Venereol*. 1998 Feb;125(2):108-10. French.
6. Javaloyas M, Garcia MD, Sierra E, Domingo J. A case of cellulitis, thrombophlebitis and bacteremia caused by *Salmonella* group E. *Eur J Clin Microbiol Infect Dis*. 1992 Feb;11(2):200-1.
7. Navarro M, Almirante B, Bellmunt J, Jolis L. Fatal septic thrombophlebitis due to *Salmonella enteritidis*. *Eur J Clin Microbiol Infect Dis*. 1989 Jan;8(1):82-3.

(Received, July 10, 2022)

(Accepted, September 28, 2022)

Journal of Nippon Medical School has adopted the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (<https://creativecommons.org/licenses/by-nc-nd/4.0/>) for this article. The Medical Association of Nippon Medical School remains the copyright holder of all articles. Anyone may download, reuse, copy, reprint, or distribute articles for non-profit purposes under this license, on condition that the authors of the articles are properly credited.