

Avoiding Over-indication for Surgical Debridement Using a Rapid Antigen Detection Test of Group A Streptococcus

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The diagnosis of necrotizing soft tissue infection (NSTI) caused by group A streptococcus (GAS) is challenging because clinical signs can be ambivalent, misleading, and sometimes absent.¹ With the goal of improving the high mortality and morbidity rates, a rapid antigen detection test (RADT) for GAS helps shorten the time to decide on the need for surgical intervention and guide antibiotics treatment to a narrower spectrum.² In this journal, we previously reported a 60-year-old woman with GAS-NSTI, highlighting the benefits and pitfalls of the RADT.³ We recently experienced suspicion of a second attack of GAS-induced inflammation in the same case. Deciding on the need for immediate debridement surgery was very difficult; however, a RADT for GAS from the subcutaneous layer with a small incision was useful for making this decision.

A 60-year-old woman had suffered from GAS-NSTI in her left lower extremity, and we treated her with immediate debridement surgery and secondary skin grafting.³ She was discharged home after 3 months, having regained the ability to walk normally. To prevent leg edema, an elastic stocking for compression was applied. Three months later, she was admitted to our hospital with a 2-day history of a high fever and erythema of the left lower extremity. A physical examination revealed body temperature, 38.8°C; blood pressure 106/70 mm Hg; pulse, 90 beats/min; and 98% O₂ saturation on room air. The area of erythema and swelling had expanded from the medial lower leg to the medial thigh with several blisters (Fig. 1A). The tenderness was not severe. A blood test showed the following values: WBC, 7200/ μ L; PLT, 127,000/ μ L; CK, 32 IU/L; CRP, 11.9 mg/dL; HbA1c, 5.9%. Given her history, we suspected potential recurrence of GAS-induced NSTI. We performed a small incision at the medial thigh, where tenderness and redness were strong, and obtained samples from the subcutaneous layer for a wound culture and GAS-RADT (RapidTesta StrepA; Sekisui Medical Co., Ltd.,

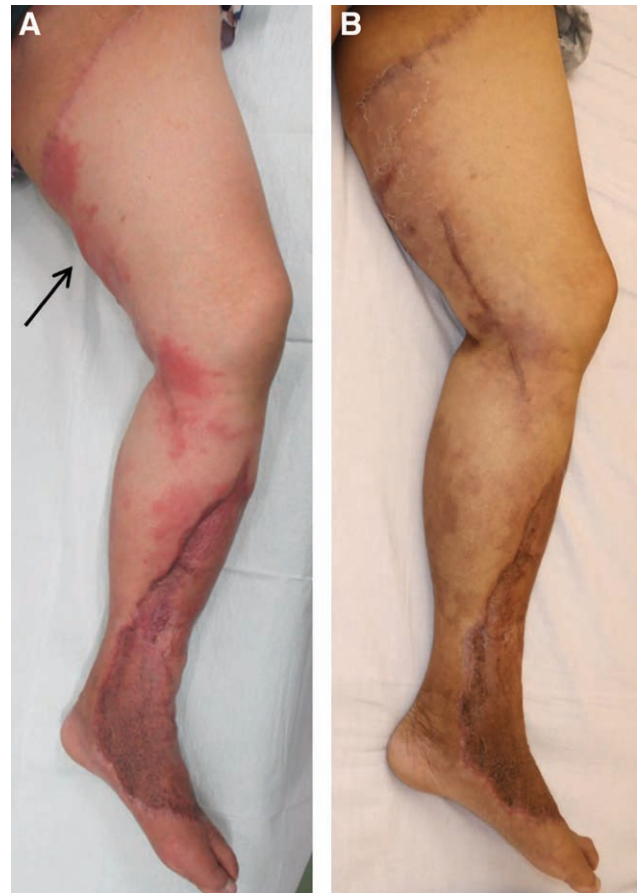


Fig. 1. Findings of the left lower extremity on the administration day. The black arrow indicates the point of the 1-cm skin incision for obtaining a wound sample for culture and a GAS-RADT (A). After 10 days, the inflammation had disappeared (B).

Japan). Because the results of the RADT were negative, we chose to observe the symptoms and vital signs carefully without immediate debridement surgery. Antibacterial drug therapy of cefazolin (1 g, 3 times/day) was administered intravenously for 7 days, resulting in symptom resolution (Fig. 1B). Neither wound cultures nor blood cultures showed any bacteria.

Regarding GAS pharyngitis, a recent meta-analysis indicated high diagnostic accuracy of the RADT for GAS, with a sensitivity and specificity of 86% and 96%, respectively.⁴ Furthermore, a combined diagnostic approach with a RADT and conventional pharyngeal culture was recommended to ameliorate the risk of false-negative results with RADTs.⁵ The present patient's medical history of GAS-NSTI strongly suggested recurrence, but the negative RADT result prevented over-indication for extensive

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surgical debridement. Surgeons should consider the risk of false-negatives and observe vital signs carefully; however, GAS-RADTs can be useful for ensuring appropriate treatment is performed.

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DISCLOSURE

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