

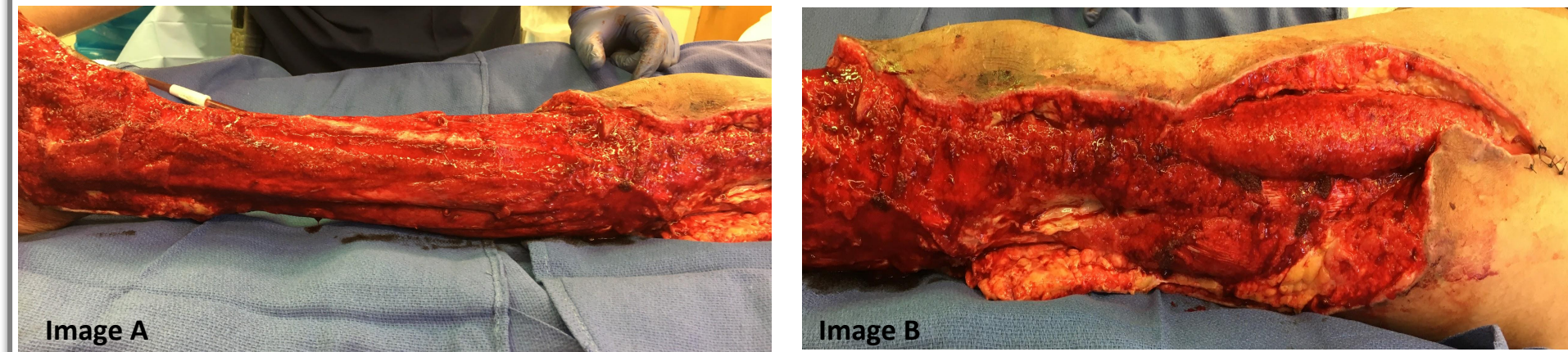
## STATEMENT OF PURPOSE

This case demonstrates the *first* known pediatric report of necrotizing fasciitis (NF) secondary to *serratia marcescens*, ultimately resulting in life and limb salvage in a twelve-year-old male with final closure through the largest recorded pediatric split thickness skin graft (STSG).

## LITERATURE REVIEW

Necrotizing fasciitis is a life-threatening, rapidly progressing soft tissue infection that can quickly spread through fascial planes. Literature describes mortality rates to range from 6-76%, thus urgent surgical and medical treatment is imperative for treatment.<sup>1-3</sup> Necrotizing fasciitis infections affect about 0.4/100,000 people per year in the United States.<sup>4</sup> Affected patients can range from those with multiple comorbidities and immunocompromised state to young, healthy individuals, including the pediatric population.<sup>5,6</sup> NF can be described by three main types depending on their microbiological cause; Type I is polymicrobial, while Types II and III are monomicrobial and caused by marine vibrio species, respectively.<sup>7</sup> Patients with NF are best managed by a multidisciplinary team, require aggressive surgical debridements and antibiotic management plays a vital role. These infections can cause extensive soft tissue destruction and may require advanced techniques for closure, including vacuum-assisted closure, skin grafting, or muscle flaps.<sup>8</sup>

## IMAGES



**Images A-C:** Patient was admitted in a pediatric intensive care unit while undergoing multiple surgical debridements. These photos depict his extensive soft tissue defect after thirteen debridements, just prior to being transferred to our limb salvage team.

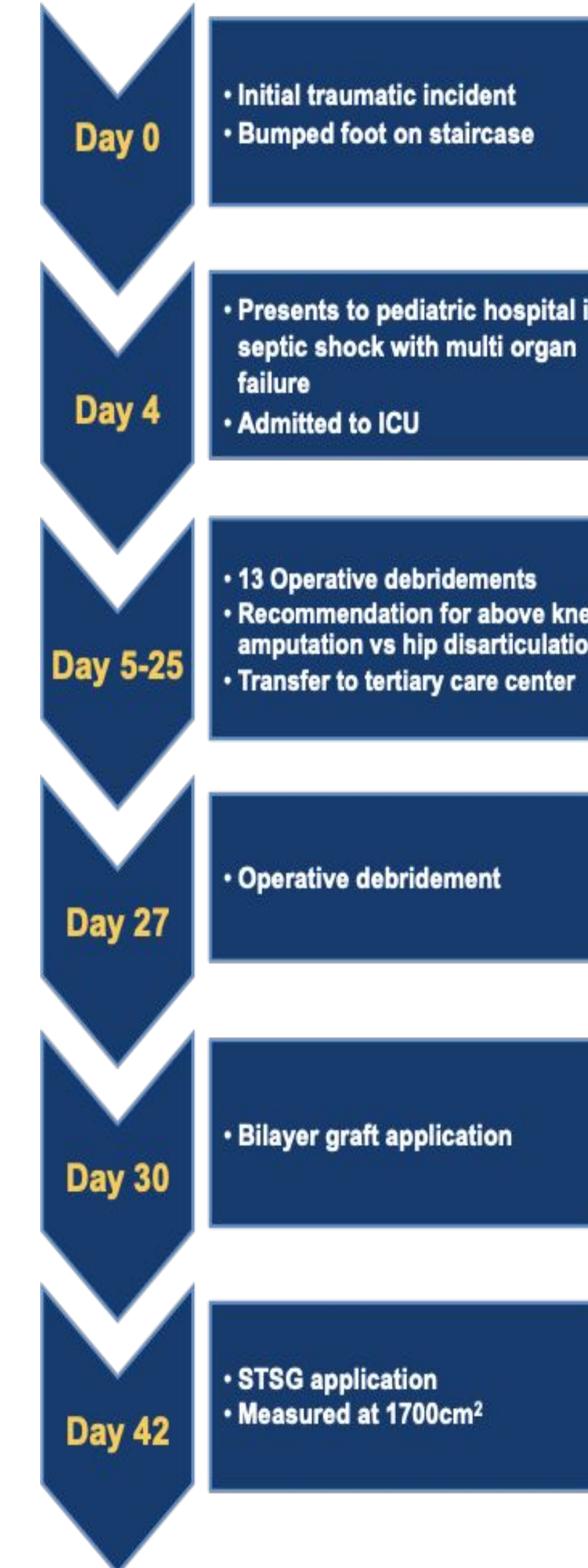


**Images D-E:** After transfer to our facility, patient underwent repeat surgical debridement and application of bilayer graft. He subsequently underwent split thickness skin grafting of nearly his entire left lower extremity. He now remains completely healed and ambulates with AFO brace.

## CASE REPORT

**HPI:** 12 year old male with history of eczema sustains blunt trauma to left foot with no open wound on June 5, 2018. Four days later the patient was admitted to the pediatric intensive care unit with hypotension refractory to fluid resuscitation, tachycardia, an edematous left lower extremity with decreased left ventricular function in the setting of septic shock with multi-organ failure.

**Results:** At seventeen month follow up, the child is fully ambulatory with healed STSG recipient sites encompassing nearly the entire left lower extremity. Due to extensive damage in the anterior compartment of the leg, the patient sustained left lower extremity foot drop and ambulates in an AFO with neurological deficits to the dorsal foot.



## ANALYSIS AND DISCUSSION

This twelve-year-old boy is the tenth reported case of necrotizing fasciitis of the lower extremity secondary to the microbe *serratia marcescens*. Of the previously documented nine cases, all were in adults between the ages of 40-97 years. Eight of the nine patients resulted in loss of life. As the first pediatric report due to this specific bacteria, this report displays a successful limb and life salvage effort of an extremely rare pathogen. In addition, this case demonstrates that it is possible to provide coverage of extensive surface areas with split thickness skin grafting. In this particular case, the patient required split thickness skin graft coverage of nearly the entire lower extremity, circumferentially measuring at 1700cm<sup>2</sup>.

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