Fournier’s Gangrene in a Pediatric Female Patient with Acute Myeloid Leukemia: A Case Report

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Introduction

Fournier’s gangrene is a life-threatening disease characterized by necrotizing fasciitis in the perineal area. Fournier’s gangrene can occur in immunosuppressed and oncological pediatric patients. It requires early aggressive treatment, including electrolyte replacement, broad-spectrum antibiotics and surgical debridement. The vacuum-assisted closure technique is recommended for Fournier’s gangrene.

We report a case of a 14-year old female newly diagnosed with Acute Myeloid Leukemia (AML) who developed fever, severe pain in the left genital area, cellulitis and abscess formation without exudate. We describe the use of a Negative Pressure Wound Therapy (NPWT) System and nanocrystalline silver dressings after debridement to expedite the process of granulation and maturation. This combination wound therapy is very useful in the management of open and infected wounds in children, accelerating the process of granulation and maturation.

Experts in wound care therapy indicate that negative pressure wound therapy after debridement of Fournier’s gangrene can eliminate the need for new surgical procedures and prolonged hospitalization in children affected. Also the use of NPWT reduces hospital days, discomfort and the number of analgesics used such as Fentanyl, Morphine and Tylenol with codeine usually required for pain management.

Case Report

This is a 14 year old female, admitted to the pediatric unit in November 2013 with fatigue for 2 weeks duration, pallor and the following laboratory results: Hgb 8.0, Hct 22.6, Plt 62.0, and Neutrophils 15.9. Her past medical history was non-contributory. After a bone marrow aspiration was performed, she was diagnosed with AML and transferred to the Oncology Unit.

Nine days after diagnosis, she developed an abscess in the genital area, and was managed with parenteral antibiotics: Vancomycin, Diflucan, Clindamycin and Maxipime, without improvement. She developed a fever of 39.8°C, severe edema in the left genital area, erythema, severe pain without exudate. Her laboratory findings at that time were: WBC 33.5, Hgb 9.5, Hct 26.8 and Neutrophils 32. Pediatric surgery was consulted. She was diagnosed with Fournier’s gangrene (Figure 1) and debrided in the operating room on day 4 of hospitalization. Sepsis required transfer to the ICU for 22 days.

Surgical debridement occurred several times (Figure 2). The affected area initially measured 15 cm (L) x 7 cm (W) x 2 cm (D). To accelerate the granulation process, NPWT was used in combination with nanocrystalline silver dressings (Figure 3). After 20 days, the NPWT system was suspended (Figure 4). Dressing changes continued every 72 hours using nanocrystalline silver dressings alone.

Results

Dressing changes were performed twice weekly under general anesthesia in the operating room because the patient did not tolerate the dressing change performed with moderate sedation.

From November 25 to December 5, significant reduction occurred in the wound area 8 (L) x 4 cm (W) x 1 cm (D). After 20 days of using NPWT and nanocrystalline silver dressings the wound decreased to 3 cm (L) x 2 cm (W) x 1 cm (D). Complete maturation of the wound was observed at day 32 (Figure 5).

We obtained excellent results without the need for reconstruction of the genital area.

Conclusion

The use of NPWT and nanocrystalline silver dressings were effective in the postoperative treatment of Fournier’s gangrene in our pediatric patient newly diagnosed with AML. We observed a reduction of granulation time and wound maturation compared with other conventional methods, such as daily dressing changes. Conventional dressings are changed frequently requiring more products vs. NPWT dressings changes with nanocrystalline silver changes, which are performed every 3-4 days. After the completion of this treatment the patient didn’t require reconstructive surgery, and was able to start treatment for AML.

<table>
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<tr>
<th>Products and supplies</th>
<th>Costs</th>
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<td>Hydrogel</td>
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<td>NPWT + Nanocrystalline dressing</td>
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Fig. 1: Initial Evaluation

Fig. 2: Post- Debridement

Fig. 3: NPWT Application

Fig. 4: POD # 20 Granulation Phase

Fig. 5: POD # 32 Maturation Phase