CHAPTER **21**

Hydrofera Blue Ready in the Prevention of Infection at External Fixator Wire Sites

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The literature reports that the incidence of external fixation wire site infections vary widely between 3-80%. This article explores a different approach to preventing wire site infection without the use of systemic antibiotics. The goal is to prevent infection during the entire treatment course since the only definitive way to manage an infection is to remove the wire. The challenge that arises is the fact that removing the external fixator wire compromises the surgical correction.

Current wire site management includes the use of 1% silver sulphadiazine cream, sodium chloride or chlorhexiden solution, povidone-iodine solution, soft-white Paraffine ointment, and acticoat and polyhexamethylene biguanideimpregnated gauze (antimicrobial gauze) (1-8). Hydrofera Blue Ready is an antibacterial foam wound care dressing that resists infection of the common organisms: methicillin-resistant *Staphylococcus aureus* and *S epidermidis.* It also has bacteriostatic coverage effective against *Pseudomonas aeruginosa, Escherichia coli,* vancomycin-resistant *Enterococcus, Serratia marcescens,* and yeast (*Candida albicans, C krusei,* and *C glabrata*). The goal is to use the Hydrofera Blue Ready to prevent bacterial and yeast growth around the wire sites. The foam has excellent handling characteristics that provide good skin contact next to the pins and a compression fit that decreases drainage (Figure 1). We will discuss two high-risk patients who had Charcot deformity reconstructions with the application of ring external fixation. The Hydrofera Blue Ready was used as a wire site dressing.

CASE 1

The first case is a 50-year-old patient with a complex medical history consisting of insulin-dependent diabetes mellitus, chronic renal failure, peripheral vascular disease, legal blindness, history of cardiac bypass, and Charcot arthropathy of the left foot and ankle. Because the patient had Charcot arthropathy at both the ankle and the Chopart joint with extensive talus destruction, a tibia-calcaneal arthrodesis was performed, with application of an external fixator and percutaneous tendoAchilles lengthening (Figure 2).

At each postoperative visit, all wire sites were cleaned with a generated wire site cleaner. The spray mixture consisted of 50% Hibiclens, 45% isopropyl alcohol, and 5% hydrogen peroxide was used to clean the wires and frame. Slits were then cut into 2 x 2 Hydrofera Blue dressings, and the dressing was applied to all wires. Each postoperative visit ranged from 10-14 days apart. The external fixator frame was kept in place for 16 weeks.

Figure 1. Package of Hydrofera Blue Ready size 8 inches x 8 inches.

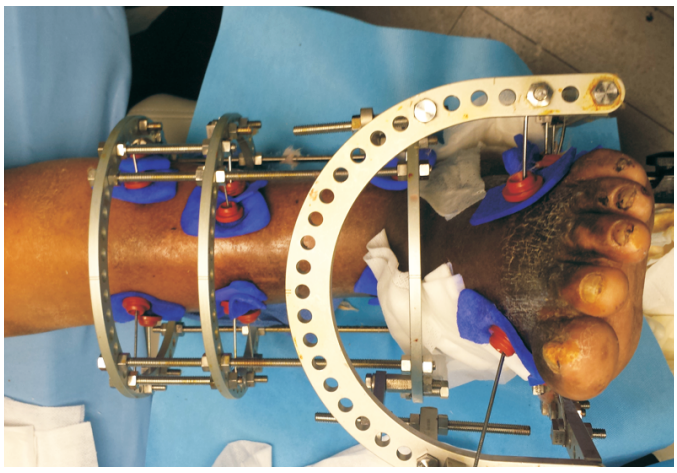

Figure 2. Appearance 2 months after tibial calcaneal arthrodesis. Note there are no wire site complications.

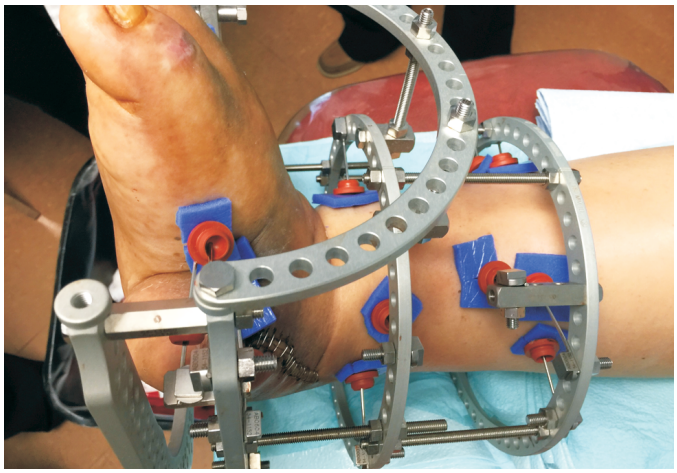

Figure 3. Appearance of intact frame and wires at 12 weeks.

CASE 2

The second case is a 57-year-old patient who also has a complex medical history consisting of insulin-dependent diabetes mellitus, chronic renal failure, peripheral vascular disease, and Charcot arthropathy of the right foot and ankle. Due to the patient having Charcot at both the ankle and the Chopart joint with extensive talus destruction, a tibia-calcaneal arthrodesis with application of external fixator with percutaneous tendoAchilles lengthening was performed. The frame remained in place for 12 weeks and there were no pin site infections (Figure 3). Hydrofera Blue Ready appears to be an excellent wire site dressing. The antibacterial properties, ease of handling, and foam characteristics make it easy to use.

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