

The difficult case: NPWT for extensive soft tissue defects of the lower extremity

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Aim

We report on the case of a 14-year-old girl with extensive soft tissue defects on the right lower extremity up to the right hip following a traffic accident. The patient suffered a subtotal amputation of the right lower extremity with a rupture of the external iliac artery and the iliac vein (Figure 1a,b).

Method

After computed tomography angiography (CTA), the pulseless, ischemic leg was treated with autologous arterial und venous vascular graft. Perfusion resumed 4 hours post-accident. Osteosynthesis was carried out using an external fixator (Figure 1c). Despite fasciotomy, extensive soft tissue necrosis occurred on the right lower extremity. Due to pre-terminal multiple organ failure caused by SIRS, a large-area necrosectomy was performed (Figure 2a) and NPWT started. The occlusive dressing was applied to the entire right lower extremity including the anogenital area up to the iliac crest using a tubular bandage* (Figure 2b).

Results / Discussion

This method allowed for sufficient negative pressure on the entire hip area and the entire right lower extremity. Septic condition improved immediately. After stimulating wound granulation (Figure 2c), the secondary, serial split skin coverage of the defects was possible (Figure 2e).

Conclusion

In the case of extensive soft tissue defects on the lower extremity with deep substance defects in the area of the hip and simultaneous external fixation on the pelvic ring as well as cystofix and colostoma creation, the establishment of an NPWT system typically is difficult and time-consuming. With the tubular bandage it was possible to use a reliable, reproducible, time-saving occlusive and elastic system for the NPWT.

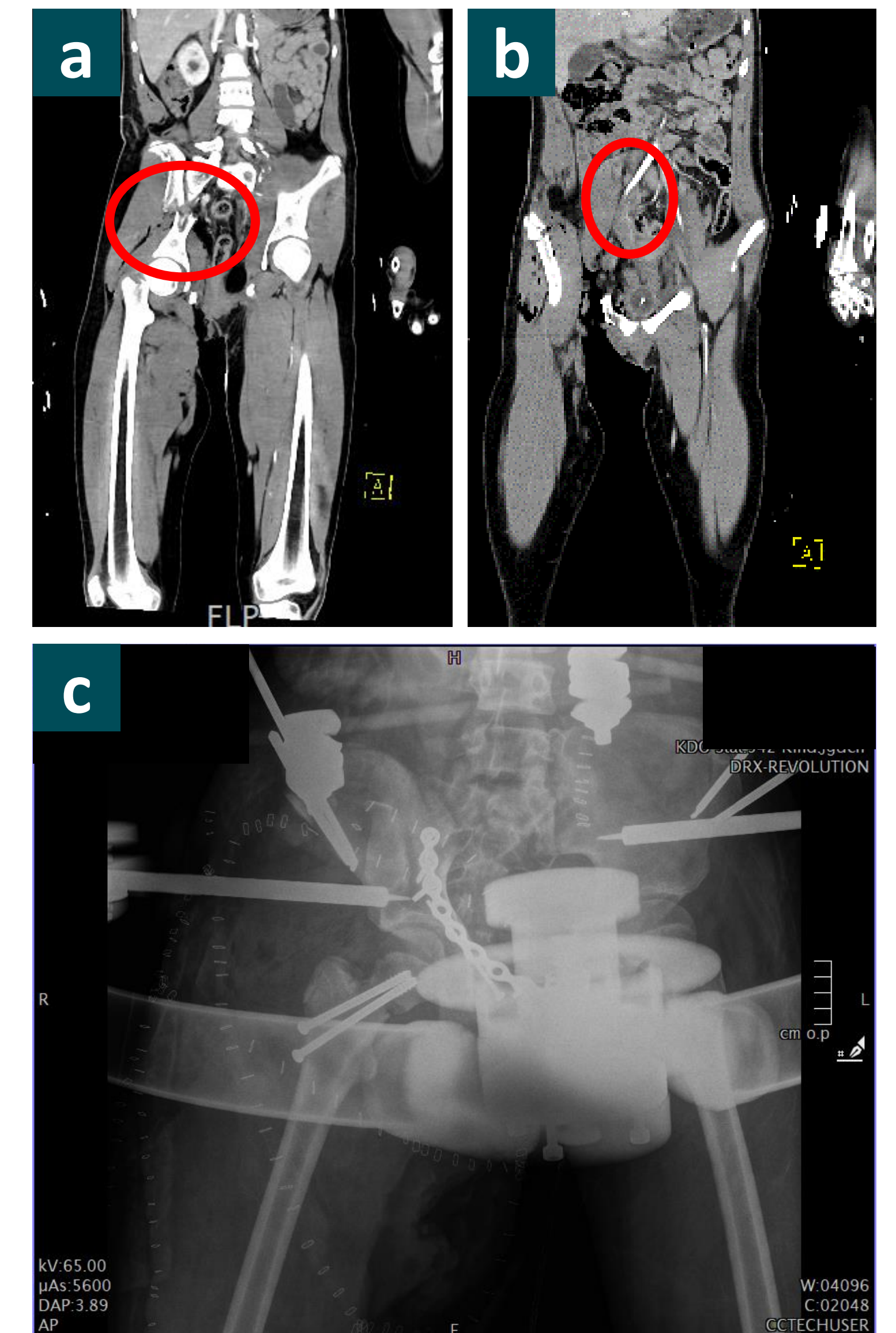


Figure 1: Initial situation

CTA & x-ray images of the patient. (a) Subtotal amputation of the right lower extremity. (b) Rupture of the external iliac artery and iliac vein. (c) Hip area showing the situation after Osteosynthesis of the femoral neck, external fixator, urinary catheter & colostomy



Figure 2: Course of treatment

(a) 8 weeks after accident and after 4 weeks of NPWT. Extensive deep soft tissue defects after large-area necrosectomy. The wound is colonized with *P. aeruginosa* and *S. epidermidis*. (b) NPWT** using a wound foam, PHMB treated gauze, drainage film*** and a tubular bandage. (c) 2.5 month after accident. 6 days after initial split skin coverage and flap surgery. Improvement of blood circulation and reduction of edema. (d) 3.5 month after accident (e) NPWT using drainage film for deeper lesions, wound foam covert in drainage film for wound cavities and tubular bandage. (f) 6 month after accident. Healed wound.



Figure 3: Outcome

16 month after accident. The extremity could be preserved with a good functional result.

- * Suprasorb® CNP EasyDress Fixateur Externe
- ** Suprasorb® CNP P3
- *** Suprasorb® CNP Drainage Film

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