From harmless IV catheter to limb necrosis:

A thromboembolic complication in an infant with nephrotic syndrome

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Case

Day 1

Boy, age 2 months
Admission to the hospital with general deterioration, vomiting and ascites.
→ Heavy proteinuria + severe hypoalbuminemia
→ **Diagnosis of congenital NS**

Intensive care:
albumin infusions, diuretics, ACE-I

Day 7

Fever → broad spectrum antibiotic

Replacement of intravenous (IV) catheter in left forearm

Day 9

Transient episode of pale and cool left forearm

Day 10

Cold, pale and marbled left forearm

Pulsatile flow on removal of IV catheter
= **accidental arterial placement**

→ Echo doppler: **thickened wall A. Brachialis with reduced flow**

→ Intensive care : continuous heparin therapy

Day 11

Tense forearm with dark spots

Compartment pressure measurement
→ **Compartment syndrome**
→ Multiple **fasciotomies**

Multiple **necrotic zones** over forearm and tip index finger
- Antithrombotic therapy (Aspirin)
- Wound care
- Pressure garments
- Silicone therapy

2 months

Autoamputation tip index finger

1 year

Stop silicone therapy

1,5 year

Stop pressure garments
Stop antithrombotic therapy

Day 10

Day 13, post fasciotomie

Day 24

3 months

Background

Thromboembolism is a well-known complication in nephrotic syndrome (NS) patients. This is due to the disease-related hypercoagulability and a pro-thrombotic state. Risk factors include the degree of proteinuria and hypoalbuminemia, associated infection, anemia, thrombocytosis, hemoconcentration and risks related to treatment (intravenous catheters and/or diuretics)
The reported incidence of thromboembolism in nephrotic children is lower than in adults, ranging from 1.8 to 4.4%.

This report discusses a thromboembolic complication in an infant with congenital NS.

Discussion

This case describes an arterial thromboembolic complication in the limb of an infant with nephrotic syndrome. Thromboembolic complications are generally venous;

the occurrence of (peripheral) arterial thromboembolism in NS is rare.

However, multiple cases have been described in the literature, each associated with significant morbidity and/or mortality. The precedent of an arterial puncture appears to be an important risk factor.

Conclusion

Thromboembolisms are a serious complication in children with nephrotic syndrome and can cause significant morbidity and mortality in all age categories.
A high index of suspicion is required as the clinical features may be subtle.

In general, physicians should recognize the risk of (accidental) arterial punctures and catheters, especially in patients with additional risk factors.

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