Tri-lateral amputation due to purpura fulminans: case presentation

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on behalf of the Amputee Rehab team at West Park HCC

Competing Interests

- none

Why this case?

- A challenge
- What we did
- What would you have done?

- 35-year old right-handed male
- Presented to ER with septic shock
- Multiple areas of skin necrosis
- Transferred to burn unit

- Resucitated
- Antibiotics
- Wound debridement
- Skin grafting

- Bilateral transtibial amputations
- Left transhumeral amputation
- Right D5 amputation
- Right D4 partial amputation, with PIP joint ankylosed at 90 degrees of flexion

Purpura Fulminans

- Purpuric skin lesions
- Fever
- Hypotension
- Disseminated intravascular coagulopathy

Multi-system failure

- Cardiac
- Renal
- Respiratory
- Hepatic
- Adrenal

- 94%

Mortality

- 50-90%

Neonatal

- Hereditary
- Protein C deficiency
- Protein S deficiency
- Antithrombin III deficiency

Idiopathic

- Follows a bacterial / viral infection
- Variable latent period

- Protein S deficiency
- DIC

Acute Infectious

- Bacterial endotoxins

- Meningococcus
- Varicella
- Streptococcus
- Staphylococcus
- Gram negative
- Measles

Treatment

- Supportive/resuscitation
- Antibiotics
- Activated protein C
- IVIG
- Debride necrotic areas/skin grafting
- Faciotomy
- Amputation

Amputation

- 43-90%
- LE>UE
- Usually bilateral
- 25% 4 extremity amputation

- Women more often than men


Yves Martin
M
Yves Martin

Social background

- Single
- Estranged from family
- Drug user
- Had not worked for years
- On social assistance
- Not a morning person

Initial rehab

- Wound dressings
- Initial goals of functional independence at the wheel chair level

Initial goals achieved

Prosthetic fitting?

- Which level?
  - 1,2, or 3 of his major amputations
- With what?

Simultaneous bilateral transtibial fitting

- Transfers
- Ambulation

Issues

- Suspension
- Donning and doffing
- Interface
- Cost

Suspension

- Figure of 8
- Supracondylar self suspending socket
  - Either should be feasible for doff/don

Interface

- Silicone or urethane liner
  - ?feasible to manage independently
  - Really not compatible with supracondylar socket

Prioritizing the wish list

- Independent don & doff
- Skin tolerance

Stump shrinkers

- Managed independently

Urethane liner

- Managed independently

Outcome

- Successfully fit
- Independent doff & don
- No skin issues
- Ambulating with 1 cane

What about the transhumeral amputation?

- Decided to delay
- Discharged home

- Follow later re: transhumeral amputation

Follow-up

- Shapiro et al, Arch Phys Med Rehabil 2009;90

- Case report of 4 individuals with multiple amputations secondary to purpura fulminans

- #1
  - Bilateral TT, bilateral transmetacarpal
- #2
  - Bilateral TF, right TH
- #3
  - Bilateral TT, bilateral TR
- #4
  - Bilateral TF, right TR, left TH

- All fit with lower extremity prostheses
- Most fit with upper extremity prostheses

- Not clear what eventual level of function was, but looks like “modified independence” for all 4

Summary

- Successful prosthetic fitting is possible in multiple amputations secondary to purpura fulminans
- Newer interface products/suspension systems likely contributed to the success

Questions?