**Free-Muscle-Flap Coverage of Exposed Knee Joints Following Fulminant Meningococcemia: Twenty Year Follow up of Limb Salvage**

***James C. Yuen, MD; Pallavi A. Kumbla, MD***

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**Introduction:** Neisseria Meningitidis is a gram negative diplococcus that leads to a range of manifestations from occult bacteremia to fulminant sepsis. When sepsis does occur, the bacteria releases endotoxin and activates the inflammatory cascade.[1] This leads to rapid tissue loss requiring extensive surgical resection and large wounds that require coverage or amputation of extremities.[2] Limb salvage is important in pediatric patients who present with fulminant meningococcemia requiring surgical intervention to improve quality of life and functionality. In 1995, we published a novel procedure utilizing free muscle flaps to cover widely exposed knee joints resulting from fulminant meningococcemia to prevent above knee amputations. This study aimed to show long term results twenty years after the original surgeries were performed.

**Materials and Methods:** After IRB approval was obtained, the patient was evaluated in a one time clinic visit. During this visit, a thorough history and physical was obtained. Range of motion of knee joints was measured utilizing a goniometer. Strength was measured using the Medical Research Council scale for muscle strength. Sensation was determined by perception of light and deep touch.

**Results:** Upon evaluation of the patient, she was found to have complete flap viability of the free latissimus muscle flap used to cover the exposed right knee. Capillary refill was less than two seconds. The patient had 5/5 strength of the right lower extremity and was able to sustain her body weight on this leg alone when asked. Goniometry revealed the patient had both active and passive flexion to 130 degrees and active and passive extension to 20 degrees. She also had perception to light and deep touch over the flap. The patient ultimately underwent amputation through the left knee joint after Ilizarov lengthening failed. However, the free rectus muscle flap used to cover the exposed knee joint was used to cover the amputation site and allow for the use of a prosthesis

**Conclusions:** Our twenty year follow up study demonstrates that using free muscle flap coverage of exposed knee joints can allow for limb salvage in fulminant meningococcemia allowing for long term improved quality of life in pediatric patients with this disease process.

**References:**

1. Singh J, Arrieta AC. Management of meningococcemia. Indian J Pediatr. 2004;71(10):909-13.

2. Yuen JC. Free-muscle-flap coverage of exposed knee joints following fulminant meningococcemia. Plast Reconstr Surg. 1997;99(3):880-4.