



CAPITOL *orthopedic*

ORTHOTIC AND PROSTHETIC SERVICES

A Step Ahead

July/August/September 2007

Symes – Prosthetic Management

Introduced by James Syme, clinical professor of surgery at the University of Edinburgh in 1842, the ankle disarticulation has challenged prosthetists over the years. When the surgery turns out well, it provides the patient with an excellent end-bearing stump. However, problems that occur with the surgery include posterior migration of the heel pad, skin slough and a distal flair that can lead to a bulky, non-cosmetic prosthesis. Despite the advantage of having a long lever arm with the essentially intact tibia and fibula and virtually full end-bearing capabilities of the heel pad, there are still problems with designing an ideal prosthesis for the symes amputee.



MRI Symes amputation

According to Richard Voner, CPO, and John Michael, CPO, there are eleven characteristics for a satisfactory symes prosthesis. They are: transmission of body loads, be light enough in weight to wear comfortably, ability to supply the equivalent of foot and ankle function, lengthening of the limb to adjust for loss of the talus and calcis, distribution of the high forces developed in the ankle area, provision of rotary stability about the long axis, provision of shock absorption, suspension during swing phase, readily donned without requiring multiple non-cosmetic, difficult fasteners, adjustability to relieve pressure along a sensitive scar line and finally cosmesis. (*Prosthetic Management*, Voner, Michael, *Atlas of Limb Prosthetics*, pg 423)

The volume of the residual limb allows for a significant surface area to carry the weight of the patient's body. If the limb allows for distal end weight bearing, that also helps with the transmission of the body load.

One of the biggest challenges in making a symes prosthesis is reproducing ankle joint motion. Since there is usually very little room for a foot, the options for flexible keel or energy storing feet is limited. In recent years, several vendors have developed better options in the energy return and Flex-Foot categories. Approximately fifty millimeters of clearance is required to use the Flex-Foot style feet.

The bulbous end of the residual limb allows for "built in" suspension of the prosthesis. A window can be placed in the socket to allow the distal end of the limb to pass and when the window is closed, the limb is held in the socket, providing suspension. Another option is to use a flexible inner socket made of Pelite or similar foam. A small slit is cut in the liner so that it can be donned. The patient is then able to don the prosthesis by pushing the liner and limb in to the socket.



Symes – Continued

The cast must be properly modified to insure even distribution of forces within the socket and to provide stability along the long axis of the residual limb. Excessive pressure along the tibial crest can cause the patient discomfort and potential skin breakdown. With the long lever arm of the residual limb, there can be high forces at the ankle.

Additional material must be used to provide needed strength. Because the ankle is usually bulbous, this can add to the bulky appearance of the prosthesis. One of the battles in fitting a symes prosthesis is providing the needed strength versus the cosmetic appearance of the prosthesis. The additional material that is used, increases the weight of the prosthesis.

Success Story

I have been working with a patient who had a symes amputation at the age of four. He was born without a fibula in his left leg and had limited ankle function. The left leg began growing at a slower rate than the right leg. He and his family were given the choice to wear braces with build-ups for the rest of his life, or have an amputation. They chose to have the amputation. At the age of 43, he says he has no regrets with the decision that was made. Having the amputation when he was four, has allowed him the benefits of the distal weight bearing suspension using the bulbous end and good distal end padding. With the leg length discrepancy, we are able to use better components as well. He is able to walk with good gait and has been able to function at a high level for 39 years. His comment about his situation is that he has been able to accomplish more in life having had the amputation than using braces that "would have held him back."

LOREN'S LINES



IT HAS BEEN A LITTLE WHILE SINCE YOU HAVE HEARD FROM ME. DUE TO TIME CONSTRAINTS, I WILL BE CHANGING THIS TO A QUARTERLY PUBLICATION. I HOPE THAT YOU STILL FIND THE NEWSLETTER INFORMATIVE.

FOR THOSE OF YOU WHO REFER PATIENTS TO CAPITOL ORTHOPEDIC, I SAY THANKS. WE APPRECIATE THE OPPORTUNITY TO HELP PROVIDE CARE TO YOUR PATIENTS. IF YOU DON'T SEND PATIENTS TO CAPITOL, I CHALLENGE YOU TO GIVE US A TRY. I THINK YOU WILL GET POSITIVE FEEDBACK FROM YOUR PATIENTS REGARDING THE KIND OF CARE THEY RECEIVE. AS ALWAYS, WE STRIVE TO PROVIDE THE HIGHEST LEVEL OF PATIENT CARE. OUR FOCUS IS ON TAKING CARE OF THE PATIENT'S NEEDS, HELPING THEM LIVE LIFE AT THE HIGHEST FUNCTIONAL LEVEL POSSIBLE.

IF YOU WANT MORE INFORMATION ABOUT OUR PRACTICE PLEASE FEEL FREE TO CONTACT ME AT ANY TIME.

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