

NEW BORN CHILD WITH A RARE DISORDER RESULTING IN TRANSHUMERAL AMPUTATION, FITTED WITH A PROTHESIS AT THE AGE OF 6 MONTHS

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INTRODUCTION

A newborn boy with normal birth weight developed an arterial thrombosis in his left arm (Figure 1) during the labour resulting in a transhumeral amputation (Figure 2).

METHOD AND MATERIALS

The Multidisciplinary Arm Prosthetic Team at the Odense University Hospital, prescribed an arm prosthesis for the child at 6 months of age. The child was fitted with a transhumeral prosthesis, with a soft silicon inner socket (Figure 3). The silicone inner socket was made with shore

65 rolled 1-1,5 mm silicone and baked in an oven for 8 hours. The laminated outer socket had an inbuilt thread, to connect with the special made elbow joint, allowing easy interchanging of the socket.

The special made elbow joint was required to allow ext/flex and wrist joint pro/sup to work in combination with a silicon child's hand. The joint was made from an existing shoulder joint that was modified to allow ext/flex. A tube was connected from the elbow joint to the silicone prefabricated silicone hand, so that the pro/sup movement could be maintained.



Figure 1: Child two hours old



Figure 2: Child three hours old, post op



Figure 3: Laminated socket with silicone inner socket, elbow joint and silicone hand



Figure 4: Thorax lift

RESULTS

When compared with our earlier experience, the child exhibited a more normal motor neurological development. For example the lying prone with fully extended elbows, allowing for the head to rise (Figure 4). The child also became aware of his prosthesis through normal actions such as biting (the silicon hand for example). Acceptance of the prosthesis was extremely high illustrated by donning the prosthesis early in the morning and removal during the evening. Naptime also included the prosthesis as to allow the prosthesis to become an integrated part of his day. Early on the parents of the child experienced that their child was using the prosthesis without even looking at the hand. Our Team have regular follow-up with all the users of arm prosthesis. The close contact with the family has enabled a good compliance of both parents and child.



Figure 5: Playing



Figure 6 : Happy brothers

CONCLUSION

Arterial thrombosis is a rare disorder in newborn children. Our experience is therefore extremely limited in relation to the transhumeral prosthetic outcomes. Despite these limitations, we have found early prosthetic fitting has given the child many advantages. Our team in Odense has over the last 13 years, fitted many trans-radial amputees with a prosthesis from the age of 6 months, so when we were presented to a trans-humeral amputee, our previous experience told us it would be possible.

Children, that have benefited from our early fitting, exhibiting better body symmetry, e.g. to be able to lift thorax, from a prone position, with extended elbows. Biting the hand, shows the children are conscious of the prosthesis and how it feels. Early fitting of prosthesis has allowed improved sit to upraised position. We have also observed that the aforementioned trans-radial amputated children use their prosthesis to rest upon when using their other hand to play.

Though the many follow-up in the multidisciplinary Arm Prosthetic Team at the Odense University Hospital, our experience shows us, that the children become long-time users of the different types of arm prosthesis using from the age of 6 months up to adult life. We see that the children adapt very easy into being two-arms-users. We believe our case study illustrates the advantages of early fitting of arm prosthesis.

ACKNOWLEDGMENT

Anders Peter Højlund, Consultant
Odense University Hospital.

Annette Sørensen, Occupational therapist
Odense University Hospital.