



# An Unusual Case of Severe Verrucous Hyperplasia of the Residual Limb: Management and Healing Progression



William P. Christensen, MD and Paul S. Jones, DO  
Department of Physical Medicine and Rehabilitation; University of Missouri

## Introduction

- Verrucous hyperplasia of the residual limb is a dermatologic condition appearing with wart-like papules and plaques
- Results from persistent residual limb edema, usually associated with poor fitting prosthesis, suction socket, and increased friction
- Other determinants include associated comorbidities (e.g. heart failure, renal disease, liver disease), reason for amputation, hygiene, age, activity level, and wearing patterns
- Can be associated with residual limb infection, ulceration and if chronic, may rarely develop into squamous cell carcinoma

## Case Description

- Patient is a 46 year-old gentleman with a history of traumatic right trans-tibial amputation
- Presented to Amputee Clinic wearing a 20 year-old prosthesis [exoskeletal patellar tendon bearing (PTB) design with solid ankle cushion heel (SACH) foot, string lanyard]
- Patellar tendon was 4 inches above the proximal brim of the socket with no distal contact of limb inside socket
- Reported severe pain that rated 10/10, located on distal end of the residual limb that was worse with ambulation

## Prosthetic Prescription

- Discontinue use of old prosthesis immediately
- Use of shrinker to reduce edema and to gradually introduce forces onto the distal end of the residual limb
- Once distal pressure is tolerated, use of socket (PTB/TSB hybrid design) with ½ inch distal end pad, external sleeve suspension, and K3 multi-axial carbon fiber foot

## Clinical Course

- Week 1-3: discontinued use of old prosthesis, immediate use of shrinker which was maintained over healing course when prosthesis was not in use
- Week 4: casting over 3mm gel cushion liner
- Week 5: first check socket fitting with 5-ply sock fit with ½ inch distal end pad
- Week 6: second check socket fitting with 1 to 2-ply sock with distal end pad; patient as sent home temporary socket with multi-axial carbon foot
- Week 7-8: follow up appointment where decision to go to final lamination with minor padding/reduction to mold to accommodate volume fluctuation
- Week 9: final delivery of laminated socket, alignment achieved, and comfortable 1-ply sock fit

## Healing progression of verrucous hyperplasia



## Outcome

- By week 11, patient reported that he was now able to walk unlimited distances without significant residual limb or phantom limb pain
- He is now able to independently don and doff his prosthesis without difficulty or increased discomfort
- Verrucous hyperplasia drastically ameliorated with improved cosmesis and increased functional independence

## Discussion

- External compression to address edema is considered to be the best method of treatment
- The greater the compression on the distal skin, the more immediate and lasting the improvement
- After several weeks of use of the modified prosthesis, the verrucose condition resolves and will not recur as long as the compression is maintained
- Monitoring and management of ulceration and/or infection are of critical importance with respect to morbidity and mortality

## Conclusion

- Early recognition and management of this condition can ameliorate much distress to the patient and improve their ability to effectively function within their community
- Education of the patient regarding the importance of prosthesis fit, edema management, as well as residual limb/socket hygiene are extremely important in relation to preservation of the residual limb soft tissues and overall morbidity
- Comprehensive management by a physiatrist working with a prosthetist and therapist as part of an amputee team is essential to the lifetime care of the amputee patient

## References

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