

ACADEMY OF SPINAL CORD INJURY PROFESSIONALS

Stakeholder perspectives on limb preservation, rehabilitation, and well-being in complete spinal cord injury: A case report

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Case

Participant:

- A 25 yo. male, ejected from a motor vehicle
- T10-11 fx
- T10 ASIA A SCI
- Right femur fx/dislocation, tibia fx, dislocation & popliteal vascular occlusion, Right lower extremity compartment syndrome, acute respiratory failure
- Spinal stab/decom/fixation, vascular repair, right LE external fixation
- Internal fixation
- NWB RLE>Jack Brace>WBAT
- R knee manipulation and arthroscopy of adhesions
- Tendon/ligament reconstruction

Background

- Limited known effect of lower extremity stabilization surgery for limb preservation on rehabilitation outcomes and functional recovery in persons with complete spinal cord injury
- A literature review found no studies were identified that looked at patient experience surrounding concurrent acute spinal cord injury and amputation or describing outcomes after lower extremity reconstruction in combination with complete spinal cord injury

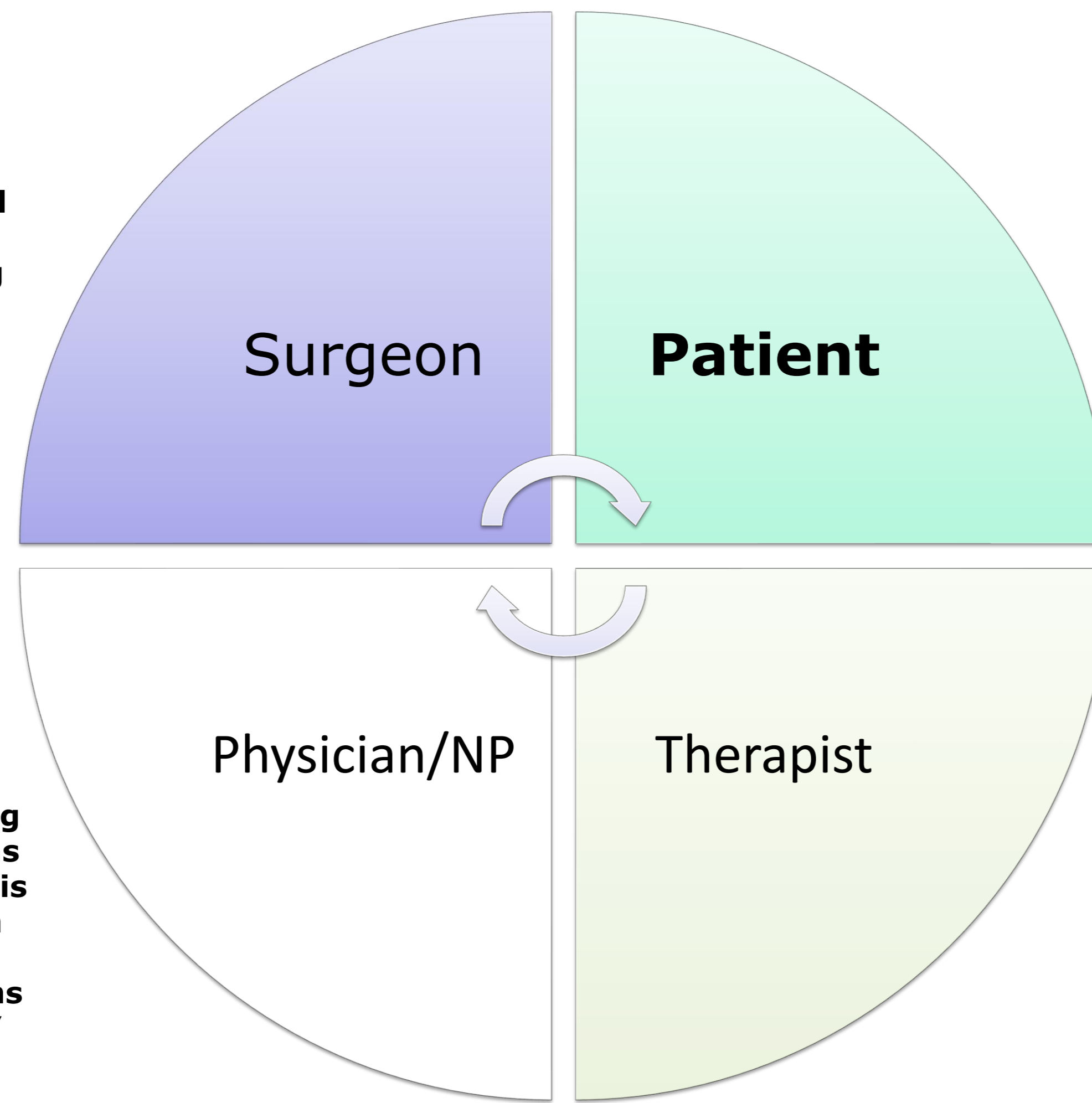
Methods

- Minimal risk institutional review board approved case report
- Retrospective chart review
- Open ended survey questions via red cap were sent to patient, surgeon, physician, nurse practitioner, OT/COTAs, and PTs involved in 3 or more visits of patient's care
- Time points included acute hospital stay, inpatient rehabilitation, and outpatient
- Outcome measures utilized: Functional Independence Measure (FIM), Spinal Cord Injury Measure (SCIM III), and the Walking Index of Spinal Cord Injury (WISCI II)
- Open coding thematic analysis performed with the responses from the comparison groups to identify and describe themes
- Perspective themes categorized into the ICF model/assessment



Perspective: "The unknown with him was nerve/spine function. Even with complete paraplegia, we would still do limb salvage. Turned out he is now ambulating with a brace in a walker and using the exoskeleton."

Perspective: "Despite slowing down rehab activities, he was able to achieve his goals. He is independent in self care, an active father and has returned to work. He remains to have excellent posture."



Perspective: "I've learned to rely on others and ask for help. It has shown me the value of teaching others...If I really want to do or try something I am able to do it I just might have to get creative. Things can take longer but they have more flavor. Also, now more than ever, I truly know the things in my life that are most important."

Perspective: Limb preservation can help with movement quality and efficiency, appearance, social, emotional, and mental health, impact on quality of life, reinforcement that preservation of LE in SCI is critical to maximize independence and participate in advancing rehab

ICF Assessment Sheet – based on responses to redcap interview

Patient Perspective		Health Professional Perspective	
Body Functions & Structures	Activities & Participation	Body Functions & Structures	Activities & Participation
<p>"They initially thought they might need to amputate, but during surgery thought it was salvageable because they could still feel a pulse. I was off to a slow start because I was in an ex-fixator. I was unable to bend my knee for 4-6 months. All my ligaments were torn, and I needed surgery"</p>	<ul style="list-style-type: none"> - "I have learned to rely on others and ask for help" - It has shown me the value of teaching others - I'm forced and get to sit back and teach my children - Daily care - Driving - Taking care of my kids - Getting back to work - I use my legs daily to transfer and get in and out of things like tractors and skid loaders - I also use my legs to help me do my stairs" 	<p>Therapist:</p> <ul style="list-style-type: none"> - Comorbidities - Healing/medical condition - Infection - Vascular compromise - Circulation - Risk of pressure sores <p>Physician/NP:</p> <ul style="list-style-type: none"> - Amputation - External Fixator - Bone health <p>Surgeon:</p> <ul style="list-style-type: none"> - Limb salvage - T10 paraplegia - Knee dislocation w/ arterial injury - Revascularization - Fasciotomy 	<p>Therapist:</p> <ul style="list-style-type: none"> - Positioning - Pressure relief - Weightbearing activities - Cardiovascular exercise - Wheelchair mobility - Transfers/functional mobility - Without limb – limiting standing, ambulation, weightbearing <p>Physician/NP:</p> <ul style="list-style-type: none"> - Mobility management - Discharge to home - Transfers - Active father <p>Surgeon:</p> <ul style="list-style-type: none"> - Optimize lower extremity function - Ambulating with a brace in a walker - Exoskeleton
Environmental Factors		Personal Factors	
<ul style="list-style-type: none"> • Lives in a split-level home, not wheelchair accessible • Supportive employer for return to work and adaptability • Intermittent family support 		<ul style="list-style-type: none"> • 25-year-old male • Employed as a warehouse manager • Very active • 3 children/single dad • Strong faith and positive outlook • Internally motivated, determined • Views himself as creative and adaptable • Finds value in teaching others 	



"Sometimes it's hard for me to think I have things to offer, but I'm learning I do, it just looks different than it used to. I've learned how to never give up and come at things from a different angle."

Results

- 6 months post injury: SCIM III score improved from 20/100 to 22/100, WISCI II score improved from 0/20 to 6/20
- 12 months post injury/4 months post knee reconstruction: patient was household ambulating with a walker and bilateral knee-ankle-foot-orthoses
- 18 months post injury cleared for use of exoskeleton
- At discharge from outpatient PT/20 months post injury, he was ambulating in parallel bars at home without knee-ankle-foot-orthoses
- No repeated INSCSI, ASIA exam, or FIM

Conclusions

- Rehab course delayed by 8 months due to ligamentous instability in the right knee and the need for reconstruction
- Functional outcomes and self-reported quality of life are subjectively greater with limb preservation than amputation
- Without limb preservation, patient would not be a functional ambulator in his home
- Different perspectives help us understand interdisciplinary contributions to the patient's self-reported quality of life, functional abilities, and outcomes

Discussion

- The open coding thematic analysis revealed themes consistent with the International Classification of Functioning, Disability and Health (ICF) model of patient care, including body function and structures, activities and participation, and personal and environment factors

References

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