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Limb Salvage vs. Early Amputations: A Difficult Decision

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Limb Salvage vs. Early Amputation: Charcot-Diabetes w/ PAD-Ulcers All Have Different Considerations



Charcot

At A Recent Lecture

- “You do not win every battle, sometimes your patients will end up with a below knee amputation.”
- BKA = loss or poor outcome?
- There needs to be shift in our thinking maybe.



Early in my career: “Save Every Leg” ... Why?

- Major amputations what does literature tell us:
 - Contralateral amputation= 68% with 5 years
 - Mortality Rate = 50% at 3 years (save a leg & saves a life)
 - Institutionalization = 25% remain permanently

Lavery, Van Houtum, Armstrong. Am J Med 1997

This is data we have used to say: “we need to save every leg”



Dinner 3 Years Ago – Speaker Paul Kim, DPM

- He Said, “Sometimes below knee amputation from the start may be a better decision and it may actually serve the patient better.”
- When looking at new data, we are seeing that their quality of life and their function can be better with below knee amputation and prosthesis.
- He went on to say data is showing younger patients are doing better with early below knee amputation.



14 Years in Practice

“This made me think a lot about my patients”

- Learning is gained by Reading-School-Residency
- Knowledge is gained by Experience
- Wisdom is gained from Complications/Mistakes Made by us and our colleagues.



Discussions With Some of My BKA Patients

- “If I had known how well I would do with my prosthesis I would have had amputation earlier.”
- “Having my leg amputated, gave me my life back. No more daily dressing changes, wound care appointments, surgeries, and being NWB.”
- “The below knee amputation was the right decision for me.”

Retrospective Evaluation of Some Charcot Cases/Patients

- All of us guilty & can think of cases that we prescribed a course of healthcare for patients that was perhaps not in their best interest.
- **Primary amputation likely could have given:**
 1. Better Quality of Life
 2. Better Function in Life



DIFFICULT PART

- **No one and no piece of literature can tell us:**
 - **When and Who needs primary amputation**
 - **When and Who needs limb salvage**
- **My Goal today is through some my experiences & discussions of the excellent doctors on this panel and the literature I review in this lecture, maybe we all will gain some pearls on which patients to attempt limb salvage & which to perform primary amputation.**

David Armstrong, DPM & Irv Kanat, MD

- “Treat patients the way they want to be treated.”
 - Irv Kanat, MD



“At first, I thought he was just being obstinate, but boy, do I understand it now.” – David Armstrong, DPM

Long Road vs. Short Road

“Long road traveler needs to be a fighter”



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Key Factors to Review for Success in both Amputation & Limb Salvage

- Ensure good blood flow
- Control infection
- Hemoglobin A1C & patient understanding that glycemic control is important.
- Social situation of the patient
- Aim for a good biomechanical result
- Create a stable soft tissue envelope
- Patient on board with treatment plan
- Look at their teeth...

Size & Smoking



Amputation and ambulation in diabetic patients: Function is the goal

- Life expectancy decreases as each subsequent segment is amputated.
 - Toe < Foot < Lower Leg < Knee < Thigh

Attinger, CE, Brown BJ, Diabetes Metab Res Rev
2012; 28 (suppl 1): 93-96

Amputation and ambulation in diabetic patients: Function is the goal

- **Compared our survival and amputation rate of foot amputees with below knee amputees in 937 consecutive patients from 1999 to 2000.**
 - **88 Foot amputations (TMA, Lisfranc, & Chopart)**
 - **80% were still alive at 2 years with 64% ambulating**
 - **25 BKA's**
 - **52% were still alive at 2 years with 64% ambulating**

Attinger, CE, Brown BJ, Diabetes Metab Res Rev
2012; 28 (suppl 1): 93-96



Comparison of Diabetic Charcot Patients with and Without Foot Wounds

- 245 patient (280 feet) were identified with charcot neuropathy from 2005 to 2015.
- 78 feet treated non-operatively
- 202 feet required some type of surgery
 - 22 (10.9%) non suitable for reconstruction had primary BKA
 - 18 underwent soft tissue surgery
 - 162 underwent osseous surgery
- 18 or 180 feet (10%) that underwent soft tissue or osseous surgery ultimately required BKA .
- **90% of the 180 feet had successful limb salvage.

Wukich DK, et al. Foot & Ankle Intl. 2017 Feb;38(2) 140-148

Comparison of Diabetic Charcot Patients with and Without Foot Wounds

- **40 of the 280 feet underwent BKA = 14.3%**
- **Patients with Charcot-related foot wounds**
 - 35 below knee amputations in 164 feet (21.3%)
- **Patients without Charcot-related foot wounds**
 - 5 below knee amputations in 116 feet (4.5%)
- **The presence of Charcot-related foot wound at presentation increased likelihood of major lower extremity amputation by a factor of 6.**

Wukich DK, et al. Foot & Ankle Intl. 2017 Feb;38(2) 140-148

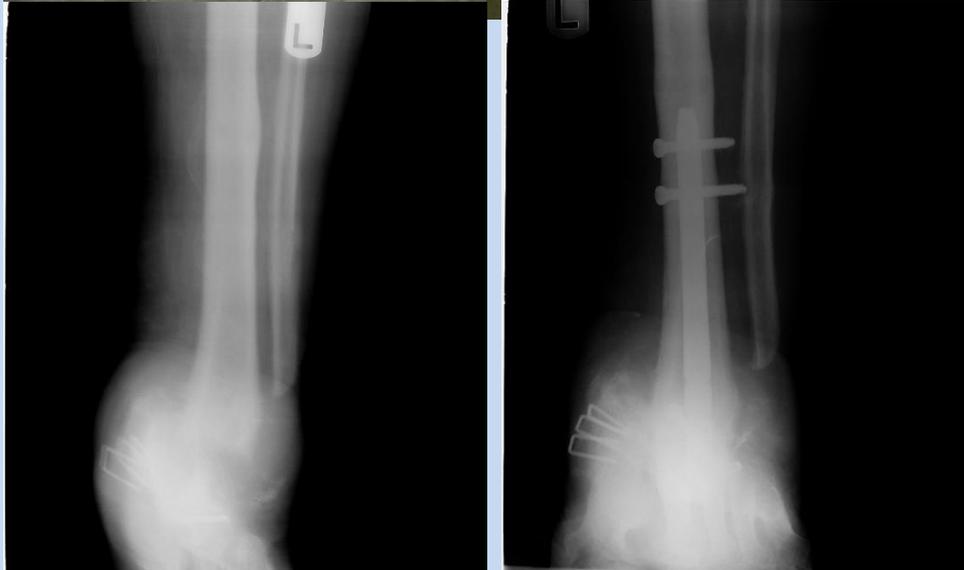
Other Things to Consider

- **Costs of Limb Salvage vs. Major Amputation**
- **Going back to the patient:**
 - Look at the whole patient
 - What is the patient's level of function
 - Does it make sense to spend 3-5 months constructing a limb they cannot use or a limb that breaks down due to poor hygiene, glycemic control, and non-compliance
 - Do they have family and friend support system to help them during the post-operative course
 - Being honest with patient that may go through all this reconstruction and it fail and end up with BKA

Other Things to Consider

- These are big and sometimes long operations
- anesthetics can be like poisons
- more surgeries the more risks you take & complications
- Long term IV antibiotics: PICC line & kidney risks
- Can you or local colleague perform the needed major reconstructive procedures.
 - You cannot just piece-meal or “kinda” do what needs to be done. This equals poor success rate.
 - Many advances have been made that can allow for 90% success rate in reconstructive Charcot surgery.

Limb Function Preservation: Hard Work, 100% Complication Rate, but so Rewarding!



Tough Decision: Best Choice for Function & Quality of Life Sometimes is Early BKA

- “Just because you can does not mean you should”



Take Home Points

- **Charcot patients presented with an ulcer 6 times more likely to have below knee amputation.**
- **40 of the 280 Charcot feet underwent BKA = 14.3%**
- **Early BKA is not a loss or a failure, sometimes best decision for everyone (patient, surgeon, family, & economics).**
- **Good patient selection, better technology, sharing of best practice techniques has led to higher success rates in Charcot reconstructive surgery.**
- **“Limb Function Preservation” with a better quality of life is our big picture goal.**

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