Popliteal Artery Occlusion Post Knee Revision Surgery Results in Above Knee Amputation

The Case:

A middle-aged male presented to an orthopedic surgeon with a history of total knee arthroplasty (TKA), commonly known as a total left knee replacement, the year before with good results. At the time of presentation, his left knee pain was gradually worsening, both at rest and with activity. The surgeon's impression was the patient was experiencing either loosening of the prosthesis or failed bony in-growth in his left knee, both considered major long-term problems associated with TKA. He recommended knee revision surgery.

In the pre-operative area, the anesthesiologist performed both a femoral nerve block and a sciatic nerve block. The surgery went well with no intraoperative complications. On Post Op Day #1 the patient reported significant pain in his thigh, no feeling or sensation below his knee, and a very hard calf. He also recalled not being able to move his foot, ankle and toes. The nurses and physical therapist told him this was due to the anesthesia and that it would wear off. Subsequently the patient developed a burning sensation in his left calf, and foot drop. The surgeon's impression was a complication of sciatic nerve block or perhaps a stretch injury to the peroneal nerve. The surgeon did not note any apparent wound complications. He ordered an ankle-foot orthosis brace to help support the patient's ankle.

Post Op Day # 2 the patient requested discharge home and the surgeon agreed.

Post Op Day # 3 the Home Health nurse expressed concern over the appearance of the patient's leg and believed
there was something wrong. The nurse did not call the surgeon until Post-Op day #6 (Monday).

Post-Op Day # 4 (Saturday) the patient had called the surgeon’s office with complaints of increasing pain and swelling, but never received a follow up phone call.

Post-Op day # 6 the surgeon found significant left calf swelling and erythemia, however the leg compartments were soft and there was no pain associated with passive stretching. An ultrasound performed to rule out DVT was normal.

Post-Op Day # 8 the patient continued to have burning pain, left leg swelling, persistent numbness below the knee, with erythema and discoloration. He was placed on Keflex and an arteriogram was ordered, as well as a baseline EMG because of the lack of sensation.

The arteriogram was delayed because of insurance authorization requirements, but an arterial ultrasound was performed two days later.

Post-Op day # 10 the arterial ultrasound demonstrated an occlusion in the popliteal artery. The patient was admitted to the hospital by a vascular surgeon. After tissue plasminogen activator (tPA) Therapy failed, the patient had an above knee amputation (AKA) performed.

**Allegations:**

- The Plaintiff alleged the surgeon failed to timely diagnose and treat the popliteal artery occlusion, resulting in AKA.
- The Plaintiff has also alleged the hospital, nurses and physical therapy staff were negligent in their role to help make a timely diagnosis and treatment of this complication.

**Disposition:** The case settled in favor of the patient; the doctor, his practice and the hospital paid a very large amount of money.

**Risk Management/Patient Safety Commentary**

This is a case of misdiagnosis and delay in treatment of popliteal artery occlusion after an uncomplicated total knee revision. It is unknown whether this patient had a history of vascular problems. Although injury to the popliteal artery is a recognized complication of the procedure, and the procedure was performed correctly, this patient was injured by failure to recognize a popliteal artery injury. The vascular literature clearly states that if an arterial occlusion is left untreated for more than 8 hours, the chance of amputation is 86%, compared with an 11% chance if treated within 8 hours.1

1. **Delay in diagnosis/treatment:** Experts opined that if the surgeon re-admitted the patient and performed an arteriogram up to post-op day # 3, the occlusion would likely have been discovered, revascularization would have been successful, and the AKA could have been avoided.

2. **Poor medical record documentation:** The medical record documentation did not support the orthopedic surgeon or the hospital. The surgeon did not document the patient’s pulses prior to surgery. In his first post-op note, the surgeon indicated an insensate foot, but did not document pulses. The surgeon did not document the appearance of the patient’s skin temperature. The surgeon did not document a differential diagnosis that may have explained his treatment thought processes for delaying the arteriogram.

The experts did not believe the hospital’s physical therapist actually checked the patient’s post-op pulses. The physical therapist placed a check- mark in a box on a chart template indicating “positive” palpable pulses. The nurses had not documented the patient’s pedal and popliteal pulses post-operatively, either on the chart template or in their nursing notes.

**Reference:**

Resource:


The case report presented is a composite drawn from MagMutual’s case files. Any similarity to a specific case is both coincidental and unintended.

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