

Retrospective study of malpractice lawsuits related to digit injury during surgical procedures in the United States from 1927 to 2019



To the Editor: Competency in performing digit and nail procedures is essential for diagnosing nail conditions. There is lack of adequate training in digit/nail surgery,¹ which may delay diagnosis and treatment and result in poor patient outcomes. Our objectives were to identify medical malpractice suits pertaining to digit damage resulting from surgical procedures to guide dermatologic surgeons in safely performing digit/nail procedures.

The Lexis Advance (LexisNexis, New York, NY) database was queried for state- and federal-level lawsuits involving digit injury resulting from surgery in the United States from 1914 to 2020. Search terms included “digit,” “finger,” “toe,” with “surgery,” “ischemia,” “tourniquet,” and “medical malpractice.” Excluded cases were not malpractice, not due to surgical procedural error, and did not affect the digit(s).

The analysis included 18 cases from 1972 to 2019, in which 20 physicians were sued, with 70% in surgical specialties (Table I). Toes were most commonly involved (72%), with multiple digits affected in 15 cases (83%) (Table II). Improper tourniquet use was the most often cited cause of digit injury (72%), and some cited improper use of dressings postoperatively, leading to “tourniquet-like” constriction (11%).

Most cases were decided in favor of the defendant, with only 4 of 18 cases (22%) ruling for the plaintiff. Monetary payouts, adjusted for inflation ranged, from \$926,000 to \$4,679,676. Cases won by patients included negligence from postoperative dressings applied too tightly resulting in toe gangrene in a teenaged boy and in an adult male prisoner, calcium gluconate finger injection in a man causing necrosis, and local anesthesia injected into a woman’s finger with underlying Raynaud phenomenon, resulting in finger ischemia.

Prolonged duration of tourniquet use and pressure greater than standard of care were the most commonly cited reasons for digit injury. No cases of improper tourniquet use were won by the plaintiff. A tourniquet is necessary to achieve a bloodless field during digit/nail surgery. It can be used safely if conspicuous, pressure is controlled, and application is not prolonged. The maximum recommended pressure is 300 mm Hg, and 150 mm Hg may be sufficient for digit hemostasis.² The T-RING (Precision Medical Devices LLC, Thousand Oaks, CA) and Tourne-Cot (Mar-Med,

Table I. Characteristics of relevant medical malpractice cases

Variable	No. (%) (N = 18)
Jurisdiction	
State	16 (89)
Federal	2 (11)
Provider specialty	
Orthopedic surgery	10 (50)
Podiatry	4 (20)
General surgery	2 (10)
Anesthesiology	2 (10)
Plastic surgery	1 (5)
Vascular surgery	1 (5)
Provider sex	
Male	19 (95)
Female	1 (5)
Setting	
Hospital	12 (67)
Private	5 (28)
Prison	1 (6)
Plaintiff sex	
Male	12 (67)
Female	6 (33)
Ruling in favor of	
Plaintiff	4 (22)
Defendant	14 (78)

No., Number.

Grand Rapids, MI) can reliably and consistently apply safe pressures. If a rolled glove finger is used, larger sizes are suggested to avoid excessive pressure. Because ischemia may occur after 20 minutes, a timer is set at 20 minutes for tourniquet release.³

Elastic dressings and self-adhesive tape can cause a tourniquet-like effect, as cited in 2 cases. Extending the wrap proximally to involve the hand/wrist, or foot/ankle, prevents these complications.^{4,5} Three patients with Raynaud phenomenon experienced digit ischemia postoperatively. Epinephrine may be safely used in digit/nail surgery for patients without Raynaud phenomenon.⁵ Screening patients for Raynaud phenomenon before surgery and avoiding epinephrine in this group may prevent complications from vasospasm leading to digit ischemia.

This study highlights the need for caution and education on safe tourniquet and postoperative dressing practices and consideration of comorbidities, including diabetes and Raynaud phenomenon, that compromise vascular supply to the digits when epinephrine is used. Dermatologic surgeons may increase confidence and technique in performing digit/nail surgery by learning from medical errors.

Table II. Pertinent medical data from cases

Variable	Cases (N = 18), No. (%)
Indication	
Nail biopsy	1
Malignancy	1
Onychocryptosis	1
Acid burn	1
Carpal tunnel syndrome	1
Subclavian vein thrombosis	1
Hallux flexus	2
Hallux valgus	2
Severed tendon	4
Fracture	4
Error cited by plaintiff	
Improper tourniquet use	13 (72)
Bandage/dressing applied too tight	2 (11)
Local anesthesia injection	1 (6)
Local calcium gluconate injection	1 (6)
Subclavian vein ligation	1 (6)
Type of improper tourniquet use	
Excess duration of use	8 (62)
Excess pressure (>300 mm Hg)	5 (38)
Anatomic site	
Fingers/hand	5 (28)
Digits affected	
Right 1, 2	1
Left 2	1
Right 2, 3	1
Right 4, 5	1
All	1
Toes/foot/leg	13 (72)
Digits affected	
Right 1	1
Right 1, 2	1
Right 2,3,4	1
Left 2, 3, 4	1
Left 3, 4, 5	1
Right 4	1
All	7
Relevant patient history	
Raynaud phenomenon	3 (18)
Diabetes mellitus	1 (6)

No., Number.

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REFERENCES

- Lee EH, Nehal KS, Dusza SW, Hale EK, Levine VJ. Procedural dermatology training during dermatology residency: a survey of third-year dermatology residents. *J Am Acad Dermatol.* 2011;64(3):475-483, 483 e1-5.
- Lahham S, Tu K, Ni M, et al. Comparison of pressures applied by digital tourniquets in the emergency department. *West J Emerg Med.* 2011;12(2):242-249.
- Vallejo RBD, Iglesias MEL, López DL, et al. Effects of digital tourniquet ischemia: a single center study. *Dermatol Surg.* 2013;39(4):584-592.
- Ricardo JW, Lipner SR. How we do it: pressure-padded dressing with self-adherent elastic wrap for wound care after nail surgery. *Dermatol Surg.* 2021;47:442-444.
- Ricardo JW, Lipner SR. Nail surgery myths and truths. *J Drugs Dermatol.* 2020;19(3):230-234.

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Aberrant venous anatomy as a risk factor for thromboembolic events in patients with Klippel-Trénaunay syndrome: Case-control study within a cohort study



To the Editor: Klippel-Trénaunay syndrome (KTS) is a rare congenital vascular malformation disorder (1 of 20,000-40,000 live births).¹ The cause is a somatic mosaicism of the affected tissues.² KTS affects 1 or more limb(s) with a capillary malformation and lymphatic and venous malformations, including an aberrant venous anatomy, combined with hypertrophy (Supplemental Fig 1, available via Mendeley <https://doi.org/10.17632/s6gvr59g3x.1>).³

Patients with KTS are prone to develop thromboembolic events (TEE): superficial vein thrombosis (SVT), deep vein thrombosis (DVT), or pulmonary embolism (PE).^{4,5} The mechanism behind the increased risk for TEE in KTS is unclear.⁴ Our objective was to investigate the prevalence of TEE in patients with KTS and subsequently to determine whether, and to what extent, aberrant venous anatomy represents a risk factor for TEE.

A retrospective cohort study was performed with data from medical records, recorded between 2000 and June 2019, of a large cohort with KTS (n = 173) from a large tertiary referral center. A case-control study was performed of 97 patients with KTS with affected lower limb(s), within the cohort, who had been examined with color duplex ultrasonography (CDU). The 97 patients were divided