Injury Profiles and Allegations of Delay in Malpractice Claims Following Revision Spinal Fusion

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INTRODUCTION: The volume of spinal fusion procedures is rising steadily, driven by an aging population and improvements in surgical technique. Despite advances, revision surgeries remain common – occurring in up to 45% of cases – and carry greater risk of complications and technical challenges. These increased risks may elevate malpractice exposure for spine surgeons, who are already among the most frequently litigated physicians. While prior studies have evaluated malpractice trends in primary spinal fusion and other orthopaedic revision surgeries, no study to date has specifically investigated malpractice litigation related to revision spinal fusion procedures.

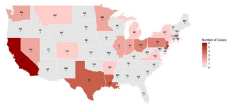
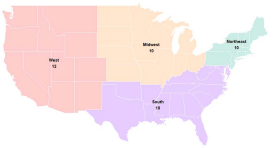
METHODS: The Westlaw legal database was queried for malpractice claims involving revision spinal fusion procedures from 1990 to 2024. Four independent searches were conducted using the “Cases” and “Jury Verdicts and Settlements” content sections. Inclusion criteria consisted of cases involving patients who underwent revision following primary spinal fusion. Cases were excluded if they involved only primary fusion or non-fusion spinal procedures, if the defendant was not a surgeon or surgeon’s institution, if the case was a medical review panel, or if patients were under 18 years old. Case variables collected included plaintiff and surgeon demographics, surgeon specialty, spinal levels fused, duration from surgery and case filing to outcome, reason for revision, geographic region, and type of injury. Litigation-specific factors included year of filing, time from revision to litigation, case duration, claims of negligence, verdict outcome, and monetary award.

RESULTS: A total of 42 malpractice claims involving revision spinal fusion were identified. Cases were equally distributed across geographic regions. The majority of cases resulted in a verdict for the defendant (n=35; 83%). The most common cited injury was pain and suffering (n=22; 34%), followed by nerve root injury (n=17; 27%) – with subtypes including foot drop (n=4), sensation deficits (n=3), pain (n=1), and weakness (n=1). Eight nerve root injuries (47%) lacked specific detail. Permanent neurological deficits were cited in seven cases (11%), and death and bowel/bladder dysfunction each appeared in four claims (6%). Less common injuries included paraplegia/quadriplegia (n=3), infection (n=2), complex regional pain syndrome (CRPS, n=2), cauda equina syndrome (n=1), hemiparesis (n=1), and dural tear (n=1). Injuries often overlapped, with multiple harms cited per case. The most common allegation of negligence was failure to diagnose and complete timely revision surgery (n=20; 48%). Notably, plaintiffs who made this claim were significantly more likely to have transitioned care from one physician to another compared to those who did not make this claim ($P = 0.004$).

DISCUSSION AND CONCLUSION: Litigation related to revision spinal fusion frequently cites pain-related outcomes and neurologic injury, including nerve root damage and permanent deficits. These injury patterns underscore the high-risk nature of revision procedures, where epidural scarring, altered anatomy, and reoperation heighten susceptibility to complications. Notably, most claims were related to a failure to diagnose and perform timely revision surgery, suggesting that delays in care may be associated with a higher propensity for complications and subsequent litigation. The observed link between these claims and transitions in care may indicate that patients experiencing persistent symptoms are more likely to change providers, possibly after a perceived delay in diagnosis or treatment. These findings underscore the importance of timely recognition and management of surgical failure to reduce both adverse outcomes and malpractice exposure.

Table 1.
Characterization and Geographical Distribution of Malpractice Claims and Its Verdicts

Malpractice Claim Characteristics	n (%)	Verdict for Defendant (%)
Total malpractice claims	42 (100)	35 (83)
Filing year range		
1990-1999	4 (10)	3 (75)
2000-2009	12 (29)	11 (92)
2010-2019	25 (60)	20 (80)
2020-2024	1 (2)	1 (100)
Time from filing to case outcome, mean (y ± SD)	3.8 ± 2.3	
Time from revision surgery to case filing, mean (y ± SD)	6.5 ± 3.1	
Plaintiff age, mean (y ± SD)	46.2 ± 12.9	
Plaintiff sex, male	21 (50)	16 (76)
Defendant sex, male	46 (100)	38 (83)
Surgeon specialty		
Orthopaedics	23 (50)	19 (83)
Neurosurgery	21 (46)	17 (81)
Vascular	1 (2)	1 (100)
Thoracic	1 (2)	1 (100)
Levels treated		
Single	17 (37)	14 (82)
Multilevel	13 (63)	11 (85)
Location of fusion		
Cervical	9 (24)	7 (78)
Thoracolumbar	2 (5)	2 (100)
Thoracolumbosacral	1 (3)	1 (100)
Lumbar	25 (68)	21 (84)
Reason for revision		
Screw malplacement	8 (20)	7 (88)
Pseudarthrosis	8 (20)	7 (88)
Hardware migration	5 (14)	5 (100)
Fusion failure	5 (14)	4 (80)
Nonunion	2 (6)	1 (50)
Malpositioned interbody spacer	2 (6)	1 (50)
Adjacent segment disease	2 (6)	1 (50)
Vertebral fracture	1 (3)	1 (100)
Cage malplacement	1 (3)	1 (100)
Geographic Region		
Northeast	**10 (24)**	**7 (70)**
New Jersey	4 (18)	3 (75)
Pennsylvania	3 (7)	2 (67)
Massachusetts	1 (2)	1 (100)
New York	1 (2)	1 (10)
Midwest	**10 (24)**	**9 (90)**
Ohio	3 (7)	2 (67)
Minnesota	2 (5)	2 (100)
Indiana	2 (5)	2 (100)
Illinois	2 (5)	2 (100)
Michigan	1 (2)	1 (100)
South	**10 (24)**	**8 (80)**
Texas	4 (18)	3 (75)
Louisiana	4 (18)	3 (75)
Arkansas	1 (2)	1 (100)
Virginia	1 (2)	1 (100)
West	**12 (29)**	**11 (92)**
California	4 (10)	3 (75)
Nevada	2 (5)	2 (100)
Washington	2 (5)	1 (50)
Colorado	1 (2)	1 (100)
Montana	1 (2)	1 (100)

Table 2.
Claims of Negligence, Cited Injuries, and Case Outcomes

Malpractice Claim Characteristics (n=42)	n (%)
Allegation of negligence 49	
Failure to diagnose and complete timely revision surgery	20 (41)
Failure to obtain informed consent	10 (20)
Intraoperative error	9 (18)
Inappropriate/excessive surgery	6 (12)
Improper postoperative management	2 (4)
Improper neuromonitoring	1 (2)
Improper preoperative assessment	1 (2)
Injury reported	
Pain and suffering	22 (34)
Nerve root injury	17 (27)
Footdrop	*4 (24)*
Pain	*1 (6)*
Weakness	*1 (6)*
Sensation deficits	*3 (18)*
Missing	*8 (47)*
Permanent deficit	7 (11)
Death	4 (6)
Bowel/bladder deficit	4 (6)
Paraplegia/quadriplegia	3 (5)
Infection	2 (3)
CRPS	2 (3)
Cauda equina syndrome	1 (2)
Hemiparesis	1 (2)
Dural tear	1 (2)
Case outcome	
Defendant verdict	35 (83)
Plaintiff verdict	5 (12)
Settlement	1 (2)
Missing	1 (2)
Average award, $ ± SD	
Trial verdict	2,923,000 ± 937,621
Settlement	4,500,000 ± 0
All cases	3,185,833 ± 1,057,258
Average inflation-adjusted award, $ ± SD	
Trial verdict	3,708,617 ± 857,086
Settlement	5,706,846 ± 0
All cases	3,991,183 ± 1,188,411