

Appendix

TABLE E-1 Overview of Studies: Patient, Injury, and Fracture Characteristics*

Study	No. of Patients	Age†	Sex‡	Trauma§#	Reported Other Injuries§**	Location§††	Fracture Type	
							Roy-Camille§‡‡	Pattern§,§§
Hallgrímsson ³⁴ (1938)	3	42	M: 1, F: 2	Fall (2), IA (1)	L1 and L2 fracture (1)	S3 (1), S4 (2)	1 (1), NR (2)	—
Sicard ⁵¹ (1953)	7	45	M: 3, F: 4	Fall (5), MVA (2)	T12 fracture (1), none (6)	S3 (2), S4 (4), S5 (1)	1 (7)	—
Lux ³⁹ (1959)	2	39	M: 2, F: 0	MVA (1), IA (1)	None (2)	S3 (1), S3-S4 (1)	NR	—
Fontaine ²⁷ (1962)	1	17	M: 1, F: 0	MVA	None	S4	2	—
Rowell ⁴⁶ (1965)	1	15	M: 1, F: 0	PMVA	None	S3	NR	—
Goodell ³¹ (1966)	1	21	M: 1, F: 0	MVA	Retroperitoneal and IP bleeding, T12 fracture	S2-S3	NR	—
Purser ⁴³ (1969)	1	19	M: 0, F: 1	MVA	TP fractures	S1-S2	2	—
Bender ¹⁵ (1972)	1	53	M: 0, F: 1	Fall	None	S3-S4	1	—
Woodward ⁶⁰ (1974)	1	18	M: 1, F: 0	MVA	Rib, TP, L5 fractures, ruptured spleen, colon and lung injury	S1-S2	2	—
Fardon ²² (1976)	1	41	M: 1, F: 0	Fall	Cruris, rib, ischial, TP fractures, myocardial contusion	S1-S2	3	—
Bucknill ¹⁷ (1976)	3	22	M: 2, F: 1	MVA (2), IA (1)	Scapular (1), pelvic (1), TP (3) fractures, shoulder dislocation (1), brachial plexus injury (1)	S1 (1), S1-S2 (2)	3	—
Fountain ²⁸ (1977)	6	42	M: 4, F: 2	MVA (3), fall (2)	Pubic (2), ischium (1), lumbar spine (1) fractures	S1-S2 (2) S2 (1), S3-S4 (3)	NR	—
Byrnes ¹⁸ (1977)	2	20	M: 1, F: 1	MVA (2)	Head injury (1), ruptured spleen (1), retroperitoneal hematoma (1), ilium and pubic fracture (1)	S1-S2 (1), S2-S3 (1)	1 (1), 2 (1)	—
Heckman ³⁵ (1978)	1	9	M: 0, F: 1	PMVA	Traumatic asphyxia and cruris fracture	S2	1	—
Fardon ²³ (1979)	1	20	M: 0, F: 1	MVA	TP fractures	NR	1	—
Wörtsdörfer ⁶¹ (1980)	8	NR	NR	NR	NR	NR	NR	—
Fardon ²⁴ (1980)	1	54	M: 1, F: 0	Crush	TP fractures	NR	NR	—
Weaver ⁵⁸ (1981)	1	33	M: 0, F: 1	MVA	None	S1-S2	2	—
Reynier ⁴⁴ (1982)	2	30	M: 0, F: 2	Fall (1), MVA (1)	L2 (1) pubic (2), ankle (1), TP (1) fractures	S1 (1), S2 (1)	2 (1), 3 (1)	—
Goutallier ³² (1983)	3	29	M: 1, F: 2	Fall (2), MVA (1)	Femoral (1), Lisfranc (2), calcaneal (1), radial (1), T12 (1), L1 (1), pubic (1) fractures	S2 (3)	2 (2), NR (1)	—
Ferris ²⁵ (1983)	2	30	M: 2, F: 0	Fall (1), other (1)	Lumbar (1), calcaneal (1),	S1-S2 (2)	2 (1), 3 (1)	—

					olecranon (1), rib (1), L5 (1) fractures, ruptured spleen (1), mesenteric tear (1)			
Lesoin ³⁸ (1984)	1	49	M: 0, F: 1	Fall	NR	S2-S3	2	—
Kerboul ³⁷ (1985)	1	18	M: 0, F: 1	MVA	None	S2	2	—
Sapkas ⁴⁹ (1985)	1	24	M: 0, F: 1	Fall	T12, L4-L5, humeral, rib, ankle, calcaneal, pubic fractures, hemothorax	S3-S4	4	—
Carl ¹⁹ (1985)	1	21	M: 1, F: 0	MVA	Pubic, ankle, L5 fractures	S2	2	—
Hadley ³³ (1985)	1	43	M: 1, F: 0	Other	None	S4	4	—
Roy-Camille ⁴⁷ (1985)	13	NR	M: 5, F: 8	Fall (11), MVA (2)	T11 (1), T12 (1), L1 (5), L2 (1), L3 (1), L5 (1), pelvic (4), ankle (5), calcaneal (5) fractures, IP bleeding (5)	S1 (1), S1-S2 (1), S2 (6), multilevel (3), NR (2)	1 (4), 2 (5), 3 (3), NR (1)	—
Dowling ²¹ (1985)	1	16	M: 0, F: 1	MVA	Pubic and TP fractures	S2	2	—
Sabiston ⁴⁸ (1986)	16	NR	NR	NR	TP fractures (4)	S1-S2 (5), S2 (1), S3 (8), S3-S4 (2)	NR	—
Chiaruttini ¹⁴⁶ (1987)	1	28	M: 0, F: 1	Fall	None	NR	1	—
Denis ¹ (1988)	5	NR	NR	NR	L1 (3), T12 (2)	NR	NR	—
Foy ²⁹ (1988)	16	35	M: 10, F: 6	NR	None	S1-S3 (7), S4-S5 (9)	NR	—
Fisher ²⁶ (1988)	1	26	M: 1, F: 0	Fall	Fibular fracture	S2-S3	2	—
Singh ⁵² (1989)	1	31	M: 1, F: 0	MVA	TP, pubic, iliosacral fractures	Mid-sacrum	NR	H
Yasuda ⁶² (1990)	1	32	M: 1, F: 0	Fall	None	S2	2	—
Gibbons ⁹ (1990)	7	NR	NR	Fall (4), PMVA (1), MVA (1), IA (1)	NR	4 above S4, 3 at or below S4	NR	—
Strange-Vognsen ⁵³ (1991)	1	56	M: 0, F: 1	Fall	Tibial, calcaneal, cruris, T12, L1 L5 fractures	S2	4	—
Weber ⁵⁹ (1991)	2	82	M: 0, F: 2	Fall (2)	T12 (1), pubic (1) fractures	S1-S2 (2)	1 (1), 3 (1)	—
Savolaine ⁵⁰ (1991)	1	34	M: 1, F: 0	Fall	Pelvic, cruris, TP fractures, pneumothorax	S2-S3, S3-S4	2	—
Phelan ⁴² (1991)	4	45	M: 2, F: 2	Fall (3), MVA (1)	Calcaneal (1), L1 (1) fractures, none (3)	S1 (1), S2 (1), NR (2)	2 (3), NR (1)	—
van der Werken ⁵⁶ (1992)	1	34	M: 0, F: 1	Fall	T7, pelvic	NR	4	—
Markel ⁴¹ (1992)	1	44	M: 1, F: 0	Fall	None	S1	2	—
Van Savage ⁵⁷ (1992)	1	19	M: 1, F: 0	MVA	Pubic, L5, SP fractures, head injury, cardiopulmonary arrest	S2	3	—
Markel ⁴⁰ (1993)	1	26	M: 1, F: 0	Crush	Pelvic fracture, IP bleeding, rectal and urethral injuries	S3-S4	NR	—
Takahara ⁵⁴ (1993)	1	19	M: 0, F: 1	MVA	None	S1-S2	2	Y
Rodriguez-Fuentes ⁴⁵ (1993)	1	13	M: 1, F: 0	Fall	NR	S1-S2	2	—
Gee ³⁰ (1993)	1	21	M: 0, F: 1	MVA	TP fracture, pulmonary	S1-S3	3	U

					contusion			
Hersche ³⁶ (1993)	1	22	M: 0, F: 1	MVA	L1 fracture	S4	2	—
Dogra ⁶⁷ (1995)	1	24	M: 1, F: 0	Fall	L1 fracture	S2-S3	2	—
Ebraheim ⁷¹ (1996)	4	43	M: 2, F: 2	MVA (2), fall (2)	Pubic (1), pelvic (1), TP (2), scapular (1), radial (1), calcaneal (1), cruris (1), cervical (1) fractures, hemopneumothorax (1), head injury (1)	S2 (2), S2-S3 (1), multilevel (1)	3 (2), 4 (1), NR (1)	—
Bents ¹⁶ (1996)	1	37	M: 1, F: 0	MVA	Bladder rupture, pelvic bleeding	S2-S3	NR	U
Novkov ⁹⁰ (1996)	1	12	M: 1, F: 0	Crush	Lower-limb fracture	S1	3	—
Massin ⁸⁶ (1997)	1	27	M: 1, F: 0	Fall	L1 and pelvic fractures, IP bleeding	NR	2	H
Sapkis ⁹⁵ (1997)	2	15	M: 1, F: 1	Fall (1), crush (1)	Tibial (1), calcaneal (1), L5 (1), TP (1), fractures, ruptured spleen (1), mesenteric tear (1), L3-L4 subluxation (1)	S1-S2 (2)	2 (1), 3 (1)	H (1)
Kalra ⁸² (1997)	1	12	M: 0, F: 1	Fall	None	S2	2	—
Gutierrez ⁷⁶ (1998)	1	4	M: 0, F: 1	Fall	None	S5	3	—
Bédat ⁶⁴ (1998)	1	56	M: 1, F: 0	Fall	None	S2-S3	1	U
Rotini ⁹³ (1998)	1	30	M: 1, F: 0	Crush	None	S2-S3	2	—
Singh ⁹⁸ (1998)	1	20	M: 1, F: 0	Fall	TP fracture	S2-S3	2	—
Raissaki ⁹¹ (1999)	1	2.5	M: 0, F: 1	Fall	None	S4-S5	3	—
Taguchi ¹⁰¹ (1999)	5	27	M: 1, F: 4	Fall (5)	NR	NR	1 (2), 3 (3)	H or U (5)
Giudicelli ⁷⁴ (2000)	1	49	M: 0, F: 1	Fall	T11 fracture	S1	3	—
Hessmann ⁷⁹ (2000)	1	21	M: 1, F: 0	MVA	Perforated ileum	S1-S2	3	U
Nork ⁶ (2001)	13	39	M: 11, F: 2	Fall (7), MVA (3), IA (2), PMVA (1)	Pubic (8), acetabular (1), other spinal injuries (5), TP (8), calcaneal (3) fractures, hemodynamic instability	NR	1 (1), 2 (8), 3 (4)	U (13)
Suzuki ¹⁰⁰ (2001)	1	39	M: 0, F: 1	Fall	Calcaneal and T12 fractures hemothorax	S1-S2	3	U
Kim ⁸⁴ (2001)	7	33	M: 5, F: 2	Fall (5), MVA (2)	L5 (1), L1 (2) fractures, L5 dislocation, NR (2), none (1)	S1-S2 (3), S2 (2), S3 (1), S3-S4 (1)	NR	—
Hunt ⁸¹ (2002)	4	31	M: 2, F: 2	Fall (3), MVA (1)	Rib (1), femoral (1), pelvic (1), pubic (1), acetabular (1), calcaneal (1), L2 (1), L1 (1), multiple lower-limb (1) fractures, lung contusion (1), acute respiratory distress syndrome (1), subarachnoid hemorrhage (1), pneumothoraces (1),	S2 (3), S3-S4 (1)	2 (1), NR (3)	U (4)

					liver laceration (1), bladder rupture (1)			
Hessmann ⁸⁰ (2002)	2	32	M: 1, F: 1	Fall (1), MVA (1)	L4-L5 (1), ankle (1), acetabular (1) fractures, lung contusion (1), symphysis disruption (1), hemodynamic instability (1)	S1-S2 (2)	3 (2)	H (1)
Thumbikat ¹⁰³ (2002)	1	72	M: 0, F: 1	Fall	None	S1-S2	3	—
Balogh ⁶³ (2003)	1	61	M: 1, F: 0	Fall	Pneumothoraces, retroperitoneal hematoma	NR	NR	U
Walliser ¹⁰⁷ (2003)	1	15	M: 0, F: 1	Other	None	S4	2	—
Hart ⁷⁷ (2004)	1	17	M: 0, F: 1	MVA	TP fractures	S3-S4	2	—
Chiu ⁶⁶ (2004)	1	44	M: 1, F: 0	Fall	Rib, calcaneal, multiple cuneiform, cuboid, fibular, both navicular fractures	S2	2	—
Zelle ¹⁰⁸ (2004)	1	15	M: 1, F: 0	MVA	Ulnar, ankle fractures	NR	NR	—
Dussa ⁶⁹ (2004)	1	65	M: 0, F: 1	Fall	Pubic fracture	S2	3	—
Blanco ⁶⁵ (2004)	2	26	M: 1, F: 1	Fall (2)	None (1), head injury, hemopneumothorax, ruptured spleen, ankle fractures	NR	3 (2)	—
Schildhauer ⁹⁷ (2005)	1	15	M: 0, F: 1	Fall	None	Multiple	4	—
Mumcuoğlu ⁸⁹ (2005)	2	10	M: 1, F: 1	Fall (2)	None	S2-S3 (2)	3 (1), 2 (1)	—
Dzupa ⁷⁰ (2005)	1	10	M: 0, F: 1	Fall	None	S2-S3 and S4-S5	3	—
Vresilovic ¹⁰⁶ (2005)	2	20	M: 1, F: 1	MVA (1), fall (1)	L5 (1), femoral shaft (1), acetabular (1), cruris (2), radial (1), scaphoid (1), metacarpal (1), elbow (1), calcaneal (1), cuboid (1) fractures, intraperitoneal bleeding (1), iliac artery bleeding (2), acute respiratory distress syndrome (1),	NR	4	—

					pneumothoraces (2)			
Sommer ⁹⁹ (2005)	1	15	M: 0, F: 1	Other	None	S3-S4	3	—
Karray ⁸³ (2005)	1	17	M: 0, F: 1	MVA	Head injury, TP fracture	S2	2	U
Mouhsine ⁸⁸ (2006)	3	33	M: 3, F: 0	Fall (2), other (1)	Calcanei (2), Lisfranc (1), pilon (1) fractures, leg subamputation (1)	S1-S2 (3)	NR	H (3)
Schildhauer ⁷ (2006)	19	32	M: 11, F: 8	Fall (10), MVA (7), crush (2)	Abdominal injury (8), thoracic injury (7), head injury (4), extremity fractures (12), pelvic-ring fractures (10), spine fractures (9), spinal cord injury (3)	S1-S2 (14), S2 (4), S2-S3 (1)	4 (4), 3 (6), 2 (9)	H (14), U (3), Y (2)
Fuentes ⁷² (2006)	1	17	M: 0, F: 1	MVA	Hypovolemic shock, L5, foot, and pubic fractures	S1-S2	3	—
Dohin ⁶⁸ (2006)	1	10	M: 0, F: 1	MVA	Head injury	S1-S2	NR	—
Robles ³ (2006)	1	23	M: 0, F: 1	MVA	None	S2-S3	1	—
Sakakibara ⁹⁴ (2007)	1	29	M: 0, F: 1	Fall	None	S2-S3	4	—
Hart ⁷⁸ (2007)	5	25	M: 3, F: 2	MVA (3), fall (2)	Acetabular (1), rib (1), L1 (1), calcaneal (1) fractures, none (2)	S1-S2 (2), NR (3)	2 (1), 3 (1), NR (3)	H (5)
Vilela ¹⁰⁴ (2007)	1	23	M: 1, F: 0	MVA	Head injury, abdominal and pulmonary injuries, ankle and pelvic fractures	S1-S2	2	U
Rhee ⁹² (2007)	1	26	M: 1, F: 0	Crush	TP fracture	S1-S2	NR	U
Sapkas ⁹⁶ (2008)	6	21	M: 1, F: 5	Fall (5), IA (1)	IP bleeding (3), spleen (3) and kidney (3) injury, mesenteric tear (3), tibial (1), tarsal (1), calcaneal fractures, NR (3)	S1-S2 (6)	3 (2), NR (4)	—
Teebken ¹⁰² (2008)	1	18	M: 1, F: 0	MVA	Iliac artery injury, pelvic fracture, bladder rupture and bowel perforation	S2-S4	NR	—
Dussa ⁴ (2008)	6	40	M: 4, F: 2	Fall (4), MVA (1), other (1)	C7 (1), pubic (3), TP (1) fractures, none (2)	S2 (4), S2-S3 (1), S3-S4 (1)	NR	—
Lyo ⁸⁵ (2008)	1	54	M: 1, F: 0	Fall	SP fractures	S1-S2	3	—
Gardner ⁷³ (2009)	4	NR	NR	Fall (2), crush (1), MVA (1)	NR	NR	NR	U
Vilela ¹⁰⁵ (2009)	1	37	M: 1, F: 0	Gunshot	TP, acetabular, T12, femoral fractures, head injury	S2-S3	1	U
Mendel ⁸⁷ (2009)	1	47	M: 1, F: 0	Fall	Abdominal injury (vascular, ureteral, bowel injuries)	S3	2	H
Gribnau ⁷⁵ (2009)	8	29	M: 3, F: 5	Fall (8)	Acetabular (1), TP (3), L1 (3), L2 (2), SP (1), radial (2), olecranon (1), humeral (1),	S1 (1), S1-S2 (5), S2-S3 (2), S4-S5 (3)	1 (1), 2 (2), 3 (5)	U (8)

					femoral (2) fractures, IP bleeding (3), L5-S1 listhesis (1), subdural hematoma (1)			
Hussin ¹²² (2009)	2	18	M: 1, F: 1	Crush (1), fall (1)	Calcaneal fractures (1), NR (1)	S2 (1), NR (1)	2 (1), NR (1)	U (2)
Mirghasemi ¹³² (2009)	1	14	M: 1, F: 0	NR	Tibial fracture	S1	3	—
Avadhani ¹¹² (2010)	1	13	M: 0, F: 1	Fall	None	S2	2	—
Sugimoto ¹⁴⁰ (2010)	1	37	M: 0, F: 1	Fall	NR	S2	2	U
Lykomitros ¹³⁰ (2010)	3	25	M: 2, F: 1	NR	Pelvic (1), mandible (1), L5 (1), femoral (1), bimalleolar (1), talar (1) fractures, liver and spleen injury (1), bladder rupture (1), pulmonary contusions (1)	S2-S3 (1), NR (2)	3 (1), 2 (1), NR (1)	H (1)
Porrino ¹³⁴ (2010)	7	43	M: 3, F: 4	Fall (3), MVA (4)	Pubic (4), pelvic (2), C2 (1), T11 (1), L5 (1), TP (3), femoral (1), cruris (1), tibial (1), radial (1), ulnar (1), rib (3), talar (1), calcaneal (1) fractures, visceral injuries (2), bladder and bowel (2) injuries, pneumothoraces (1), intracranial hemorrhage (1)	S2 (1), S2-S3 (2), S2-S4 (1), NR (3)	2 (7)	U (7)
Siebler ¹³⁸ (2010)	12	30	M: 7, F: 5	MVA (8), fall (3), NR (1)	Concomitant injuries were frequent including spine (3), TP or SP (8) fractures, bilateral pneumothoraces, liver contusion	NR	1 (5), 2 (6), NR (1)	H (2), U (5), Y (3), NR (2)
Moed ¹³³ (2010)	4	NR	NR	NR	NR	NR	NR	H (3), Y (1)
Sabourin ¹³⁶ (2010)	3	39	M: 2, F: 1	Fall (2), other (1)	Pubic (1), bimalleolar (1), L1 (2), calcaneal (2), radial (1) ankle (1), scaphoid (1) fractures, hepatic injury (1), cerebral contusion (1)	NR	2 (2), 3 (1)	U (3)
Lee ¹⁴⁷ (2011)	1	28	M: 1, F: 0	MVA	T6 fracture	S3	2	—
Martin ¹³¹ (2011)	1	55	M: 0, F: 1	MVA	Femoral fracture	S1-S2	1	H
Helgeson ¹²⁰ (2011)	23	NR	NR	Combat (23)	Plethora of other severe injuries associated with lumbosacral dissociations, (i.e., associated injuries to the appendicular skeleton or traumatic brain injuries)	NR	NR	H and U
Chen ¹¹⁶ (2011)	2	28	M: 1, F: 1	Fall (2)	TP fracture (1), NR (1)	S2 (1), S3 (1)	2 (1), NR (1)	U (2)
Lee ¹²⁸ (2011)	2	72	M: 0, F: 2	Fall (2)	Pubic fracture (2)	S3 (2)	2 (2)	—

Kavalcı ¹²⁵ (2011)	1	37	M: 1, F: 0	Fall	None	S4	NR	—
Chaudhary ²⁰ (2011)	1	17	M: 1, F: 0	Fall	L3 to S1 pedicle, L3, trimalleolar ankle, calcaneal fractures, spleen injury	S3	2	—
Urzúa ¹⁴² (2011)	42	40	M: 10, F: 32	Fall (39), blow (3)	None	S2 (1), S3 (6), S4 (9), S5 (26)	NR	—
Cody ¹¹⁷ (2012)	1	25	M: 1, F: 0	Combat	NR	S1-S2	2	U
Kang ¹²⁴ (2012)	1	25	M: 1, F: 0	Combat	TP, acetabular, rib fractures, bilateral transtibial amputations, pneumothorax, liver laceration	S1-S2	3	H
Valente ¹⁴³ (2012)	1	28	M: 0, F: 1	MVA	Acetabular fracture, hemodynamic instability	S1-S2	4	H
Jones ¹²³ (2012)	8	40	M: 3, F: 5	NR	NR	NR	1 (2), 2 (2), 3 (2), 4 (2)	—
Wind ¹⁴⁵ (2012)	1	82	M: 0, F: 1	Fall	None	S1-S2	3	—
Sasaji ¹³⁷ (2012)	1	76	M: 1, F: 0	PMVA	None	S3	1	U
Tan ¹⁴¹ (2012)	9	32	M: 6, F: 3	Fall (4), MVA (2), crush (3)	T7 (1), L1 (1), L2 (2), L5 (1), TP (7), rib (2), tibial (1), cruris (1), radial (1), ulnar (1), calcaneal (2) fractures, spleen injury (1), liver rupture (1), vesicle rupture (1), head injury (3), hemopneumothorax (2), Morel-Lavallée lesion (1)	S1-S2 (2), S2 (4), S2-S3 (2), S3-S4 (2)	1 (1), 2 (5), 3 (2), 4 (1)	U (5), H (2), Y (1), NR (1)
Ayoub ¹¹³ (2012)	28	34	M: 17, F: 11	Fall (11), MVA (9), PMVA (8)	Spine (5), extremities (9), L5 pedicle (7), TP (16) fractures, head injuries (9), chest (5), abdominal (14), urological (8), L5-S1 joint injury (13), Morel-Lavallée lesions (8)	S1 (10), S1-S2 (9), S2 (9)	2 (13), 3 (15)	—
Tiew ⁵⁵ (2012)	1	14	M: 1, F: 0	PMVA	TP fractures, retroperitoneal hematoma	S1-S2	3	U
Aresti ¹¹¹ (2012)	1	35	M: 0, F: 1	Fall	NR	S1-S2	1	—
Hong ¹²¹ (2013)	1	33	M: 1, F: 0	Fall	Calcaneal fracture	S2	2	U
König ¹²⁷ (2013)	3	22	M: 0, F: 3	Fall (2), MVA (1)	L1 (1), scaphoid (1), radial (1), pilon (1), calcaneal (2), femoral (1) fractures	S1-S2 (1), S2 (2)	2 (3)	U (3)
Cools ¹¹⁸ (2013)	1	55	M: 0, F: 1	Fall	None	S3-S4	1	—
Ruatti ¹³⁵ (2013)	3	25	M: 1, F: 2	Fall (2), MVA (1)	NR	S2 (3)	2 (3)	U (3)
Alves ¹¹⁰ (2013)	1	56	M: 1, F: 0	Fall	TP fractures	S2	2	—
Kenawey ¹²⁶ (2014)	1	8	M: 1, F: 0	Fall	L3, TP, ilium fractures	S1-S2	2	U
Starantzis ¹³⁹ (2014)	1	36	M: 1, F: 0	Crush	None	S1-S2	3	—

Lindahl ¹²⁹ (2014)	36	31	M: 18, F: 18	Fall (27), MVA (6), crush (3)	28 anterior pelvic-ring fractures, 5 acetabular fractures	S1-S2 (15), S2 (16), S2-S3 (3), S3 (2)	2 (15), 3 (21)	H (36)
Bekmez ¹¹⁵ (2014)	3	19	M: 3, F: 0	MVA (3)	Pubic (1), ankle (1) fractures, none (1)	S1-S2 (1), NR (2)	2 (1), NR (2)	—
He ¹¹⁹ (2014)	21	31	M: 13, F: 8	R	Calcaneal (1), L3 (1), L5 (1), humeral (1), rib (2), clavicle (1), fractures, brain trauma (1), hemopneumothorax (3), none (10)	S1-S2 (9), S2-S3 (7), S3-S4 (5)	2 (9), 3 (12)	H (10), U (4), T (7)
Williams ¹⁴⁴ (2016)	17	NR	NR	NR	NR	NR	NR	H and U
Adelved ¹⁰⁹ (2016)	13	33	M: 8, F: 5	MVA (8), fall (5)	NR	NR	1 (9), 2 (1), 3 (3)	H (7), U (6)
Baba-Rasul ¹¹⁴ (2017)	1	12	M: 0, F: 1	Fall	None	S4-S5	2	—

*IA = industrial accident, NR = not reported, MVA = motor vehicle accident, PMVA = pedestrian-motor vehicle accident, IP = intraperitoneal, TP = transverse process, and SP = spinous process. †The values are given as the mean age of the patients in years. ‡The values are given as the number of male (M) patients and the number of female (F) patients. §The values in parentheses are the number of patients. #These are the type(s) of accident(s) causing the injury. **These are the other injuries that were reported. ††This is the location of the fracture(s). ‡‡This is the Roy-Camille classification as reported by the authors or as classified on the lateral radiograph during data extraction. §§These are U, T, Y, or H-type fracture patterns.

TABLE E-2 Overview of Studies: Treatment, Neurological Injury, and Outcome*

Study	Treatment		Root Injury§**	Follow-up††	Gibbons Scores		Neurological Recovery§##	Pain	
	Nonoperative or Surgical‡‡	Type§#			Post-Injury§‡‡	Follow-up§,§§		No. of Patients***	VAS†††
Hallgrímsson ³⁴ (1938)	Nonoperative (3)	Functional (2), bed rest 3 wk (1)	NR	16	2 (1), 1 (2)	2 (1), 1 (2)	No (1), NA (2)	2	NR
Sicard ⁵¹ (1953)	Nonoperative (7)	Bed rest (3) or functional (4)	NR	10	4 (1), 1 (6)	4 (1), 1 (6)	None	4	NR
Lux ³⁹ (1959)	Nonoperative (2)	Manual reduction (1)	NR	NR	4 (1), 3 (1)	NR	NR	NR	NR
Fontaine ²⁷ (1962)	Surgical	Screw fixation	NR	3.5	1	1	NA	NR	NR
Rowell ⁴⁶ (1965)	Surgical	Debridement	NR	18	2	2	None	NR	NR
Goodell ²¹ (1966)	Surgical	Decompression	Yes	12	4	1	Full	NR	NR
Purser ⁴³ (1969)	Nonoperative	Pugh traction 8 wk	NR	10	1	1	NA	NR	NR
Bender ¹⁵ (1972)	Nonoperative	Functional	NR	1.5	2	1	Full	NR	NR
Woodward ⁶⁰ (1974)	Nonoperative	Bed rest 3 wk followed by corset	L5	3	3	3	None	0	NA
Fardon ²² (1976)	Surgical	Decompression	No	29	3	3	Part	1	NR
Bucknill ¹⁷ (1976)	Nonoperative	Bed rest	NR	30	3 (3)	3 (1), 1 (2)	Part (1), full (2)	3	NR
Fountain ²⁸ (1977)	Surgical (5), nonoperative (1)	Decompression (5), nonoperative NR	No	5.5	4 (6)	2 (3), 1 (3)	Part (3), full (3)	NR	NR
Byrnes ¹⁸ (1977)	Surgical (1), nonoperative (1)	Decompression (1), nonoperative NR	No and NR	9 and NR	4 (2)	4 (1), 1 (1)	Part (1), full (1)	1 and NR	NR
Heckman ³⁵ (1978)	Nonoperative	Bed rest 5 wk	NR	14	4	1	Full (1)	0	NA
Fardon ²³ (1979)	Surgical	Harrington rods and decompression	No	9	4	2	Part	0	NA
Wörtsdörfer ⁶¹ (1980)	Surgical (5), nonoperative (3)	Decompression (5), Zuggurtung (2), nonoperative NR	NR	NR	4 (6), 3 (2)	NR	No (1), full (1), part (6)	NR	NR
Fardon ²⁴ (1980)	Nonoperative	Bed rest 6 wk	NR	3	2	1	Full	0	NA
Weaver ⁵⁸ (1981)	Surgical	Decompression	No	NR	4	2	Part	1	NR
Reynier ⁴⁴ (1982)	Surgical	Decompression	No	15	4	4	Part (2)	NR	NR
Goutallier ³² (1983)	Surgical (1), nonoperative (2)	Decompression (1), functional (1), nonoperative NR (1)	No (1), NR (2)	10	4	4 (1), 3 (1), 2 (1)	Part (3)	NR	NR
Ferris ²⁵ (1983)	Nonoperative (2)	Bed rest	NR	10	4 (1), 3 (1)	4 (1), 1 (1)	Part (1), full (1)	1	NR
Lesoin ³⁸ (1984)	Surgical	Decompression	No	12	4	1	Part (1)	NR	NR
Kerboul ³⁷ (1985)	Nonoperative	NR	NR	12	4	3	Part (1)	NR	NR
Sapkas ⁴⁹ (1985)	Surgical	Harrington rods and decompression	Yes	3	4	3	Part (1)	NR	NR
Carl ¹⁹ (1985)	Surgical	Decompression	No	NR	4	3	Part (1)	1	NR
Hadley ³³ (1985)	Nonoperative	Functional	NR	6	1	1	NA	NR	NR
Roy-Camille ⁴⁷ (1985)	Surgical (11), nonoperative (2)	Decompression (10), plate fixation (2),	Yes (9), no (2), NR (2)	NR	4 (4), 3 (1), NR	4 (7), 2 (1), NR (5)	Part (8), no (1), NR (4)	NR	NR

		Harrington rods (1), surgical NR (1), nonoperative NR (2)			(8)				
Dowling ²¹ (1985)	Surgical	Decompression	No	6	4	3	Part	1	NR
Sabiston ⁴⁸ (1986)	Nonoperative (16)	NR	NR	4.5	4 (2), 3 (4), 10 (1)	4 (1), 1 (15)	No (1), full (15)	NR	NR
Chiaruttini ¹⁴⁶ (1987)	Nonoperative	NR	NR	0.5	4	1	Full	1	NR
Denis ¹ (1988)	Surgical (2), nonoperative (3)	NR	NR	NR	4	4 (3), 1 (2)	Full (2), part (2), no (1)	NR	NR
Foy ²⁹ (1988)	Nonoperative	NR	NR	69	NR	2 (2), 1 (14)	NR	8	NR
Fisher ²⁶ (1988)	Surgical	Decompression	Yes	48	4	1	Full	0	NA
Singh ⁵² (1989)	Nonoperative	Traction 8 wk	NR	30	NR	1	NR	1	NR
Yasuda ⁶² (1990)	Surgical	Decompression	No	NR	4	2	Part	0	NA
Gibbons ⁹ (1990)	Surgical (2), nonoperative (2), NR (3)	NR	NR	NR	4 (4), 1 (3)	NR	Part	NR	NR
Strange-Vognsen ⁵³ (1991)	Nonoperative	Bed rest 8 wk	NR	2	4	4	No	NR	NR
Weber ⁵⁹ (1991)	Nonoperative (2)	NR (2)	NR	0	1 (2)	1 (2)	NA	NR	NR
Savolaine ⁵⁰ (1991)	Nonoperative	NR	NR	6	4	3	Part	NR	NR
Phelan ⁴² (1991)	Nonoperative (4)	Bed rest	NR	8	4 (4)	3 (1), 2 (1), 1 (2)	Full (2), part (2)	1	NR
van der Werken ⁵⁶ (1992)	Surgical	Plate fixation	Yes	2	4	4	No	NR	NR
Markel ⁴¹ (1992)	Surgical	Decompression and PS fixation	No	9	4	2	Part	NR	NR
Van Savage ⁵⁷ (1992)	Surgical	PS fixation L2-iliium	Yes	2	4	4	No	1	NR
Markel ⁴⁰ (1993)	Surgical	Iliosacral screws	Yes	24	NR	4	Part	NR	NR
Takahara ⁵⁴ (1993)	Surgical	Hoffmann external fixator	NR	2	3	1	Full	NR	NR
Rodriguez-Fuentes ⁴⁵ (1993)	Surgical	PS fixation L3-iliium	NR	24	4	4	Part	0	NA
Gee ³⁰ (1993)	Nonoperative	Bed rest 3 wk	NR	NR	4	4	No	NR	NR
Hersche ³⁶ (1993)	Nonoperative	NR	Yes	12	4	4	No	1	NR
Dogra ⁶⁷ (1995)	Nonoperative	Bed rest 6 wk	NR	6	4	2	Part	0	NA
Ebraheim ⁷¹ (1996)	Surgical (4)	Decompression (4), transiliac bar (1)	No (4)	NR	4 (4)	4 (2), 1 (1), NR (1)	Full (1), part (1), no (2)	NR	NR
Bents ¹⁶ (1996)	Surgical	Decompression, PS fixation L5-iliium	No	24	4	4	Part	0	NA
Novkov ⁹⁰ (1996)	Nonoperative	Closed reduction and traction 6.5 wk	NR	13	4	4	Part	0	NA
Massin ⁸⁶ (1997)	Nonoperative	Bed rest 12 wk	NR	NR	4	1	Full	0	NA
Sapkas ⁹⁵ (1997)	Surgical (2)	Decompression (2), PS fixation L4-S2 (1),	No (2)	26	4 (2)	4 (1), 4 (1)	Full (1), part (1)	0 (2)	NA

		plate fixation (1)							
Kalra ⁸² (1997)	Surgical	Decompression	NR	3	4	1	Full	NR	NR
Gutierrez ⁷⁶ (1998)	Nonoperative	NR	NR	NR	NR	NR	NR	NR	NR
Bédât ⁶⁴ (1998)	Nonoperative	Bed rest 8 wk	NR	6	4	4	Part	NR	NR
Rotini ⁹³ (1998)	Nonoperative	Reduction and plaster of Paris for 8 wk	NR	22	4	3	Part	NR	NR
Singh ⁹⁸ (1998)	Surgical	Decompression	Yes	NR	4	4	Part	0	NA
Raissaki ⁹¹ (1999)	Nonoperative	Bed rest 1 day	NR	NR	1	1	NA	NR	NR
Taguchi ¹⁰¹ (1999)	Surgical (5)	Decompression (4), transiliac screws (5), plate fixation (3)	NR	NR	4 (4), 1 (1)	4 (4), 1 (1)	Part (3), no (1), NA (1)	NR	NR
Giudicelli ⁷⁴ (2000)	Surgical	Decompression and internal fixation	No	12	4	1	Full	NR	NR
Hessmann ⁷⁹ (2000)	Surgical	Decompression and PS fixation L4-S2	No	18	4	1	Full	0	NA
Nork ⁶ (2001)	Surgical	Iliosacral screws	NR	14	4 (2), 3 (4), 2 (3), 1 (2), NR (2)	4 (1), 3 (2), 2 (1), 1 (8), NR (1)	Full (8), part (1), no (4)	NR	NR
Suzuki ¹⁰⁰ (2001)	Surgical	PS fixation L4-ilium	Yes	14	4	3	Part	1	NR
Kim ⁸⁴ (2001)	Surgical (6), nonoperative (1)	Decompression (5), PS fixation (2), iliosacral screws (3), nonoperative NR (1)	Yes (3), no (3), NR (1)	13	4 (6), 1 (1)	4 (4), 1 (3)	Full (2), part (2), no (2), NA (1)	NR	NR
Hunt ⁸¹ (2002)	Surgical (4)	Iliosacral screws (2), PS fixation L4-ilium (1), PS fixation L5-ilium (1)	NR (4)	4	4 (1), 3 (1), 1 (2)	4 (1), 3 (1), 1 (2)	Part (1), no (1), NA (2)	NR	NR
Hessmann ⁸⁰ (2002)	Surgical (2)	PS fixation (1), iliosacral screws (1)	Yes (1), NR (1)	10	4 (1), NR (1)	4 (1), 1 (1)	Full (1), part (1)	0 (1), NR (1)	NA (1), NR (1)
Thumbikat ¹⁰³ (2002)	Nonoperative	NR	No	NR	4	4	Part	1	NR
Balogh ⁶³ (2003)	Nonoperative	Bed rest in intensive care unit	NR	0.5	1	1	NA	NR	NR

Walliser ¹⁰⁷ (2003)	Surgical	Locking Compression Plate fixation	NR	12	1	1	NA	NR	NR
Hart ⁷⁷ (2004)	Surgical	Decompression	NR	2	4	4	Part (1)	NR	NR
Chiu ⁶⁶ (2004)	Surgical	Decompression, bed rest 8 wk	Yes	NR	4	2	Part (1)	NR	NR
Zelle ¹⁰⁸ (2004)	Surgical	Decompression	No	84	4	4	No	NR	NR
Dussa ⁶⁹ (2004)	Nonoperative	NR	NR	4	4	4	Part (1)	NR	NR
Blanco ⁶⁵ (2004)	Surgical (1), nonoperative (1)	Decompression (1), bed rest (1)	NR	NR	4 (2)	4 (2)	Part (2)	NR	NR
Schildhauer ⁹⁷ (2005)	Surgical	Decompression, PS fixation L5-iliium	Yes	6	4	3	Part	NR	NR
Mumcuoğlu ⁸⁹ (2005)	Nonoperative (2)	Bed rest	NR	18	1	1	NA	NR	NR
Dzupa ⁷⁰ (2005)	Surgical	Kirschner wires	NR	24	1	1	NA	NR	NR
Vresilovic ¹⁰⁶ (2005)	Surgical (2)	PS fixation L2-iliium (1), PS fixation L3-iliium (1)	NR	67	4 (2)	4 (1), 2 (1)	Part (2)	NR	NR
Sommer ⁹⁹ (2005)	Surgical	Plate fixation	NR	12	4	1	Full	0	NA
Karray ⁸³ (2005)	Surgical	Decompression and plate fixation	No	10	4	4	Part	NR	NR
Mouhsine ⁸⁸ (2006)	Surgical (3)	Decompression (2), PS fixation L4-iliium (3)	NR	9 to 12	NR	1	Full (3)	NR	NR
Schildhauer ⁷ (2006)	Surgical	Decompression (19), PS fixation (19)	Yes (12), no (7)	31	4 (19)	4 (8), 3 (4), 1 (6), NR (1)	Full (8), part (7), no (3)	NR	5.5
Fuentes ⁷² (2006)	Surgical	Decompression, osteosynthesis L3-S4	No	12	3	1	Full	NR	NR
Dohin ⁶⁸ (2006)	Surgical	Decompression	Yes	36	4	1	Full	0	NA
Robles ³ (2006)	Surgical	Decompression	No	1	4	1	Full	NR	NR
Sakakibara ⁹⁴ (2007)	Nonoperative	bed rest 8 wk	NR	5	4	1	Full	NR	NR
Hart ⁷⁸ (2007)	Surgical (4), nonoperative (1)	Decompression (2), PS fixation L4-iliium (2), PS fixation L5-iliium (2), nonoperative NR (1)	NR	32	4 (1), 1 (3), NR (1)	1 (3), NR (2)	Part (2), NA (3)	0 (4), 1 (1)	NA (4), NR (1)
Vilela ¹⁰⁴ (2007)	Surgical	Decompression, PS fixation L4-iliium	No	12	4	3	Part	0	NR
Rhee ⁹² (2007)	Surgical	Decompression, PS fixation L4-iliium	Yes	NR	2	NR	NR	NR	NR
Sapkas ⁹⁶ (2008)	Surgical (6)	Decompression (6), Harrington rods (2), Hartshill frame (1), PS fixation (2)	Yes	134	4 (5), NR (1)	4 (1), 1 (1), NR (4)	Full (1), part (4), no (1)	NR	NR
Teebken ¹⁰² (2008)	NR	NR	NR	NR	NR	NR	NR	NR	NR
Dussa ⁴ (2008)	Nonoperative (5), surgical (1)	Bed rest (5), decompression (1)	NR	7 to 48	4 (5), 1 (1)	4 (4), 3 (1), 1 (1)	Part (5), NA (1)	NR	NR

Lyo ⁸⁵ (2008)	Surgical	Decompression, PS fixation L3-iliium	No	1	4	3	Part	NR	NR
Gardner ⁷³ (2009)	Surgical (4)	Iliosacral screws	NR	NR	1 (4)	1 (4)	NA	NR	NR
Vilela ¹⁰⁵ (2009)	Surgical	Decompression, PS fixation L4-S4	Yes	24	4	4	No	0	NA
Mendel ⁸⁷ (2009)	Surgical	Iliosacral screws	NR	12	1	1	NA	NR	NR
Gribnau ⁷⁵ (2009)	Surgical (8)	Decompression (1), PS fixation L1-iliium (1), PS fixation L3-iliium (2), PS fixation L4-iliium (2), iliosacral screws (2), plate fixation (1)	NR (8)	29	4 (1), NR (7)	4 (4), 3 (1), 2 (3)	No (4), part (4)	5, NR (2)	NR
Hussin ¹²² (2009)	Surgical (2)	Decompression (2), plaster of Paris (1)	No (1), yes (1)	2	4 (2)	1 (1)	Full (2)	NR	NR
Mirghasemi ¹³² (2009)	Surgical	Decompression, PS fixation	No	12	4	1	Full	NR	NR
Avadhani ¹¹² (2010)	Surgical	Decompression, plate fixation	No	6	4	1	Full	NR	NR
Sugimoto ¹⁴⁰ (2010)	Surgical	PS fixation L4-iliium	NR	18	3	1	Full	NR	NR
Lykomitros ¹³⁰ (2010)	Surgical (3)	Decompression (1), transiliac bar (1), dynamic compression plate fixation (1), PS fixation L4-iliium (1)	NR	23	4 (2), 3 (1)	1 (3)	Full (3)	NR	NR
Porrino ¹³⁴ (2010)	Nonoperative (4), surgical (3)	Decompression (2), iliosacral screws (1), nonoperative NR (4)	NR	NR	4 (2), 2 (1), 1 (4)	NR	NR	NR	NR
Siebler ¹³⁸ (2010)	Nonoperative (11), surgical (1)	Bed rest 6 to 9 wk (7), part. weight-bearing (4), brace (2), decompression (1)	NR	40	4 (3), 3 (2), 2 (2), 1 (4), NR (1)	3 (2), 2 (2), 1 (7), NR (1)	Full (3), part (4), NA (4), NR (1)	7	NR
Moed ¹³³ (2010)	Surgical	Iliosacral screws	NR	NR	1 (3), NR (1)	1 (3), NR (1)	NA (3), NR (1)	NR	NR
Sabourin ¹³⁶ (2010)	Surgical (3)	Sacral shortening osteotomy and plate fixation	Yes (2), no (1)	34	4 (3)	4 (1), 3 (1), 1 (1)	Full (1), part (1), no (1)	NR	NR
Lee ¹⁴⁷ (2011)	Nonoperative	Functional	NR	NR	1	1	NA	NR	NR
Martin ¹³¹ (2011)	Surgical	PS fixation	NR	8	1	1	NA	NR	NR
Helgeson ¹²⁰ (2011)	Surgical (14), nonoperative (9)	Decompression (4), iliosacral screws (8), PS fixation (5), plate fixation (1), bed rest	NR	21	4 (10), NR (13)	4 (3), NR (20)	Part (12), no (3), NR (8)	11	1.6

Chen ¹¹⁶ (2011)	Surgical (2)	12 wk (9) Decompression (2), plate fixation (2)	Yes (1), no (1)	21	4 (2)	4 (1), 1 (1)	Full (1), part (1)	NR	NR
Lee ¹²⁸ (2011)	Surgical (2)	Decompression (2)	NR	NR	4 (2)	4 (2)	Part (2)	2	NR
Kavalcı ¹²⁵ (2011)	Nonoperative	NR	NR	0	1	1	NA	NR	NR
Chaudhary ²⁰ (2011)	Surgical	Decompression, PS fixation T12-iliun	Yes	60	4	3	Part	1	NR
Urzúa ¹⁴² (2011)	Nonoperative (42)	Functional (42)	NR	22	2 (2), 40 (1)	1 (42)	Full (2), NA (40)	0	NA
Cody ¹¹⁷ (2012)	Surgical	Iliosacral screws	NR	6	1	1	NA (1)	NR	NR
Kang ¹²⁴ (2012)	Surgical	PS fixation L4-iliun	NR	24	1	1	NA (1)	NR	NR
Valente ¹⁴³ (2012)	Surgical	Iliosacral screws	NR	24	4	4	No	NR	NR
Jones ¹²³ (2012)	Surgical (8)	PS fixation (8)	NR	NR	NR	NR	NR	NR	NR
Wind ¹⁴⁵ (2012)	Surgical	PS fixation L4-iliun	NR	14	2	1	Full	1	NR
Sasaji ¹³⁷ (2012)	Surgical	Decompression	No	12	4	2	Part	NR	NR
Tan ¹⁴¹ (2012)	Surgical (9)	Decompression (6), PS fixation L4-iliun (8), PS fixation T12- iliun (1)	NR	22	4 (4), 3 (1), 2 (2), 1 (2)	4 (1), 3 (1), 2 (3), 1 (4)	Full (2), part (4), NA (2), no (1)	NR	NR
Ayoub ¹¹³ (2012)	Surgical (28)	Decompression (14), PS fixation L4-iliun (28)	No	26	4 (11), 3 (9), 2 (8)	4 (1), 3 (3), 2 (5), 1 (19)	Full (19), part (8), no (1)	9	NR
Tiew ⁵⁵ (2012)	Surgical	PS fixation L5-iliun	NR	18	4	4	Part	NR	NR
Aresti ¹¹¹ (2012)	Surgical	Decompression	NR	18	4	2	Part	NR	NR
Hong ¹²¹ (2013)	Surgical	PS fixation L4-iliun	NR	12	1	1	NA	1	NR
König ¹²⁷ (2013)	Surgical (3)	Iliosacral screws (3)	NR	24	4 (1), 2 (1), NR (1)	4 (1), 2 (1), 1 (1)	Part (2), NR (1)	1	NR
Cools ¹¹⁸ (2013)	Nonoperative	Bed rest	NR	12	4	1	Full	NR	NR
Ruatti ¹³⁵ (2013)	Surgical (3)	Decompression (1), iliosacral screws (3)	NR	4	4 (2), 2 (2)	4 (1), 2 (1), 1 (1)	Full (1), part (2)	NR	NR
Alves ¹¹⁰ (2013)	Nonoperative	Bed rest	NR	5	4	1	Full	NR	NR
Kenawey ¹²⁶ (2014)	Surgical	Iliosacral screws	NR	4	1	1	NA	NR	NR
Starantzis ¹³⁹ (2014)	Surgical	PS fixation L4-iliun	NR	12	1	1	NA	NR	NR
Lindahl ¹²⁹ (2014)	Surgical (36)	Decompression (14), PS fixation L4-iliun (36)	NR	33	4 (29), 3 (5), 2 (1), 1 (1)	4 (12), 3 (9), 2 (8), 7 (1)	Part (20), no (16)	NR	NR
Bekmez ¹¹⁵ (2014)	Surgical (3)	Decompression (3), PS fixation L5-iliun (3)	No	15	4 (2), 3 (1)	1 (3)	Full (2), part (1)	NR	NR
He ¹¹⁹ (2014)	Surgical (21)	Decompression (21), PS fixation lumbar- iliun (21)	Yes (21)	20	4 (9), 3 (12)	4 (3), 3 (1), 2 (5), 1 (12)	Full (12), part (5), no (4)	NR	NR
Williams ¹⁴⁴ (2016)	Surgical (17)	Decompression (17), PS fixation lumbar-	NR	21	4 (2), 3 (2), 2 (1),	4 (3), 3 (1), 1 (13)	NR	NR	NR

		ilium (17)			1 (9), NR (3)				
Adelved ¹⁰⁹ (2016)	Nonoperative (8), surgical (5)	Decompression (5), PS fixation lumbar-ilium (5)	NR	93	4 (9), 3 (1), 2 (2), 1 (1)	4 (9), 3 (1), 2 (1), 1 (2)	NR	12	5
Baba-Rasul ¹¹⁴ (2017)	Surgical	Kirschner wire fixation	NR	NR	1	1	NR	NR	NR

*VAS = visual analog scale, NA = not applicable, NR = not reported, and PS = pedicle screw. †The values in parentheses are the number of patients. ‡This is the type of treatment. §The values in parentheses are the number of patients. #This is the treatment of the patients reported in the study. **These are the root injuries reported by the authors. ††These are the follow-up periods in months; the follow-up period is the final follow-up for case reports and the mean follow-up for case studies. ‡‡These are the post-injury Gibbons scores. §§These are the Gibbons scores at the time of the final follow-up. ##Neurological recovery was classified as full, partial, or no recovery. ***These are the reported number of patients with pain at the time of the final follow-up. †††These are the visual or numeric analog scores of the reported back pain.

TABLE E-3 Patient Characteristics of the Complete Cohort of 517 Patients Presented in the Literature

Patient Characteristics	Conservative Treatment (N = 182)	Surgical Treatment (N = 335)
Age*† (yr)	37 (2.5 to 86)	31 (8 to 82)
Sex‡		
Male	65 (36%)	158 (47%)
Female	80 (44%)	132 (39%)
Not mentioned	37 (20%)	45 (13%)
Trauma§		
Fall or jump	48%	48%
Traffic accident	19%	27%
Crush	2%	5%
Other	11%	8%
Not mentioned	20%	13%
Injury level‡		
Above S3	52 (29%)	205 (61%)
S3 or below	85 (47%)	27 (8%)
Not mentioned	45 (25%)	103 (31%)
Follow-up*† (mo)	23 (0.5 to 186)	25 (0.5 to 288)

*The values were included when mentioned in the studies. †The values are given as the mean, with the range in parentheses. ‡The values are given as the number of patients, with the percentage in parentheses. §The values are given as the percentage of patients.

TABLE E-4 Complications

Complications	Conservative Treatment* (N = 119)	Surgical Treatment* (N = 246)
Death	3	0
Infection	1	31
Wound complications and decubitus	2	17
Neurological deterioration	1	4
Fracture complications†	5	8
Perioperative complications‡	0	6
Implant problems§	0	62
Other	10	23
Total	22	151

*The values are given as the number of patients. †This group includes nonunion, malunion, failed reduction attempt, and loss of reduction. ‡This group includes dural tears, reoperation for insufficient decompression, and hematoma. §This group includes prominent implant, implant removal, and implant failure.