



Fig. E1-A

Figs. E1-A through E1-E Case 24. **Fig. E1-A** Fifteen months after an injury that he sustained when he was twenty-one years old, a man with osteomyelitis and necrosis of the right femoral shaft and neck was secondarily referred to our institution.

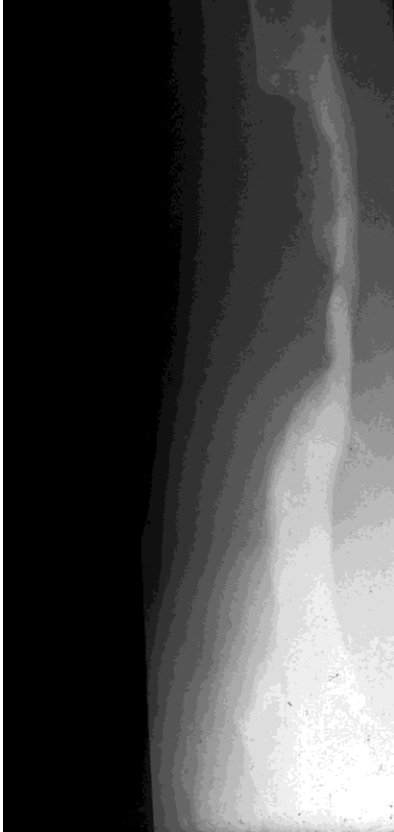


Fig. E1-B
Initial treatment consisted of implant removal, extensive debridement, sequestrectomy of the femur, and a six-week course of antibiotics.

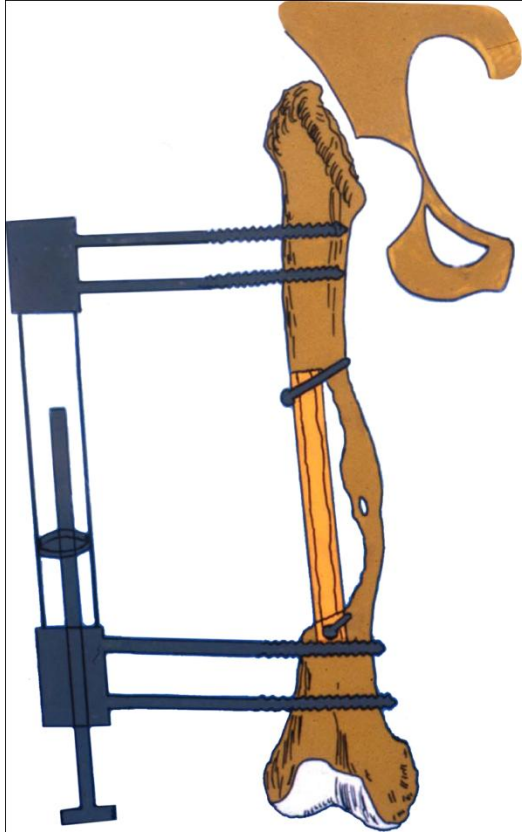


Fig. E1-C



Fig. E1-D

Secondly, a Girdlestone arthroplasty of the hip was performed and the patient wore a hip spica cast for three months. Subsequently, a vascularized 25-cm fibular bone graft was transferred to the femur with autogenous onlay cancellous bone graft.



Fig. E1-E

Finally, a hip arthroplasty was performed. At twenty-nine years after the injury, the ranges of motion at the hip and knee were nearly normal. The patient felt most limited in daily function because of persistent thigh pain (8 of 10 on the visual analog scale), but realizing that he had faced amputation, he was overall very satisfied with the outcome (8 of 10).

TABLE E-1 Range of Motion and Percentage of Motion Compared with the Contralateral Side

	Femur Group (N = 6)			Tibia Group (N = 23)		
	Mean (Range)	Median	Percentage of Contralateral Side	Mean (Range)	Median	Percentage of Contralateral Side
Hip						
Flexion (<i>deg</i>)	98 (90-110)	100	96%			
Extension (<i>deg</i>)	29 (0-45)	30	91%			
Int. rotation (<i>deg</i>)	17 (10-30)	15	74%			
Ext. rotation (<i>deg</i>)	50 (30-80)	50	100%			
Adduction (<i>deg</i>)	28 (20-30)	30	93%			
Abduction (<i>deg</i>)	54 (45-60)	60	113%			
Knee						
Flexion (<i>deg</i>)	119 (95-140)	125	86%	131 (100-150)	130	98%
Extension (<i>deg</i>)	-3 (-10-0)	0	98%	0 (-10-5)	0	95%
Ankle						
Plantar flexion (<i>deg</i>)				27 (0-60)	25	52%
Dorsiflexion (<i>deg</i>)				5 (0-20)	0	35%
Eversion (<i>deg</i>)				5 (0-10)	5	49%
Inversion (<i>deg</i>)				12 (0-30)	10	48%

TABLE E-2 SF-36 Results Categorized by Subscale and Comparison with the U.S. Norm¹⁹

SF-36 Subscale	Total Study Group		Femur Subgroup		Tibia Subgroup		U.S. Norm	
	Mean	Stand. Dev.	Mean	Stand. Dev.	Mean	Stand. Dev.	Mean	Stand. Dev.
General health	72	19	75	20	71	23	72	20
Physical functioning	61	26	78	21	57	26	84	23
Role physical	47	40	75	42	40	40	81	34
Role emotional	71	40	78	40	70	40	81	33
Social functioning	74	23	85	17	71	23	83	23
Bodily pain	54	26	70	29	49	26	75	24
Vitality	56	19	59	19	55	19	61	21
Mental health	73	22	77	19	71	22	75	18

TABLE E-3 Correlation of LEFS, SF-36, Pain, and Patient Satisfaction with Demographic, Treatment, and Outcome Parameters

Variable	LEFS Correlation	P Value	SF-36 Correlation	P Value	Pain Correlation	P Value	Satisfaction Correlation	P Value
Age at follow-up (years)	-0.19	0.31	-0.17	0.38	-0.36	0.05	0.13	0.49
Sex	0.26	0.17	0.03	0.89	0.33	0.08	-0.16	0.42
Range of motion (% of uninjured side)	0.28	0.17	0.1	0.63	0.1	0.64	0.07	0.73
Muscle strength	0.46	<0.05*	0.41	<0.05*	-0.27	0.18	0.52	<0.01†
LEFS	1		0.75	<0.01†	-0.5	<0.001†	0.25	0.19
SF-36	0.75	<0.01†	1		-0.37	<0.05*	0.21	0.27
Physical component	0.8	<0.01†	0.94	<0.01†	-0.47	<0.05*	0.27	0.17
Mental component	0.58	<0.01†	0.92	<0.01†	-0.25	0.19	0.18	0.35
Pain	-0.5	<0.01†	-0.37	<0.05*	1		-0.35	0.06
Satisfaction	0.25	0.19	0.21	0.27	-0.35	0.06	1	
Osteoarthritis	-0.08	0.67	0.03	0.9	-0.04	0.85	-0.24	0.22
Chronicity of complication (months)	-0.4	<0.05*	-0.26	0.16	0.02	0.91	-0.25	0.18
Time to follow-up (months)	-0.04	0.84	-0.07	0.74	-0.04	0.83	-0.08	0.69
Number of prior operations	-0.1	0.59	-0.08	0.67	0.24	0.2	-0.18	0.35
Number of additional operations	-0.06	0.76	0.11	0.58	-0.02	0.92	-0.08	0.68
Gait impairment	-0.29	0.13	-0.074	0.7	-0.09	0.62	-0.2	0.29
Skeletal malalignment (degrees)	-0.2	0.29	-0.34	0.06	-0.1	0.6	-0.14	0.47

*Significant. †Highly significant.