

Outcomes of primary, secondary closure and nonsurgical treatment of diabetic foot osteomyelitis.

V.V. Privolnev, N.V. Danilenkov, A.V. Rodin

Smolensk State Medical Academy, General Surgery Department, Smolensk, Russia.

Background/Aims: Osteomyelitis of 1st metatarsal bone is the most frequent infection in diabetic foot. Surgical debridement with or without primary closure and antimicrobial chemotherapy are commonly accepted options. We compared outcomes of 66 patients to choice correct strategy in the future. Material and Methods: To identify the outcomes associated with primary closure, secondary closure and treatment without surgical intervention all patients were divided into 3 groups. Group 1 included 36 patients (69,4% men, 30,6% women), 66,2±14 years old with resection of 1st metatarsal bone and 1st toe, primary closure and antibiotics according to local protocol. Group 2 included 20 patients (40% men, 60% women), 68,5±9 years old with resection, secondary closure and antibiotics. Group 3 included 10 patients (70% men, 30% women), 55,2±17 years old with prolong antibiotic therapy according to microbiological data without surgical operations. Treatment without surgical resection is not recommended in Russia, but these patients declined intervention. All patients were enrolled in Smolensk Regional Hospital, General Surgery Department in 2013. For all patients osteomyelitis was diagnosed on the basis of clinical symptoms, probe-to-bone, X-Ray, swab culture and MRI in several cases. Everyone had diabetes II type. Results: Outcomes were recording during follow-up of the patients in 3 and 6 month after discharging. Average time of wound total healing in Group 1 was 4±1 weeks versus 10±2 weeks in Group 2. The risk of minor and big amputation is high in Group 2 and Group 3 versus Group 1. Two amputations (5,5%) above the knee in Group 1 were complications of peripheral arterial diseases. Other outcomes in groups are shown in the table:

Outcomes	Group 1		Group 2		Group 3	
	3 months	6 months	3 months	6 months	3 months	6 months
Surgical site infection	5 (13,8%)	1 (2,7%)	9 (45%)	3 (15%)	-	-
Amputation (foot)	1 (2,7%)	2 (5,5%)	4 (20%)	5 (25%)	2 (20%)	3 (30%)
Amputation (above ankle)	-	-	3 (15%)	3 (15%)	2 (20%)	2 (30%)
Amputation (above knee)	-	2 (5,5%)	1 (5%)	3 (15%)	-	1 (10%)
New focus of osteomyelitis	3 (8,3%)	4 (11,1%)	1 (5%)	2 (10%)	-	-
Chronic ulcer	3 (8,3%)	6 (16,6%)	1 (5%)	2 (10%)	7 (70%)	1 (10%)

Conclusion: Primary closure after typical surgical operation in the case of chronic osteomyelitis is better option in comparison with secondary closure and treatment without surgery. All main key points (duration, risk of amputation, cost) are better for primary closure. Patients in Groups 2 and 3 needed additional medical attention as a prolong cast, hospital days, dressings, podiatry and microbiology. Minimal conservative treatment of diabetic foot osteomyelitis is not safety for lower extremity. We recommend traditional surgical approach for management of 1st metatarsal osteomyelitis. It is resection 1st metatarsal bone and 1st toe with primary closure.