

TREATMENT OF OSTEOMYELITIS WITH DEBRIDEMENT AND LOCAL ANTISEPTIC/ANTIBIOTIC CARRIERS WITHOUT BONE RESECTION: RESULTS IN A SINGLE METROPOLITAN HOSPITAL

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INTRODUCTION

Osteomyelitis of the long bones is a medical challenge influenced by many factors: etiology, pathogenesis, extent and duration of bone involvement, and intrinsic systemic or local patient characteristics.

Thanks to the use of devices to deliver high-dose local antibiotics or antiseptics, the treatment of osteomyelitis can be reconsidered, although it remains complex, with significant morbidity and costs.

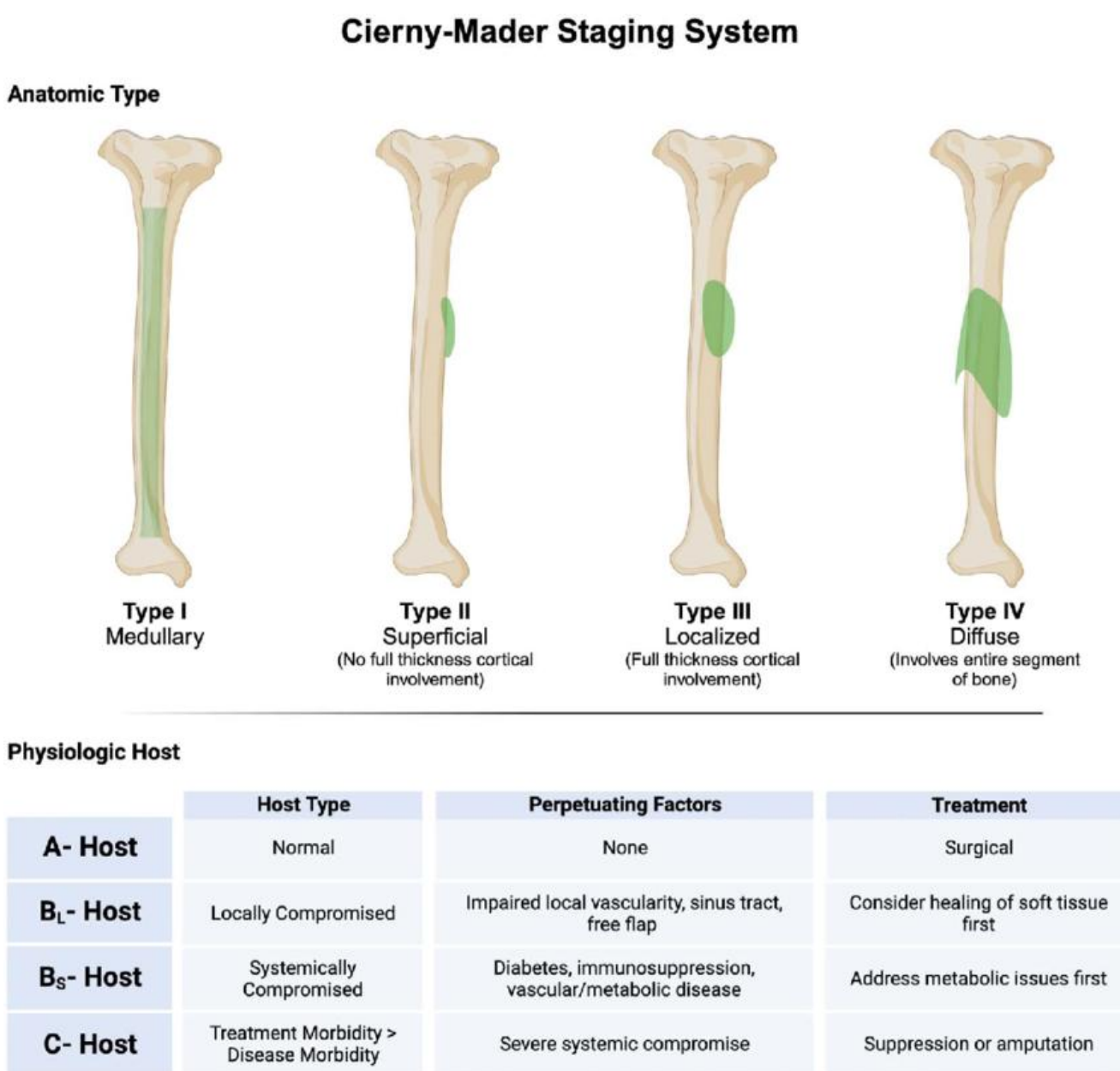
MATERIALS AND METHOD

We analyzed the results of 20 cases of osteomyelitis (all in class 2-3 according to Cierny-Mader) **treatment without bone resection techniques**, treated in our hospital, with **local debridement and filling of the bone defect** with bioactive glass (S53P4) or antibiotic carrier (HA+CaS antibiotic carrier) in one or more stages.

Patients were 13 males and 7 females, mean age 50.7 years (range 15-80); all were treated with one or more bone debridement procedures followed by local administration of local antiseptic/antibiotic.

We analyzed: age, sex, classification according to Cierny-Mader criteria (15 patients 3A, 5 3B) and JSBACH (7 non-complex BACH1, 13 complex of which 8 B2 4 H2 1 B2H2), data on surgical treatment and long-term outcome.

The **positive outcome was the clinical, serological, and radiographic absence of osteomyelitis recurrence at a follow-up of at least 12 months from the last procedure** (mean 14.5 months).



	For PJI: Joint (prosthetic)	For Osteomyelitis: Bone involvement	Antimicrobial options	Coverage of ST	Host status
Uncomplicated	J1 Prosthetic joint infection with all of the following: • Primary type implant in situ • Minimal or no bone loss* • No evidence of loosening • No history of periprosthetic fracture	B1 Cavitary infection without joint involvement (including cortical, medullary and non-segmental cortico-medullary)	Ax Unknown / culture negative A1 All isolates sensitive to ≥80% of susceptibility tests and resistant to <3 susceptibility tests	C1 Direct closure possible – plastic surgery expertise not required	H1 Well-controlled disease or patient fit and well
Complex	J2 Prosthetic joint infection with either: • associated periprosthetic fracture • Moderate bone loss** • Prosthetic loosening • Non-primary type implant in situ	B2 Segmental infection without joint involvement Or Any bone infection with associated joint involvement	A2 Any isolate either: • Sensitive to >80% of all performed susceptibility tests • Resistant to ≥4 susceptibility tests • Resistant to anti-biofilm antibiotics in the presence of an implant	C2 Direct closure not possible – plastic surgery expertise required	H2 Patient with poorly controlled co-morbidity or severe co-morbidity (evidence of end organ damage) Or Recurrent bone infection after previous debridement
Limited options	J3 Prosthetic joint infection with either: • Custom or tumour type implant in situ • Custom or total bone replacement required for reconstruction • Major bone loss***	B3 Whole bone involvement	A3 Any isolate sensitive to 0 or 1 susceptibility test		H3 Unfit for definitive surgery despite specialist intervention Or Patient declines surgery

Device	M	F	Cierny Mader	JS-Bach	Follow Up Results
ABG (n= 13) Lost at FU = 3	9	4	3 A = 9 3 BL= 3 3 C= 1	Uncompl = 4 Complex B2 = 5 Complex H2 = 3 ComplexB2H2 = 1	Good = 6 (60%) Bad = 4 (40%) Lost = 3
HA+CaS (n= 7)	4	3	3 A = 5 3 B L = 1 3 B S = 1	Uncompl =3 Complex B2 = 2 Complex H2 = 2	Good = 6 (85.7%) Bad = 1 (14.3%) Lost = 0

RESULTS

Of the 20 patients treated, 3 were lost at follow-up.
Of 17 cases, **12 cases (70.6%) achieved complete healing**, which was maintained after at least 12 months, 4 patients had local recurrence, and 1 resulted in subgenua limb amputation.
Results were superior in the group treated with a local antibiotic carrier (85.7% good results at follow-up) compared to the active bioglass (60%), and in the cavitary osteomyelitis group (75%) compared to segmental defects (69.2%).

RESULTS	
COMPLETE HEALING (at > 14 mths FU)	12 (70%)
RECURRENCE (sinus tract)	4
AMPUTATION	1
LOST AT FU	3

DISCUSSION

Despite the challenges, conservative debridement, without the use of Masquelet bone resection, when combined with the use of a local antiseptic or antibiotics, represents a valid treatment option with minimal clinical impact on the patient.

Limitations: it is a **retrospective** study with **limited number of patients and no perspective randomized treatment**. No subgroups analysis as comparing
These bias may influence results and should be considered when interpreting the findings.

CONCLUSION

These promising clinical results suggest that local antiseptic action combined with osteoconductive materials is a procedure with high success and survival rate, confirming the efficacy of this type of procedure for the treatment of chronic osteomyelitis.