Antibiotic Loaded Resorbable Bone-Graft Substitute: A New Treatment for Osteomyelitis in Diabetic Foot Syndrome

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Summary
Gender: 5 men, 1 woman
Mean age: 67 years
Diabetes mellitus: 4
Peripheral artery disease: 5
Polyarthritis: 1
Dialyse: 1
Immunosuppression: 1
Cierny-Mader Stage: 1xIII, 4xIV
Wagner Armstrong: 1x3B, 3x4B
Metarsal Bone: 2xI, 1xIII, 1xIV, 3xV
Mean follow up: 85 days
Culture: 11 (Staphylococcus aureus, Streptococcus sanguis, Enterococcus cloacae, Morganella morganii, Escherichia coli, Stenotrophomonas maltophilia, Proteus mirabilis, Enterobacter aerogenes, Citrobacter freundii, Chromobacterium violaceum, Staphylococcus epidermidis, Pseudomonas aeruginosa)
Wound healed: 5
Wound healing disturbed: 1
Wound: fluid leakage: 6
Bone biopsy: 2 positive, 3 negative
Osteomyelitis: 2
Osteomyelitis signs on x-ray: 2
Recurrence of infection during the follow up: no
Primary wound closure: 5
Secondary wound closure: 1
Sponge gentamicin: 6
Antibiotic loaded resorbable bone-graft substitute: 6
Malum perforans: 2

Objective:
Diabetic foot syndrome with osteomyelitis of metatarsal head shows frequent recurrence and need a very long antibiotic treatment, often only to see the inflammation flare up once antibiotic are dismissed.

Material and Methods:
We present our initial experience with 6 patients (5 men and 1 woman, mean age 67 years) presenting a clinical confirmed osteomyelitis of the metatarsal head (Cierny-Mader Stage 1xIII, 4xIV). The patients were treated with limited resection of metatarsal the head, microbiologic sample and filling of the remaining metatarsal canal by means of an absorbable antibiotic loaded bone graft substitute, packing an absorbable antibiotic sponge (Gentamycin) in place of the metatarsal head and direct skin closure. All patients had an orthosis avoiding forefoot weight bearing during the first month, but allowing them to walk normally. Follow up took place on a weekly rhythm during the first month, every fortnight during the second month and after this once a month. The follow up period extended from 4 to 180 days (mean follow up 85 days).

Results:
None of the treated 6 patients needed a second look operation. 1 patient presented a wound healing disturbance. Due to the type of resorbable implant used, some oozing of transparent liquid during the first 2-6 weeks may present and is to be considered normal.

Conclusion:
This new method presents a valid alternative. It is associated with good early clinical and radiographic outcomes.