Results of open wound technique in the treatment of post-sequestrectomy dead space

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Summary

Background and method. Severe chronic osteomyelitis with variable outcomes is still common among children in developing nations. There has been no consensus on the optimal method of treatment. We therefore prospectively evaluated the rates of wound healing and recurrence following open wound treatment of post-sequestrectomy dead spaces in 30 patients with haematogenous chronic osteomyelitis of the tibial shaft at the King Orthopaedic Clinic, Ekpoma, Edo State, Nigeria, between January 2001 and December 2005. Thirty similar patients whose post-sequestrectomy dead spaces were treated by closed wound technique formed the control group. Both groups were subjected to standard methods of perioperative management. Saucerisation, sequestrectomy and curettage were the cornerstones of surgical therapy. The wounds were primarily either left open (study group) or closed (control group). The rates of wound healing and recurrence were used to assess the outcome of treatment. The chi-square test was used for statistical analysis.

Results. The median age was 13 years, with a range of 6 - 60 years. Staphylococcus aureus was the organism most commonly associated with chronic osteomyelitis. Rates of wound healing and recurrence in the study group were significantly better than in the control group (p<0.05), even though it took a relatively longer period to achieve healing with the open method of treatment. The follow-up period ranged from 1 to 5 years, with a median of 2 years.

Conclusion. We observed that the results of the open method of treating post-sequestrectomy dead spaces were good, and we advocate its use in resource-poor settings.
study group whose post-sequestrectomy dead spaces were
studied by direct open wound (granulation) technique, and
control B was the control group whose post-sequestrectomy
dead spaces were treated by direct skin closure. These are the
two techniques commonly employed in the clinic at the dis-
cretion of the surgeon. Informed consent was obtained from
all patients in the study.

The first patient was placed in group A by ballot, and
subsequent patients were alternated between the groups. All
patients in the groups received the same standard methods
of perioperative management. Saucerisation, sequestrectomy
and curettage were the cornerstones of surgical therapy.
Patients were further assessed by physical examination of
the operation sites, by serial evaluation of the erythrocyte
sedimentation rate (ESR) and by radiography. The results of
treatments were evaluated by the rates of wound healing and
recurrence between the groups. The chi-square test was used
for statistical analysis.

Results

Patient ages ranged from 6 to 60 years with a median age
of 13 years. The male to female ratio was 2:1. The common
pathogen was *Staphylococcus aureus* (70% of cases). The out-
come of treatment was as shown in Table I.

The differences between the study and control groups in
terms of the rates of wound healing (83.30% v. 40.00%) and
recurrence (16.70% v. 60.00%) were statistically significant
(p<0.05). When the 5 patients with recurrence in group
A received repeat bone debridement with open wound
treatment technique, all the wounds healed. The time to
healing was 6 - 8 months for group A patients, and 4 - 6
months for group B patients.

The rates of wound healing and recurrence in the study
group were better than in the control group, although it took
longer for wounds in the study group to heal. The follow-up
period ranged between 1 and 5 years with a median period of
2 years.

Discussion

Severe chronic haematogenous osteomyelitis is a common
childhood problem in developing countries despite the avail-
ability of potent antibiotics and surgical treatment.1-7 In this
study, the median age of the patients with chronic osteomy-
elitis was 13 years. These children commonly presented with
florid chronic osteomyelitis which often required surgical
treatment.1,7 The study further confirms that *S. aureus* is the
common pathogen in osteomyelitis.1-5

Recurrent chronic osteomyelitis was a major problem
associated with the closed wound technique of treating post-
sequestrectomy dead space in this study, and was responsible
for repeated surgical treatment and prolonged morbidity.1 We
observed that open wound treatment for post-sequestrectomy
dead space was superior to the closed wound method, and we
recommend it in resource-poor developing countries.

While the search for the best method of treating post-
sequestrectomy dead space is ongoing, we propose a further
prospective study to compare the open wound method with
other treatment modalities to further elucidate the best of the
available options in our setting.

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