

INCIDENCE OF OSTEOMYELITIS IN COMPOUND FRACTURES

By S. Ayaduray, M.B.,B.S., F.R.A.C.S.

This study was stimulated by what appeared to be a frequent practice among the local population of stuffing open bleeding wounds with various materials, the most common being tobacco, tea-leaves and coffee grounds.

All compound fractures of the long bone, *i.e.* humerus radius and ulna, femur and tibia and fibula which were seen in the Government Orthopaedic Department of the Singapore Civil General Hospital from January 1960 to December 1964 were studied.

This came to 286 patients of which only 30 were females. The youngest was a 6 year old boy while the eldest was a man aged 100 years and young adults were the most affected.

Only Gross Criteria of Osteomyelitis were used:—

- i) Clinical findings of pus from bone or,
- ii) X-ray findings of sequestra, or
- iii) operative findings of pus and or sequestra.

TABLE I

COMPOUND FRACTURES IN "O"

UNIT 1960-1964

Total treated	286
	- 16

Total followed up	270
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Osteomyelitis	12
Percentage in followed up cases	4.44

During the period under review, this particular Unit treated 286 compound fractures. Of these 270 were followed up and 16 were lost. These lost patients include those who were transferred for follow up to hospital in Malaysia, India or other countries and those who did not turn up after discharge from hospital.

In this group there were 12 patients with osteomyelitis giving a percentage of 4.4.

There was great difficulty in getting figures. Copeland, writing in the American Surgeon in February 1965 had 5 cases of osteomyelitis in a

series of 101 fractures including hands and feet. The other reports were old ones. Eveleth reported in 1945 in the Journal of Bone and Joint Surgery that 4.7% of compound fractures developed osteomyelitis when sulphonamides were instilled into the wound as compared with 5.6% when they were not used. Cleveland and Grove, writing in the same issue gave a figure of 5.4%. So our own overall results compare favourably with these figures.

As far as "dirty" cases are concerned, there were 6% in which the wound was specifically described as being "dirty" and none of these got osteomyelitis.

The method of treatment was to clean the wound, then to excise all dead or unhealthy muscles and skin and then to close primarily where possible after instilling penicillin and Streptomycin solution. One patient arrived too late for this (that is after 8 hours) and in 29 others there was too much skin loss to allow primary closure. These had the same cleaning procedure and installation of antibiotics and loose packing with vaseline gauze. They were all covered with split skin graft later.

TABLE II

Delayed S.S.G.	30
Osteomyelitis	7
Percentage	23.33
Percentage for all cases	4.44

Of these 30 patients, 7 got osteomyelitis, giving a percentage of 23.3%. This is about five times more than the overall incidence.

In three patients, the skin loss was too great to allow primary closure, but a releasing incision was made, the wound closed by primary suture, and the raw area covered with immediate split skin graft.

TABLE III

Counter Incision & Primary S.S.G.	3
Osteomyelitis	0

None of these patients developed osteomyelitis.

The conclusions therefore are that these so called dirty wounds can all be made clean and

can give good results and that counter incisions and immediate split skin grafts should improve the results. In fact, this is what is being done now for these patients whose wounds cannot be primarily closed.

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