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A NINETEENTH CENTURY MUSKET WOUND

Philip Houghton
Department of Anatomy
University of Otago

Recently a human skeleton was exposed in consolidated sand dunes near Waikanae, Wellington Province. The pathology evident on these remains is of interest.

Findings

The skeleton was of a robust Polynesian (Maori) man aged about 35 years, who was 1730 mm in height.

The right femur was deficient in the upper shaft (Plate 1) with a centimetre loss of bone compared with the other femur. The bone ends were fairly smooth and rounded, with only slight evidence of persisting infection, but with some suggestion that after the injury repeated attempts had been made to walk on the leg. Adjacent to this femoral lesion was a flattened piece of metal measuring one cm by four cm, weighing 31 grams.

Several other bones of the skeleton showed pathology. The upper shaft of the left femur showed deep rough-walled cavities in porotic bone, with commencing sequestrum and involucrum formation (Plate 2). The lower right tibial shaft showed three cloacae ranging from one to three centimetres in diameter, surrounded by porotic bone and draining an infected shaft cavity with a developing sequestrum. Lesser osteomyelitic lesions were evident in left fibula, right radius, a rib and a vertebra.

There was no other significant pathology. The teeth showed moderate wear, particularly anteriorly, with dentine widely exposed. A clay pipe had been buried with the individual.

Discussion

The sequence of events is reconstructed thus: a musket wound in the right thigh shattered the bone. While loss of bone substance was such that union could not occur, the bone ends healed satisfactorily. However the musket ball, flattened by impact, remained in the thigh, causing a chronic soft tissue infection with a discharging sinus.

This situation persisted for several months, even a year or more. Subsequently, haematogenous (bloodstream) infection spread

from the infected thigh led to a widely disseminated acute osteomyelitis (bone infection), followed by death in a month or so.

The flattened projectile was clearly a musket ball, not a cylindrical shot. Its weight is close to the service charge of 31.9 grams lead for a 14 gauge smooth-bore musket. There may have been slight loss of metal in the wound, but more probably the discrepancy is due to it being an alloy, as it is rather harder than lead alone. However, assuming the ball to be lead, the calculated diameter derived from its weight and specific gravity is 1.73 cm. This is equivalent to a gauge of 15. The weapon itself would have been of slightly larger gauge to accommodate the ball and wadding.

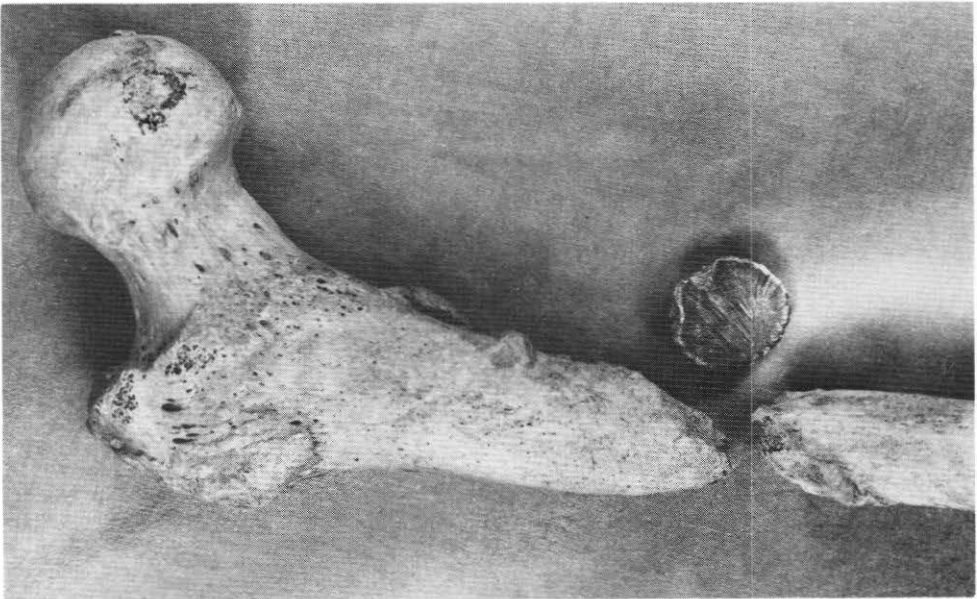
Dating the remains is not easy. Clearly they are from the nineteenth century - historically this points to the period 1820 to 1840 when Te Rauparaha and his allies took the districts about Waikanae from the Muaupoko and later fought among themselves.

Conclusions

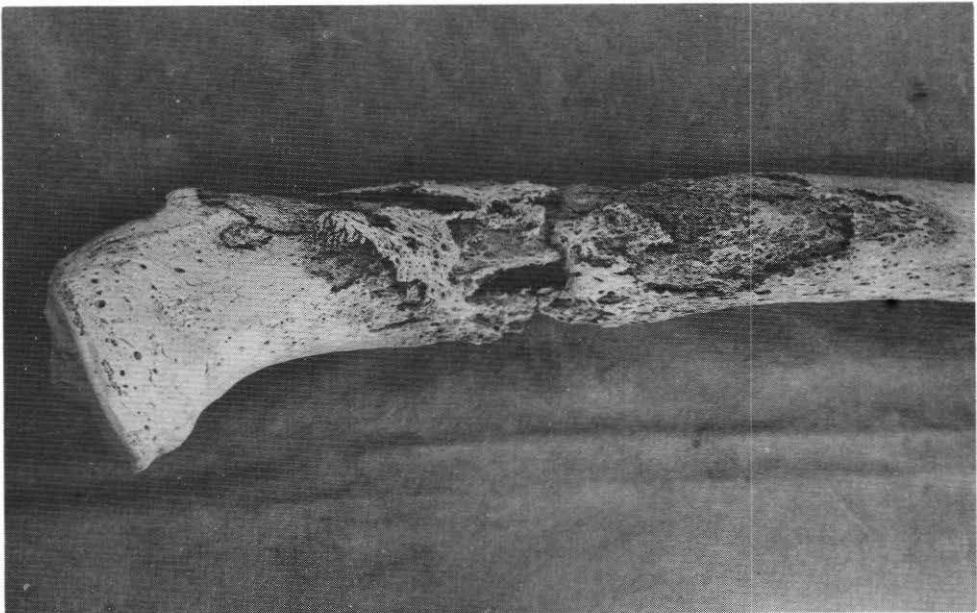
In the nineteenth century a robust Maori sustained a wound in his right thigh from a 14-gauge smooth-bored musket. The femur was fractured, with subsequent non-union and persisting soft tissue infection. He attempted to hobble round on his damaged leg. After several months, haematogenous spread from this focus led to widespread osteomyelitis and subsequent death.

Acknowledgements

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MUSKET WOUND Plate 1. Right femur, showing rounded bone and flattened musket ball.



MUSKET WOUND Plate 2. Left tibia, showing porotic bone and developing involucrum. The bone has fractured through infected region after death.