Fracture of the Femoral Neck in a Patient Suffering from Tetanus


SUMMARY

Fractures of the upper thoracic vertebral bodies are a common occurrence in tetanus.\(^1\)\(^2\) Fracture of the sternum has also been described.\(^6\) A patient recently admitted to the Orthopaedic Unit at King Edward VIII Hospital was found to have a fracture of the femoral neck in addition to fractures of the upper thoracic vertebral bodies. A review of the literature failed to reveal any other cases of fracture of the femoral neck in a patient suffering from tetanus. Holloway,\(^9\) with personal experience of over 2 000 patients with tetanus, has never seen such a case.


CASE REPORT

An 18-year-old Bantu male suffering from tetanus was admitted to a medical ward at King Edward VIII Hospital in Durban. As far as is known he was well until 23 June 1971 when he noticed the onset of trismus and muscle spasms of the limbs and back. Two days later he was admitted to hospital. On admission he was found to have generalized muscle spasms which were occurring approximately every 10 minutes. There was no obvious portal of entry of infection. He was given Largactil and Valium by intravenous infusion. In addition he received 20 000 units of antitetanus serum, tetanus toxoid 0.5 ml and crystalline penicillin 500 000 units every 6 hours. The patient continued to have spasms until 10 July 1971. When a physiotherapist tried to mobilize him on 20 July he complained of pain in the left hip. X-ray at that stage showed a fracture of the neck of the left femur (Fig. 1) and compression fractures of the fourth to the seventh thoracic vertebrae. (Fig. 2).

*Date received: 30 August 1971.

Fig. 1. Fractured neck of left femur.
Fig. 2. Compression fractures of the fourth, fifth, sixth and seventh thoracic vertebrae. Note the varying degree of severity of involvement.

He was at this stage referred to the Orthopaedic Unit where, in addition to previous diagnosis, he was found to have a tender upper thoracic gibbus.

A McMurray osteotomy, using plaster of Paris spica immobilization, was performed.

DISCUSSION

Fractures in tetanus are usually diagnosed during the stage of recovery from muscle rigidity. This was the case in our patient. In the spine one usually finds a non-tender gibbus. Our patient was unusual in this respect in that his gibbus was tender.

Fractures of the upper thoracic vertebral bodies, occurring in tetanus, are well documented.\textsuperscript{1,2} Usually these fractures involve the bodies of the fourth, fifth, sixth and seventh vertebrae but the first, second, third, eighth, ninth and tenth thoracic vertebral bodies have also been found to be involved.\textsuperscript{3} Various theories have been advanced as to why this should be so.\textsuperscript{3,4}

Veronesi\textsuperscript{1} studied the X-ray appearance of the spine in 47 patients suffering from tetanus. The main feature in his cases was a flattening of the upper borders of the vertebral bodies, but some of his cases showed definite compression fractures with anterior wedging.

The above findings were seen mainly in individuals aged between 1 year and 20 years. Neonates, with umbilical tetanus, showed no abnormality or only a slight flattening of the superior margins of the vertebral bodies.

The above fractures occur mainly in patients in whom the control of spasms has been poor. The spinal fractures cause no disability and a residual kyphos is all that is usually found. Roaf\textsuperscript{5} showed that a healthy vertebral body could be fractured by muscle spasm. It is possible that the vertebral and sternal fractures are in fact stress fractures caused by repeated tonic and clonic muscle contractions. The femoral neck fracture, described in this article, may also be a stress fracture. Certainly in the age group to which our patient belonged, fractures of the neck of the femur are due to either severe trauma or repeated minor stresses. The radiological appearance of a stress fracture of the femoral neck closely resembles that seen in our patient.\textsuperscript{6}

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REFERENCES