KYPHOSIS AND FRACTURE OF THE MANUBRIUM IN TETANUS

Report of a Case

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An African boy, aged thirteen, complained that he had been unable to open his mouth since the morning. No history of preceding injury was given, though later he stated that he had had a "boil" on his buttock about a month previously. On admission he was given intramuscularly 6,000 units of anti-tetanus serum, and 500,000 units of crystalline penicillin.

On examination the next day he was found to have marked trismus, a rigid abdomen and tonic rigidity of the lower limbs. The upper limbs, apart from the pectoral muscles, were unaffected, but the lower limbs were rigidly fixed in extension, both feet being strongly plantar-flexed. The thorax appeared barrel-shaped and the sternomastoids were in tonic spasm. The lumbar curve of the spine was exaggerated and there was an increase in the antero-posterior diameter of the chest.

No further anti-tetanus serum was given, but penicillin was administered for two weeks. Intramuscular para-addehyde and, later, Myanesin were given orally, but with little effect on the paroxysms.

Painful exacerbations of the spasm occurred with distressing frequency, the slightest stimulus producing a spasm, especially during the day. The spasms were extensor, though it was noted that during the paroxysm the sternomastoids contracted strongly and the head

Fig. 1 Photograph seven weeks after onset of tetanus. Fig. 2 -Radiograph showing wedging of thoracic vertebral bodies and fracture of manubrium.
appeared to be drawn down vertically towards the thoracic inlet. The paroxysms continued for twenty-four days.

A few days after his admission the boy was noted to have a pronounced depression above the sternal angle. The respiratory excursion of the chest was markedly diminished and diffuse rhonchi were audible. Cough was troublesome and only diminished as the paroxysms of spasm became less frequent.

On the fortieth day of the illness there was still some rigidity of the abdomen and legs. The muscles of the right calf were especially spastic, preventing dorsiflexion of the foot. A marked kyphosis and loss of height were noticeable (Fig. 1). Radiographs showed marked kyphosis, wedging and flattening of the bodies of the fourth to eighth thoracic vertebrae, and a depressed fracture of the manubrium (Fig. 2).

COMMENT

Fracture of the spine is a recognised complication of tetanus (Quinlan 1954). In this case there were several unusual features. The tonic spasm of the muscles of the neck, trunk, abdomen and lower limbs remained intense for a long time, even remaining in the calf muscles of the right leg forty-seven days after the onset. In addition the occurrence of the paroxysms for twenty-four days is unusually prolonged.

When the acute exacerbations of the spasm occurred it was noted that there was little head-retraction. The spasms appeared to cause vertical compression of the spine, the head being drawn down towards the thoracic inlet. It appears likely that the compression fractures of the vertebrae were caused as much by the powerful, continued, tonic spasm as by the paroxysmal exacerbations. The latter caused very little actual movement of the trunk, the muscles being almost fully contracted in their tonic state. The fracture of the manubrium was undoubtedly caused by the acute flexion of the thoracic spine.

The low dosage of tetanus antitoxin given in this case is open to criticism as it falls short of that generally accepted (Diaz-Rivera et al. 1951). The effectiveness of this serum in established tetanus is open to doubt and is certainly not commensurate with the cost, an important factor in tropical practice. During the last two and a half years eleven patients between the ages of five and fifteen have been treated with a single dose of tetanus antitoxin, and of these only two have died. These cases received a dose of antitoxin not exceeding 20,000 units, and in some cases only 10,000 units, as well as penicillin and sedatives. In five of these cases the possible portal of entry was that caused by the gravid female Tunga penetrans; in others there were small septic abrasions of the feet, whereas in the rest the site was not discovered. Although these few cases could hardly be advanced as an argument against using large doses of serum, they do suggest that the prognosis at this age is quite good when small doses of antitoxin are combined with penicillin and sedation.

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REFERENCES
