NEUROGENIC OSSIFYING FIBROMYOPATHIES: A PRELIMINARY REPORT

I. T. COL. ARTHUR B. SOULE, JR., M.C., A.U.S.*

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With the high incidence of injuries to the central and peripheral nervous system sustained in this war, a volume of neurosurgical material has become available for study. Late effects of spinal cord and peripheral nerve damage are still not thoroughly understood and it is obvious that treatment of patients with lesions of this type cannot be delayed until such additional knowledge is acquired. It therefore seems justifiable to record any observations made that may shed a certain amount of light on this only partially explored field. With this purpose in mind and without attempting to draw definite conclusions from the incomplete studies made, the results of a screening type of roentgen survey of a group of 62 male patients with lesions of the spinal cord and cauda equina are presented.

The particular feature of interest in the survey was the finding of soft tissue ossifications about the hips and in the lower extremities in 23 patients, only 3 of whom showed any clinical evidence of improvement.

Roentgen studies consisted of "scout" radiography of the lower extremities in the anteroposterior projection. Additional roentgenographic studies—stereoscopic anteroposterior, lateral and oblique projections—were made of the affected parts of some of the patients; "scout" examinations were performed of the upper extremities of several patients who presented abnormal findings in the lower extremities.

In each case, information was recorded regarding the date and character of the injury, the extent and location of lesions present, the date and nature of operative procedures, and the important clinical findings upon examination at this hospital. Blood calcium, phosphorus, phosphatase and total protein determinations were made of 27 patients. The appended chart records some of the more important features of the cases.

ANALYSIS OF MATERIAL

All patients gave a history of paraplegia affecting the lower extremities. Sixty-one of the 62 had sustained trauma of the spinal cord or cauda equina; one patient (Case 36) had non-traumatic spinal cord disease of unknown nature.

Of the 61 cases of traumatic origin, there had been immediate complete loss of motor and sensory function distal to the involved areas in all but 4. At the time of examination, these 4 patients (Cases 1, 2, 3, 4) showed clinical

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signs of improvement and roentgen studies showed absence of osteoporosis and no evidence of abnormal ossifications.

In 23 additional cases (all traumatic) there were on admission to this hospital clinical signs of returning function. Of these patients 15 had lesions of the cauda equina. Only 3 of the improved patients showed ossifications in the soft tissues:

The first (Case 25) was a 33-year-old medical officer who had been struck in the back by a sniper’s bullet while riding in a jeep in France. He had immediate paraplegia and sensory loss below the 6th thoracic dermatome. Four days later, laminectomies of the 6th and 7th dorsal vertebrae were performed and a spicule of bone which was compressing the cord was removed; the cord appeared to be intact and pulsated normally. Upon examination 55 days later, a spastic paraplegia was present; there was slight sensory return in both lower extremities and slight abductor function in the right thigh. Radiography revealed a small deposit of amorphous new bone in the soft tissues above the left greater trochanter and below the neck of the left femur. No other ossifications were present and the bones showed no evidence of osteoporosis.

The second (Case 26) was a 31-year-old soldier who had been wounded in action in France by a bullet which penetrated his right posterior thorax and dorsal spine, producing an immediate complete paraplegia with dermatome level at T-9. A broncho-pulmonary fistula was complicated by persistent pneumothorax and empyema. Several days after injury, laminectomies were performed and the bullet was removed. The cord appeared to be contused but not severed.

About 5 days after injury, sensation began to return in both legs, and 15 days after injury, there was beginning recovery of motor function.

On admission, 68 days after injury, a small amount of osseous material was noted about the left greater trochanter; 43 days later, ossification had become abundant and was noted lateral as well as superior to the greater trochanter.

At this time, slight function was noted in all muscle groups; hypoesthesia was present below the T-9 dermatome level. The muscles of the lower extremities were atrophied and spastic.

The third (Case 27) had sustained a compression fracture of the 1st lumbar vertebra in a jeep accident. There was immediate paraplegia involving the cauda equina. Laminectomies of T-12, L-1 and L-2 were performed 11 days later and the cauda was found to be intact but compressed.

During the next few weeks there was slight return of sensation and motor function in the right foot, but none elsewhere.

Roentgen examination 90 days after injury revealed left renal calculi and soft tissue ossifications medial to the left knee. Reexamination 27 days later showed no increase in ossification. No other ossifications were noted in the lower extremities.

Of the 27 improving patients 10 showed varying degrees of osteoporosis in the bones of the lower extremities. In the entire group of 62 the only patients who had marked osteoporosis were 2 of those showing improvement, both with lesions of the cauda equina, and one of the unimproved patients who had osteoporosis in the bones of each tarsus but no osteoporosis elsewhere.

Of the 35 unimproved patients, 20 showed the presence of soft tissue ossifications—3 about both hips and both distal femora; 2 about both hips and 1 distal femur; 6 about both hips alone; 3 about 1 hip alone; 4 about both distal femora alone; 2 in 1 distal thigh alone. Of the 23 improved and unimproved patients with ossifications, 11 showed no evidence of osteo-