15 Contractures and Spasm

Contractures as a complication of paraplegia can be seen in both upper and lower motoneuron lesions. They are found on flexor surfaces of the joints, usually resulting from patients not initially being nursed in the correct position of extension.

Spasm is only seen in upper motoneuron lesions, because it involves an intact neural reflex arc in the spinal cord without the influence of the cerebral higher centers.

Contractures

As the word implied, contracture is a tightness across a joint in a particular direction, usually in a flexion position. In nonparalyzed man, when resting, joints are naturally in a semiflexed position, and it is for this reason that flexion contractures are common in the paralyzed person. Factors involved in the pathologic occurrence of a contracture include (1) loss of movement across a joint; (2) occurrence of edema, due to the lack of muscular action, across a joint; (3) minute hemorrhages and minute trauma around the joint, either because of vigorous physical therapy or because of an injury at the time of accident; (4) incorrect positioning of the joints in a flexed or semiflexed position by inadequate nursing positioning of the paralyzed body; and (5) development of flexion reflexes, which are a corollary of inadequate posture. Healing in an edematous area with petechial hemorrhages takes place by fibroblastic proliferation and finally fibroscarring.

Contractures may occur rapidly, particularly after severe trauma across a joint, or insidiously over a long period of time. Some joints are more prone to contractures, e.g., the shoulders, elbows, hips, and particularly the toes and fingers. In the tetraplegic a contracted shoulder can be an extremely painful condition.

Diagnosis of Contractures

Cases of paraplegia and tetraplegia admitted to spinal units within 24 hours of the accident rarely develop contractures, but those admitted later are often found to have contractures already present. A knowledge of the normal range of motion in joints is necessary to enable a diagnosis of contractures to be made, because each group of joints, i.e., the hinges, the ball and socket, or the plane joints, has varying abilities.

Each limb must be examined with great care and the limitation of movement noted and graphed. Limitation to passive movement is commonly found in the metacarpophalangeal joints, the interphalangeal joints, and the elbow. In the lower extremity, the toes, knees, and ankle joints are common sites for contractures.

In untreated cases, many of the hinge joints have 10–15 degrees of contracture. Patients with upper motoneuron disease with accompanying spasm may have spasm associated with these contractures. The contracture therefore is often masked by the spasm until the patient is sufficiently relaxed with diazepam. In some cases only under general anesthesia can the degree of the contracture be fully determined. Ball and socket joints such as the hip must be tested for flexion contractures. Sites of con-
Contractures and Spasm

Fig. 15.1 Spinal deformity and contracture.

Contractures are demonstrated in Figures 15.1–15.6.

A careful and accurate recording of contractures is a useful guide to their management. Contractures can usually be treated by conservative measures, e.g., stretching, serial plasters, and splints. However, some well-established contractures may require surgical correction such as osteotomy, ligamentous and muscular division (tenotomy or myotomy), and occasional ligamentous bony and skin reconstruction.

Fig. 15.2 Spinal deformity and contracture.

Fig. 15.3 Elbow contractures.