SHOULDER AFFECTIONS IN RHEUMATOID ARTHRITIS

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Rheumatoid involvement of the shoulder seems to be, according to the literature (except Weil and others, 1951), relatively rare compared with the involvement of peripheral joints, but painful symptoms in this region are common. Our knowledge of the aetiological relationship of these symptoms to rheumatoid arthritis is scanty and there are few if any detailed studies.

We have therefore studied 277 cases of rheumatoid arthritis to determine:

(a) the incidence of shoulder affections in rheumatoid arthritis,
(b) the varieties of painful disorders and their aetiology.

Material and Methods

The material consisted of 277 unselected and hospitalized patients with a confirmed diagnosis of rheumatoid arthritis, of which 152 were women, 103 men, and 22 children. Shoulder symptoms were found in 94 women, 57 men, and eight children (159 cases; 57.4 per cent.). These cases were submitted to a detailed analysis by the method of Moseley (1953). The mean age of the total group was 32 years, and of those with shoulder symptoms 37.3 years.

Results

In the detailed analysis of the material, the following results according to the incidence and coincidence of several disorders were obtained (Table, overleaf).

(A) Rheumatoid Arthritis

(1) Scapulo-Humeral Joint.—This was affected in 41 women, 26 men, and eight children (total 75; 47.1 per cent.). The cases fell into three stages of development:

Stage I.—Early cases (8), typical symptoms being:

(i) slight limitation of movement of the affected joint;
(ii) moderate tenderness and pain in the joint;
(iii) soft crepitation in the joint;
(iv) negative x-ray findings, except for slight atrophy.

Stage II.—More advanced cases with severe lesions in the joints (65), typical symptoms being:

(i) limitation of movement in the shoulder joint. This was sometimes severe, though none showed complete ankylosing (bony or fibrous). Some cases had relatively free movement in the joint, despite grave changes in the bone structure.
(ii) tenderness and pain of variable degree;
(iii) in all cases at least some degree of crepitation and in many bony crepitation;
(iv) x-ray findings positive in all cases. All stages from slight subcortical atrophy to large bony erosions were found. In some long-standing cases there was a narrowed joint space and the humeral head was drawn up by scar tissue.

Typical bone erosion was found in 33 patients. This was located on the medial side of the major tubercle, and its size varied from a pinhead to the tip of the thumb (Fig. 1). The unusually large size of this erosion and in many instances its rapid develop-
ment were caused by the fact that rheumatoid granulation tissue which has invaded the bone between the edge of the cartilage and the attachment of the capsule was in continual friction with the coraco-acromial arc. This explains the reluctance of these patients to hold the arm in abduction, and their liability to abduction contractures. This erosion forms a contraindication to all kinds of forced physiotherapy. Pendulum exercises, where the head of the humerus is drawn downwards by the weight of the arm, are the only suitable type.

In six cases in which there were typical severe changes in the humeral head, the patients were unable to maintain the passive abduction of the arm. The situation resembles that of a complete rotator cuff rupture, but these patients had not done any heavy work for many years. This lack of abduction results from distension of the supraspinatus tendon, or destruction of its insertion.

Stage III.—Cases in which the disease has burnt out (two).

(2) Acromio-Clavicular Joint.—(One woman.) This symptom is most accurately discovered by an axillary x-ray projection.

(3) Sterno-Clavicular Joint.—(Two cases.) This affection, disturbing the function of the shoulder girdle, may give rise to shoulder pain.

(B) Tendinitis.—Both this and tenosynovitis are common in rheumatoid arthritis. Tendinous tissue is richly represented in the shoulder region and a high incidence of this affection is to be expected. Symptoms of tendinitis of the rotator cuff were found in thirteen cases (eight women and five men). The diagnosis was based on the following points:

(i) Local tenderness in the region of the affected tendon can be verified by testing the rotation of the shoulder joint against resistance. Accurate local diagnosis is important because of the good results that may be achieved by local hydrocortisone injections.

(ii) A characteristic painful jog* and soft crepitus can be felt by both patient and examiner when the swollen and tender portion of the cuff impinges upon, and then passes under, the acromion or coraco-acromial ligament.

(iii) Atrophy of the spinatus muscles soon develops as a result of inactivity, or probably as a result of rheumatic involvement of the muscle.

These symptoms are mainly the same as in the incomplete tear of the rotator cuff, though these rheumatoid patients gave no history of trauma. Degenerative changes caused by ageing did not play an important role in these investigations because of the low mean age (36 years) of these patients.

(C) Rheumatoid Bicipital Tenosynovitis was found in nine cases (seven women and two men). The chief symptoms of this condition are:

* Term used by De Palma (1950).
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(i) pain in the anterolateral aspect of the shoulder which may radiate into the adjacent areas. This pain is aggravated by any movement in excess of the voluntary range of motion.

(ii) the painful arc syndrome is usually positive.

(iii) there is local tenderness in the region of the bicipital groove.

(iv) the following test has been found to be the most accurate in indicating the impairment of the bicipital gliding mechanism: when passive movements of the shoulder are made in different directions, holding the elbow tightly flexed at 90°, the patient feels pain localized at the bicipital groove (Fig. 2). This phenomenon is much more accurate than that described by Yergason (1931) wherein pain is localized at the bicipital groove when resistance is offered to supination of the forearm with the elbow flexed at 90°. It is also more reliable than that described by Lippmann (1943), wherein pain is felt in the bicipital groove when the tendon of the long head, held under tension, is displaced to one side and then suddenly released.

The rheumatoid nature of the tenosynovitis in these patients was confirmed by biopsy in one case.

(D) Sub-Acromial Bursitis with Hydrops.—This was found in five cases (three women and two men). The chief symptoms of this condition are:

(i) depending on the size of the bursa, the tenderness may be felt over a larger area than the more localized tenderness due to tendinitis.

(ii) the painful arc syndrome is always positive.

(iii) the bursa can be felt in palpation as a fluctuating swelling lateral to the acromion.

(iv) if there is only a small amount of fluid in the bursa it is impossible to feel it by palpation in obese or muscular persons. Instead of fluctuation, a whirling sensation can be felt if the humerus is suddenly passively abducted or rotated so that the bursa impinges against the coraco-acromial arc. This sensation may continue for a short period after the movement has ceased.

(v) the bursal fluid is always of the same type as the fluid in rheumatoid arthritis joints (cell and protein contents).

In one case which was surgically explored, the wall of the bursa was enormously thick, and contained club-like synovial fringes. At the bottom of the bursa there was a mushroom-like exostosis, arising from the minor tubercle derived from the soft tissue covering of the bursal floor.

(E) Arthralgia of the Shoulder Joint.—This was found with no objective symptoms in eleven women and five men. These patients were young, their mean age being 31 years, and the duration of the symptoms was short. It is possible, therefore, that their symptoms can be regarded as prodromes of rheumatoid arthritis.

(F) Calcaneous Tendinitis.—This was found in three women and two men. None of these cases was in an acute stage at the time of the investigation.

(G) Osteo-Arthritis of the Scapulo-Humeral Joint.—This was found in eight men and one woman, all of which had been heavy manual workers or had had traumata in the shoulder joint. One had had gonorrhoeal arthritis 12 years previously.

(H) Radicular Symptoms.—These were present in the region of the shoulder joint in four cases. This was due to osteo-arthritis in the cervical spine. One case had Klippel-Feil deformity with secondary osteo-arthritis at the only moveable part of the cervical spine.

(I) Sympathetic Reflex Dystrophy.—This was found in three women and two men. This condition had developed in one case after immobilization for tenosynovitis of the hand and one had osteo-arthritis of the cervical spine. Other coincidences are shown in the Table.

(J) Periarthritis of the Shoulder Joint (so-called “frozen shoulder”).—This was found in four women and three men whose mean age was 50 years. Inflammatory changes in the soft tissues of the joint were definite. On the other hand, such changes in a rheumatoid joint may be due to inactivity.

Fig. 2.—Diagram of movement of humerus (arrow), showing friction in bicipital groove.
(K) Scapulo-Costal Syndrome (Michele and others, 1950).—This was present in 43 females and twelve males. Typical signs of this condition are:

(i) pain, mostly localized in the upper scapular region, which may radiate to a large area in the upper extremity, back, chest, or neck. Headache is often present.

(ii) trigger points, usually round the scapula; secondary trigger points may develop at the radiation area.

(iii) irritation of the trigger point causes radiant pain.

(iv) paraesthesiae.

(v) impaired shoulder function.

(vi) anaesthesia of the trigger point removes symptoms.

This complex syndrome, until now inadequately interpreted, seems to be commonly combined, as a secondary symptom, with rheumatoid arthritis, as are all types of fibrositis. The elimination of this accessory syndrome, which fortunately responds to treatment, offers a welcome relief to the arthritis patient and facilitates his rehabilitation.

Summary

(1) Shoulder pain in connexion with rheumatoid arthritis is common. It was found in 57·4 per cent. of the 277 patients examined.

(2) Arthritis, tendinitis, and bursitis, due to rheumatoid affections, comprise the dominating syndrome. They were found in 50·9 per cent. of the different disorders discovered (total number of diagnoses 206).

(3) Many other symptoms, either independent, or secondary to rheumatoid arthritis, were found in 49·1 per cent., the most common (in 54·4 per cent.) being the scapulo-costal syndrome.

(4) Accurate analysis of the cause of shoulder pain in rheumatoid arthritis is a necessary condition for adequate treatment.

REFERENCES


Atteinte scapulaire dans l'arthrite rhumatismale

Analyse des 160 cas

RÉSUMÉ

(1) Une douleur scapulaire associée à l'arthrite rhumatismale est fréquente. On l'a trouvé dans 57,4 pour cent des 277 malades examinés.

(2) L'arthrite, la ténosite et la bursite dues aux affections rhumatismales forment le syndrome pré-dominant. On les trouva dans 50,9 pour cent des différents troubles observés (nombre total des diagnostics: 206).

(3) On trouva beaucoup d'autres symptômes, soit indépendants, soit secondaires à l'arthrite rhumatismale, dans 49,1 pour cent des cas, le plus fréquent (54,4 pour cent) étant le syndrome scapulo-costal.

(4) Pour instituer un traitement approprié il est nécessaire d'étudier avec précision la cause de la douleur scapulaire dans l'arthrite rhumatismale.

Afecciones del hombro en la artritis reumatoide

Análisis de 160 casos

SUMARIO

(1) Un dolor escapular asociado a la artritis reumatoide es frecuente, habiéndose encontrado en el 57,4 por ciento de los 277 enfermos examinados.

(2) Artritis, tendinitis y bursitis debidas a las afecciones reumatoideas forman el síndrome predominante, ya que fueron encontradas en el 50,9 por ciento de los varios disturbios observados (número total de diagnósticos: 206).

(3) Encontraránse muchos otros síntomas, sea independientes, sea secundarios a artritis reumatoide, en el 49,1 por ciento de los casos, siendo el más frecuente (54,4 por ciento) el síndrome escapulo-costal.

(4) Para poder instituir un tratamiento adecuado se necesita un análisis preciso de la causa del dolor escapular en la artritis reumatoide.