DESTRUCTION OF THE TEMPORO-MANDIBULAR JOINTS IN RHEUMATOID ARTHRITIS

BY

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Involvement of the temporo-mandibular joints is usually mild in rheumatoid arthritis, although disability due to ankylosis has been noted in juvenile rheumatoid arthritis (Bornstein and Ramon, 1963), adult rheumatoid arthritis (Oshrain and Sackler, 1955; Caldwell, 1957), and in psoriatic arthropathy which commenced at the age of 19 years (Cook, 1958).

The patients described in this paper showed complete resorption of both condylar processes of the mandible with recession of the lower jaw, of which we have found no previous record, although the occurrence of subluxation of this joint has been noted (Stones, 1962; Thoma and Goldman, 1960; Bayles and Russell, 1941). In Still's disease a receding chin may be due to maldevelopment of the mandible (Ansell and Bywaters, 1956) which is not associated with severe involvement of the temporo-mandibular joints.

Case Reports

Case 1, a man aged 55 years, developed rheumatoid arthritis, which began in the hands, later involving other joints particularly the shoulders, knees, and ankles. He was treated with rest, physiotherapy, and salicylates, but slowly deteriorated, and in 1958 he developed bilateral scleritis, for which he was started on prednisolone 7.5 mg. per day. By 1960 the arthritis was worse and the medication was changed to methyl prednisolone 4 mg. twice daily which was gradually reduced to 2 mg. twice daily. In December, 1961, a symmetrical sensory peripheral neuropathy developed in the legs, with no other evidence of arteritis.

During 1959, the patient noticed progressive loss of movement of the jaw and pain in the temporo-mandibular joints, and was unable to eat hard foods. After about 12 months, this pain was accompanied by a "cracking feeling" in the region of the temporo-mandibular joints, following which he was able to open his mouth more, although he still experienced pain when trying to eat hard crusts. During the following 3 years he noticed that the lower jaw was gradually receding, but at no time

did he experience severe pain. There was no history of trauma or of intra-articular injection of corticosteroids into the temporo-mandibular joints.

In April, 1964, he was re-admitted to hospital because of increasing difficulty in walking, and by this time had severe rheumatoid deformities of the peripheral joints. Rheumatoid nodules were present over both olecranon processes and the eyes showed changes of scleritis and scleromalacia; there was no evidence of psoriasis. The jaw had receded symmetrically (Fig. 1) and clinically

Fig. 1.—Side view of Case 1, showing recession of lower jaw.

there was excessive movement of both temporo-mandibular joints, but no crepitus.

Teeth present were:

6	4		3	6
7	5	4	3	2
1	2	3	4	5

the 8 being present, unerupted, and impacted. He was wearing a partial upper denture, and the bite was open

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anteriorly, but he was able to talk and eat soft foods with remarkably little difficulty and without pain.

Radiographs of the temporo-mandibular joints showed complete destruction of both condylar processes of the mandible (Fig. 2).

Hand radiographs showed severe rheumatoid changes, but not those of arthritis mutilans.

Investigations at that time confirmed previous findings and showed a positive sheep-cell agglutination test at a titre of 1/256. Examination for L.E.-cells was negative on three occasions. The haemoglobin was 96 per cent. and erythrocyte sedimentation rate 43 mm./hr (Westergren).

2 months after leaving hospital the patient died suddenly from myocardial infarction and it was not possible to obtain an autopsy.

Case 2, a woman aged 52 years, developed rheumatoid arthritis in 1959 in the wrists and hands, and the condition gradually spread to involve most of the peripheral joints. In 1961 she was started on prednisone 20 mg. daily, which was reduced to 10 mg. daily in October, 1964; during this time she developed scleritis but was otherwise well.

Since April, 1964, she had noticed progressive recession of the lower jaw, but apart from 2 weeks mild pain in both temporo-mandibular joints in November, 1964, had experienced no other pain referable to this. There was no history of limitation of movement of the jaw, nor any crepitus. She had had full dentures for 10 years, having had only one set during this time; these had become difficult to eat with 2 years before and she had stopped wearing the lower denture one year previously "because the bite seemed wrong".

When seen in April, 1965, she had much rheumatoid

deformity of the peripheral joints with subcutaneous nodules over both olecranon processes and changes of scleromalacia; there was no evidence of arteritis or peripheral neuropathy nor was there any psoriasis. There was asymmetrical recession of the lower jaw with restricted opening and lateral movement of the temporo-mandibular joints without pain or crepitus. The restriction of lateral movement was more marked to the right than to the left. The progressive changes in the joints had resulted in a reduction of the posterior intermaxillary distance from 16 mm. to 7 mm. on the right and from 17 mm. to 9 mm. on the left. This had produced premature contact of the posterior teeth on the original dentures with a resultant anterior open bite of 5 mm. (Fig. 3), and the recession had increased the incisal overjet from 2 mm. to 7 mm.

Fig. 3.—Case 2, showing anterior open bite and deviation.

Fig. 2.—X ray, showing destruction of right condylar process of the mandible in Case 1.

Tomographs at this time showed gross destruction of both condylar processes of the mandible (Fig. 4).

Radiographs of the hands and feet showed changes of rheumatoid arthritis with severe changes at the metacarpophalangeal joints. The sheep-cell agglutination test was negative on two occasions. The latex test was positive. The haemoglobin was 87 per cent. and the erythrocyte sedimentation rate 57 mm./hr (Westergren).

There was no history of trauma or of injection of corticosteroids into the temporo-mandibular joints.

Discussion

While rheumatoid arthritis not uncommonly involves the temporo-mandibular joints, the reason for the complete destruction of the condylar processes in these patients is not known. The condition appears comparable with arthritis mutilans as seen in other joints, for which at present there is no adequate explanation. There was no history of psoriasis or trauma to account for these changes, and in neither case had steroids been injected into the temporo-mandibular joints (Chandler, Jones, Wright, and Hartfall, 1959).

A possible explanation in the first case is that in the first stages partial ankylosis of the joints occurred, followed by erosion of the condylar processes, so that the bone to which the fibrous adhesions were attached became detached from the condyle and movements become freer. This may have been associated with a degree of osteoporosis of the condylar processes. In the second case the joint destruction had occurred without previous ankylosis and the limitation of movement was probably produced by incongruity of the articular surface as well as by capsular contraction.

Since this is a progressive process, restoration of occlusal function presents a problem. The best solution seems to be restoration of the occlusion by means of a prosthesis causing as little interference with free mandibular movement as possible; this allows for variations in the relationships of the head of the mandible in the region of the glenoid fossa.

The first patient described had some of his teeth remaining, resulting in an anterior open bite. Restorative treatment for his occlusion was not completed before he died. It seems possible that the presence of these teeth may have caused this patient to experience more discomfort than the other by producing cuspal interference during the resorption of the condylar processes, in a similar way to temporo-mandibular joint pain associated with occlusal imbalance.

The second patient, who had been edentulous for 10 years, now has full dentures constructed with "flat cusped" teeth, with which she is able to eat very well. It remains to be seen how far this resorption will progress and what further problems will develop in the management of her functional occlusion.

The spontaneous resorption of the condylar processes in these patients left reasonable function although with some limitation of opening and lateral movements; it is comparable with the result of surgical condylectomy for ankylosis of these joints.

Summary

Two cases are described in which there has been complete resorption of the condylar processes of the mandible due to rheumatoid arthritis.

Fig. 4.—X ray, showing destruction of left condylar process of the mandible in Case 2.

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Destruction des articulations temporo-mandibulaires dans l'arthrite rhumatismale

RÉSUMÉ

On décrit deux cas de résorption complète du processus condylien de la mâchoire inférieure, due à l'arthrite rhumatismale.

Destrucción de las articulaciones temporo-mandibulares en la artritis reumatoide

SUMARIO

Se describen dos casos de resorción completa del proceso condilar de la mandíbula, debida a la artritis reumatoide.