EFFECT OF THYROIDECTOMY IN RHEUMATOID ARTHRITIS

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There are numerous reports in the literature on the relation between different joint symptoms and thyroid function (*e.g.* Macalister, 1904; Jones, 1909; Moravicella, 1928; Swaim, 1929; Duncan, 1932; Nyfeldt, 1937). Thyroid medication can essentially alleviate the joint symptoms of hypothyrotic patients, as mentioned by Swaim (1929) and Nyfeldt (1937). Duncan (1932) and Traut (1952) observed that in hyperthyrosis symptoms of rheumatoid arthritis could be considerably improved by thyroidectomy. On the other hand, Traut (1952) claims to have observed the onset of typical symptoms of rheumatoid arthritis as a sequel to strumectomy in three patients.

The generally accepted opinion is that disturbed thyroid function has no aetiological significance in rheumatoid arthritis (Swaim, 1929; Pemberton, 1932; Bauer, 1939; Freyberg, 1942; Traut, 1952).

Finally it should be said that prodromal symptoms of rheumatoid arthritis and of thyrotoxicosis are extremely apt to cause confusion (Borman, 1945; Hollander, 1953).

Since the number of cases reported in the literature is small, and the problem of correlation between rheumatoid arthritis and strumectomy has been dealt with only superficially, we think it worth while to present the following material.

Methods

We have examined a series of patients suffering from rheumatoid arthritis in the year 1941, and found that 48 had been subjected to strumectomy. Twenty of them, who had been operated on quite a long time before the onset of rheumatoid arthritis, had been omitted from this series. The remaining 28 had been operated on either while suffering from rheumatoid arthritis, or immediately before its onset.

Assuming that any effect of strumectomy, either beneficial or harmful, on rheumatoid arthritis might be due to the surgical intervention *per se*, we also studied

a control series. This consisted of 97 rheumatoid arthritis patients who had been subjected to major operations such as laparotomy or orthopaedic operations. This series did not include cases of removal of possible foci, nor operations affecting the endocrine system in any way.

The effect of operation on the course of rheumatoid arthritis is shown in Table I, which demonstrates a difference between the strumectomy series and the control series. A majority of the former exhibited aggravation of rheumatoid arthritis after operation. In seven cases a sudden onset of the disease occurred either immediately or approximately one month after strumectomy. We classified as marks of aggravation rapid involvement of new joints after the operation (fifteen cases), or a marked increase in the activity of the disease (three cases). In one case, this deterioration seemed to be of a transient nature, as remission took place approximately 6 months after the operation, but during this time he was given abundant doses of thyroid hormone. In no case was the post-operative course associated with fever.

TABLE I
POST-OPERATIVE COURSE OF RHEUMATOID ARTHRITIS

Cases	Total Cases	Post-operative Course of Disease			
		Unchanged	Improved	Worse	Onset
Strumectomy	28	8	2	18	(7)
Controls	97	80	9	8	(1)

Indications for the strumectomy are shown in Table II.

TABLE II
INDICATIONS FOR OPERATION IN THE STRUMECTOMY CASES

Effect on Rheumatoid Arthritis	No. of Cases	Principal Indication for Operating		
		Toxicosis	Pressure Symptoms	Toxicosis? A. rh. prodromes?
Unchanged	8	5	3	—
Improved	2	—	2	—
Aggravated	18	8	6	4
Onset	(7)	(2)	(1)	(4)

Results

(1) In this series not one case from the thyrotoxicosis group showed any marks of improvement in joint symptoms after the strumectomy. The only patients in whom improvement could be noted were those suffering from pressure symptoms.

(2) In those cases in which strumectomy had led to aggravation of rheumatoid arthritis, the surgical indication consisted of both toxicosis and pressure symptoms, but in four cases the indications had been so indefinite that it must be presumed that there had been some confusion between prodromal symptoms of rheumatoid arthritis and thyrotoxicosis.

In Finland particularly, there is a very high incidence of nodular goitre (e.g. Setälä, 1954), whilst rheumatoid arthritis is also a fairly common disease in this country. We have therefore every reason to stress the difficulties in the differential diagnosis of these two diseases, and to bear in mind that, under certain conditions, confusion can easily occur.

Summary

(1) In patients affected with rheumatoid arthritis, strumectomy frequently results in a marked aggravation of this disease, according to the assessment based on the present study. Since no such tendency could be noted in the controls, this aggravation must be considered a specific sequel, the effect of which is mostly manifested in the sphere of the endocrinal balance.

(2) It was obvious in some of the cases that there had been a failure to discriminate between prodromal

symptoms of rheumatoid arthritis and symptoms of thyrotoxicosis.

REFERENCES

- Bauer, W. (1939). *New Engl. J. Med.*, **221**, 524.
 Borman, M. C. (1945). *Wisconsin med. J.*, **44**, 684.
 Duncan, W. S. (1932). *J. Amer. med. Ass.*, **99**, 1239.
 Freyberg, R. H. (1942). *Ibid.*, **119**, 1165.
 Hollander, J. L., ed. (1953). "Comroe's Arthritis and Allied Conditions", 5th ed. Lea and Febiger, Philadelphia.
 Jones, R. L. (1909). *Lancet*, **1**, 192.
 Macalister, C. J. (1904). *Ibid.*, **2**, 194.
 Moravicella, J. (1928). *Neurol. Rev.*, **35**(1), 217.
 Nyfeldt, A. (1943). *Z. Rheumaforsch.*, **6**, 362.
 Pemberton, R. (1932). *J. Amer. med. Ass.*, **99**, 1244.
 Setälä, A. (1954). *Duodecim*, **3**, 177.
 Swaim, L. T. (1929). *Ibid.*, **93**, 259.
 Traut, E. F. (1952). "Rheumatic Diseases". Mosby, St. Louis.

Effet de la thyroïdectomie sur l'arthrite rhumatismale

RÉSUMÉ

(1) Chez des malades atteints d'arthrite rhumatismale la thyroïdectomie est souvent suivie d'une aggravation prononcée de cette maladie, sans qu'on note une tendance semblable chez les témoins. On doit donc considérer cette aggravation comme séquelle spécifique dont l'effet se manifeste surtout dans le domaine de l'équilibre endocrinien.

(2) Il était évident que dans certains cas on a manqué de distinguer entre les prodromes de l'arthrite rhumatismale et les symptômes de la thyrotoxicose.

Efecto de la tiroidectomía sobre la artritis reumatoide

SUMARIO

(1) En enfermos con artritis reumatoide se observa a menudo una agravación pronunciada de esta enfermedad después de la tiroidectomía, sin que se note tal tendencia en testigos. Esta agravación debe considerarse como una consecuencia específica cuyo efecto se manifiesta principalmente en el dominio del equilibrio endocrino.

(2) Fue evidente que en ciertos casos hubo falla de discriminar entre prodromos de la artritis reumatoide y síntomas de la tireotoxicosis.