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# THE CHANGED PATTERN OF BONE AND JOINT TUBERCULOSIS IN NORWAY

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The reduced incidence of bone and joint tuberculosis in Western countries and the change in the age groups afflicted are well known facts. In addition, there are other less conspicuous changes: multiple lesions and involvement of the spine and sacro-iliac joints are rarer than before, while trochanteric involvement is becoming more frequent. In spinal cases the lesion is now more often localized to the dorsal region. All these changes may be due to the change in age distribution of the patients.

*Key words:* spinal tuberculosis, changed pattern; bone and joint tuberculosis, clinical picture, pattern

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It is a well-known fact that tuberculosis of bone and joint has practically disappeared in many Western countries, e.g., Norway. It therefore seems appropriate to report on the present day status of the disease as well as to make a comparison with the situation some decades ago.

The incidence of new cases of tuberculosis, of all types, in Norway has declined during the period 1946 to 1975 by 90 per cent, from 308.4 per 100,000 population to 11.9. By law, all new cases of tuberculosis in the country should be notified to the health authorities. For various reasons the notification during the war was not reliable and therefore only post-war numbers are used.

The incidence of bone and joint tuberculosis has also declined. Five-year numbers are used in order to get numbers of a reasonable size. In the period 1946–50, a total of 26.4 new cases were notified per 100,000 population; in 1971–75 the number was 2.6, i.e., a drop of 90 per cent. The decline has been greatest in the younger age groups, with an average of 96 per cent for those below 50 years and 63 per cent for older people (Table 1).

The clinical picture in patients with bone and joint tuberculosis has changed. To study this change, records of two groups of patients were reviewed. One group consisted of the first 100 patients admitted to Martina Hansens Hospital, following its inauguration in 1936, and the second group consisted of the last 100 patients admitted up to the end of 1975. It needed less than 1 year to collect the first group, and approx. 6 years (1970–75) to collect the second. This gives an indication of the reduced incidence of the disease. Moreover, in 1936, the hospital was only one of seven hospitals for bone and joint tuberculous patients, while to-

day all patients with this ailment are supposed to be referred to this hospital.

*Table 1. Notified cases of bone and joint tuberculosis per 100,000 population in Norway (cf. 1946–50 and 1971–75).*

| Age | Notified cases/100,000 | | Reduction in per cent |
|---|---|---|---|
| | 1946–50 | 1971–75 | |
| 0–14 years | 14.2 | 0.4 | 96 |
| 15–29 years | 43.8 | 0.3 | |
| 30–49 years | 26.2 | 2.5 | |
| 50–59 years | 19.3 | 5.2 | 63 |
| 60– years | 12.7 | 6.7 | |

The age distribution of the patients has changed. In the 1936 group, 35 patients were below 20 years of age and in 1970–75 there were two. In the 1936 group, one patient was more than 50 years old, in the 1970–75 group there were a total of 80 (Table 2).

*Table 2. Age of patients with bone and joint tuberculosis admitted to Martina Hansens Hospital (cf. 1936 and 1970–75).*

| Age (years) | 1936 | 1970–75 |
|---|---|---|
| 0–9 | 19 | 2 |
| 10–19 | 16 | – |
| 0–19 | 35 | 2 |
| 20–34 | 49 | 4 |
| 35–49 | 15 | 14 |
| 50–64 | 1 | 49 |
| 65 | – | 31 |
| | 100 | 100 |

There have also been other, less conspicuous changes in patients with bone and joint tuberculosis. Localization of the lesion to the spine or sacro-iliac joints, as well as multiplicity of bone and joint lesions, has become less frequent. These reductions are statistically significant. A registered increase in hip joint involvement is, however, not significant (Table 3).

A review was also made of the records of the first 100 patients treated at the hospital for tuberculosis of the spine and discharged in 1936–38 and the last 100 discharged at the end of 1975. It was necessary to go back 12 years to 1963 to collect this number of patients. In this latter group, 32 patients were treated for a recurrence of tuberculosis in the same vertebrae 6 to 36 years after onset.

*Table 3. Localization of lesions in patients with bone and joint tuberculosis admitted to Martina Hansens Hospital (cf. 1936 and 1970–75).*

| | 1936 | 1970–75 |
|---|---|---|
| Spinal lesions* | 55 | 24 |
| Sacro-iliac joint lesions | 14 | – |
| Trochanteric lesions | 1 | 18 |
| Hip joint lesions | 15 | 23 |
| Other lesions | 28 | 36 |
| Total lesions | 113 | 101 |
| Multiplicity | 17 patients | 1 pat. |

* Patients with multiple lesions in the spine are listed once only.

Multiplicity of spinal lesions has declined from 109 lesions in the first group to 101 in the more recent group. The number of affected vertebrae is the same, 303 and 299. Involvement of the dorsal region was more frequent in the recent group, the increase being probably statistically significant. This was observed to an equal extent in recurring and new cases (Table 4).

*Table 4. Localization of spinal involvement in patients admitted to Martina Hansens Hospital for tuberculosis of the spine (cf. 1936–38 and 1963–75).*

| | 1936–38 | 1963–75 |
|---|---|---|
| Cervical region | 4 | 2 |
| Dorsal region | 42 | 59 |
| Lumbar region | 63 | 40 |

Cases with dorsolumbar lesions are listed as dorsal if the lumbar lesion was not dominant.

*Table 5. Localization of lesions in patients with bone and joint tuberculosis in different age groups.*

| Age | No. of patients | Localization to the | | Multiplicity of lesions |
|---|---|---|---|---|
| | | Spine | S-I joint* | |
| 0–34 years | 90 | 57 (63 %) | 12 | 14 |
| 35–49 years | 29 | 12 (41 %) | 2 | 4 |
| 50–64 years | 50 | 13 (26 %) | – | – |
| 65– years | 31 | 4 (13 %) | – | – |

* All sacro-iliac lesions were bacteriologically and/or histologically verified as tuberculous and do not represent misdiagnosed cases of ankylosing spondylitis Bechterew.

## DISCUSSION

The reduced incidence of bone and joint tuberculosis from 1946 to 1975 corresponds with the reduced incidence of tuberculosis in general over this period. The reasons for this reduction will not be discussed here.

The change in age distribution of patients with bone and joint tuberculosis from 1936 to 1970–75 is explained by the different reductions in incidence of notified new cases in the population in the various age groups. Theoretically also a change in the population should be considered, but this possibility must be discarded as this change is minimal. The age group 0–19 years in the population declined from 34.6 to 31.7 per cent, but the number of patients has changed from 35 to two. The age group 50 years or more in the population increased from 8.4 to 11.1 per cent, but the number of patients from one to 80.

The reduced involvement of the spine and sacro-iliac joints, as well as the reduced multiplicity of bone and joint lesions, may be due to the change in the patients' age distribution. If both groups are combined, thus increasing the numbers, it is observed that the incidence declines with increasing age (Table 5).

*Table 6. Dorsal localization in tuberculosis of the spine in different age groups.*

| Age | No. of patients | Dorsal involvement |
|---|---|---|
| 0–19 years | 35 | 10 (30 %) |
| 20–34 years | 61 | 28 (45 %) |
| 35–49 years | 48 | 27 (56 %) |
| 50–64 years | 45 | 30 (67 %) |
| 65– years | 13 | 6 (46 %) |

The increased localization in the dorsal region in cases of tuberculosis of the spine is only probably statistically significant. The increase may perhaps be due to the change to a predominance of older patients as dorsal localization seems to become more common with increasing age. If both groups are combined the figures are as shown in Table 6.

The small number of only 13 patients 65 years old or more makes the decreased percentage in this group less convincing.

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