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CHRONIC PYOGENIC SPONDYLITIS— TUBERCULOUS SPONDYLITIS

By

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It is comparatively easy to distinguish between tuberculous spondylitis on the one hand and such acute infectious cases of spondylitis as acute pyogenic osteomyelitis, typhoid spondylitis and the more rare conditions due to the gonococcus, bacillus abortus Bang, bacillus melitensis and bacillus proteus and actinomycosis on the other hand. In these conditions the onset of the disease is more acute and alarming, and it runs a more rapid and violent course. Further, most of these conditions can be recognised with the aid of serological tests. This is true also of syphilitic spondylitis whose clinical course and radiological pictures may, however, be in complete conformity with tuberculous spondylitis.

Chronic pyogenic spondylitis may also present clinical and radiological features so similar to those of tuberculous spondylitis that the differential diagnosis becomes difficult and in a few cases impossible. Chronic non-specific spondylitis, chronic osteitis, osteomyelitis of the spine and (a term often found in American publications) "the benign form of osteomyelitis of the spine" are synonyms for chronic pyogenic spondylitis. This form of spondylitis is often a sequel to an acute pyogenic spondylitis, but it may also often begin insidiously like tuberculous spondylitis.

Both chronic pyogenic spondylitis and tuberculous spondylitis may occur as part of an infectious process with metastases. As a rule, it is possible to demonstrate a primary focus in cases of tuberculous spondylitis, and in a large series I collected, the tuberculosis was strictly *limited* to the spine in only 10 per cent. On the other hand, in nearly every case of chronic pyogenic spondylitis the primary focus is obli-

terated, having healed long ago. Metastases to other bones and joints are, however, just as common in chronic pyogenic spondylitis as in tuberculous spondylitis (see Table 4).

Tuberculous spondylitis can be diagnosed with absolute certainty only when tubercle bacilli are demonstrable in the products of inflammation. In all other cases we must content ourselves with a probability diagnosis, and the first condition to be considered in the differential diagnosis is chronic pyogenic spondylitis. Serological reactions are also of little help to us in distinguishing between these two forms of spondylitis in both of which the erythrocyte sedimentation rate is usually somewhat raised. Antistaphylolysin titration (*Serck-Hanssen*) has helped a little in a few cases. But both antistaphylolysin titration and antistreptolysin titration must be regarded as being of very limited value, particularly since *Westergren, Packalén* and *Adamson* succeeded in showing a profusion of staphylococci and streptococci in the throats and lymphatic glands of tuberculous patients who presented a correspondingly high titre for these germs.

Roentgenograms in cases of chronic pyogenic spondylitis often present some of the reactive bone changes characteristic of chronic pyogenic osteitis in marrow bones. These changes are notably a rapid and massive regeneration of bone demonstrable as osteosclerosis, periosteal new formation of bone and exostosis formation. The intervertebral disc is rapidly destroyed, and the inflammation spreads easily through this disc to the adjoining vertebra (*Compere & Garrison*). Chronic pyogenic spondylitis can, like tuberculous spondylitis, be classified according to whether it presents a paradiscal, a central or a superficial form. In the superficial form, the surface of the bone may be more or less frayed out, but its shape is retained on the whole. In such cases the intervertebral disc may retain its vertical diameter, and the reactive formation of new bone may be but slightly marked. In other words, the picture presented may be completely identical with that associated with superficial tuberculous spondylitis.

In tuberculous spondylitis it is rare for the arches and processes of the vertebrae to be involved (under 1 per cent.—*Alvik*), but these parts of a vertebra are often attacked in cases of chronic pyogenic spondylitis (*Gold, Hald, Kulowski, Steindler*). Severe degrees of gibbus are much more rare in this form of spondylitis than in the tuberculous form. *Nissen-Lie* insists that the progress of chronic pyogenic spondylitis is more rapid than that of tuberculous spondylitis, the former seldom showing so much destruction and involving as a rule only two vertebrae. *Simons* draws attention to the long intervals of quiescence, the comparatively satisfactory general condition of the patient, the

relapses, and the slighter degree of bone destruction in comparison with tuberculous spondylitis.

With a view to ascertaining whether anamnetic and clinical data can help us to a clearer understanding of these two forms of spondylitis, I have perused the records of the 32 cases of chronic pyogenic

TABLE 1

The first manifestations.

	Tb. spondylitis	Chronic pyogenic spondylitis
Pain in the back	70.62 %	52.38 %
Pain in the back plus high fever	0.— %	14.28 %
Fever of unknown cause	0.— %	23,81 %
Stiffnes and tiredness in the back	10.26 %	0.— %
Indefinite general symptoms and no symptoms	0.98 %	4.76 %

TABLE 2

Duration of symptoms before admission.

Duration in years	Tb. spondylitis	Chronic pyogenic spondylitis
0-1	41.50 %	66.67 %
1-2	19.17 %	14.29 %
2-3	8.50 %	0.— %
3-4	6.52 %	9.52 %
4-5	3.16 %	4.76 %
over 5	15.95 %	0.— %
Discovered by accident	5.33 %	4.76 %

spondylitis treated at the Martina Hansen Hospital in the period 1936-1946, and I have compared them with the corresponding records of 507 patients treated for tuberculous spondylitis in the same period.

There was a certain difference with regard to the anamnetic data in this that the disease began with fever in nearly 40 per cent. of the cases of chronic pyogenic spondylitis. It is also noteworthy that the diagnosis was at first febris causae ignotae in 24 per cent. (see Table 1). In both forms back ache was, however, the most common first symptom.

Table 2 shows that the duration of symptoms before admission to hospital was approximately the same for the two forms. This period lasted, however, more than five years in some of the cases of tuber-

culous spondylitis, whereas this was never the case with any patient suffering from chronic pyogenic spondylitis.

The two forms of spondylitis were so much alike with regard to the localisation of the disease in the various sections of the spine that there was practically no difference at all (see Table 3).

TABLE 3

The Site of Lesion.

The Site of Lesion	Tb. spondylitis	Chronic pyogenic spondylitis
Cervical.	1.18 %	4.55 %
Thoracic.	26.63 %	27.27 %
Thoraco-lumbar.	11.44 %	9.08 %
Lumbar.	40.63 %	50.— %
Lumbo-sacral.	9.74 %	4.55 %
Multiple lesions	9.86 %	4.55 %

TABLE 4

The Incidence of Abscess, Sinus, Paraplegia, and other Lesions in Bones and Joints.

	Tb. spondylitis	Chronic pyogenic spondylitis
Abscess	39.84 %	36.36 %
Sinus	13.21 %	13.63 %
Paraplegia	5.92 %	4.54 %
Other Lesions in Bones and Joints	20.71 %	19.05 %

The vertebra most frequently involved in tuberculous spondylitis was L.4. Next in the order of frequency were the other lumbar vertebrae and the two lowest thoracic vertebrae. This was also the case with patients suffering from chronic pyogenic spondylitis. The average number of vertebrae involved per patient was 2.83 for the tuberculous cases and 1.86 for the pyogenic cases.

Table 4 shows how strikingly similar these two forms of spondylitis are with regard to the occurrence of clinically demonstrable abscesses, sinuses and paraplegia, and also with regard to metastases to other bones and joints. This last point is specially noteworthy, and it suggests that the tendency for the disease to spread, to flare up again and to extend to other bones and joints must be approximately the same for these two forms of spondylitis.

SUMMARY

A comparison is made of 32 patients suffering from chronic pyonic spondylitis with 507 suffering from tuberculous spondylitis. The object of this comparison is to ascertain whether anamnetic data and certain clinical manifestations yield information in aid of the diagnosis and differential diagnosis between these two forms of spondylitis. It was found that they resembled each other so closely that the initial symptoms, the course of the disease, its clinical manifestations, its localisation, its radiological appearance and its complications were practically identical for the two, making no contribution to the diagnosis and differential diagnosis. The demonstration of a primary infection and of spread of the disease elsewhere, as well as a persistently negative Mantoux test carried out lege artis are helpful to a probability diagnosis. A definite diagnosis depends on the demonstration of tubercle bacilli in the products of inflammation. The technique of this demonstration is now so reliable that if tubercle bacilli cannot be found on repeated culture and inoculation tests, the diagnosis of tuberculosis must be set aside.

RESUME

Il a été fait une comparaison entre 32 malades souffrant de spondylite pyogénique chronique et 507 souffrant de spondylite tuberculeuse. Cette comparaison avait pour but d'indiquer si des données anamnétiques et certaines manifestations cliniques pouvaient fournir des renseignements susceptibles d'aider à établir le diagnostic et le diagnostic différential entre ces deux formes de spondylite. On a trouvé qu'elles se ressemblaient tellement que les symptômes initiaux, le cours de la maladie, les manifestations cliniques, leur localisation, l'apparence radiographique et les complications étaient pratiquement identiques pour les deux, n'apportant aucune contribution pour l'établissement du diagnostic et du diagnostic différentiel. La démonstration d'une infection primaire et l'extension de la maladie à un autre endroit, aussi bien qu'un test Mantoux persistant négatif bien que correctement effectué, peuvent aider à établir un diagnostic probable. Le diagnostic définitif dépend de la constation des bacilles tuberculeux dans les produits inflammatoires. La technique de cette constatation est maintenant suffisamment sûre pour que l'on puisse abandonner le diagnostic tuberculeux lorsqu'il n'a pas été possible de trouver des bacilles tuberculeux sur des cultures répétées et des tests d'inoculation.

ZUSAMMENFASSUNG

32 Patienten mit chronicher pyogener Spondylitis werden mit 507 Patienten, die an tuberkulöser Spondylitis erkrankt waren, verglichen. Der Zweck dieses Vergleiches ist es, herauszufinden ob anamnestische Daten und gewisse klinische Erscheinungen Anhaltspunkte geben können, die die Diagnose und Differentialdiagnose dieser beiden Formen von Spondylitis erleichtern. Man fand dabei, dass beide Krankheiten einander so sehr ähnelten, dass die Anfangssymptome, der Verlauf der Krankheit, ihre klinischen Erscheinungen, ihre Lokalisation, ihr Aussehen im Röntgenbilde und ihre Komplikationen so zu sagen identisch waren, so dass keine diagnostischen oder differentialdiagnostischen Schlüsse zu gunsten einer von beiden Erkrankungen gezogen werden konnten. Das Aufzeigen einer Primärinfektion und der Ausbreitung der Krankheit an anderen Stellen, ebenso wie ein lege artis ausgeführter, bestädig negativer Mantoux sind wertvoll in der Wahrscheinlichkeitsdiagnose. Eine sichere Diagnose hängt jedoch von dem Nachweis der Tuberkelbazillen in den Entzündungsprodukten ab. Die Technik dieses Nachweises ist heute so verlässlich, dass, wenn Tuberkelbazillen in wiederholten Kultur- und Impfproben nicht nachgewiesen werden können, die Diagnose der Tuberkulose verlassen werden muss.

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