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PROGRESSIVE ANKYLOTIC RIGIDITY OF THE SPINE (SPONDYLOSE RHIZOMÉLIQUE).*

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Chronic rigidity of the spine has been observed often enough by neurologists and orthopedic surgeons. The condition has commonly been associated in their minds with arthritis deformans, or articular rheumatism. Little attention was paid to the particular significance of this spinal deformity until within the last few years. Short as this discussion has been, it has brought to light the fact that every conceivable form of chronic vertebral disease has been included in the newly described type. It will be well, therefore, to endeavor to summarize the results of recent studies, to give the impressions gained from our own experience, and to state the special points that need further elucidation.

It would appear that in 1892 and 1893 von Bechterew[1] published a paper, entitled "Rigidity and curvature of the vertebral column as a special form of disease." Further consideration of the subject was delayed until 1897, when the same author wrote another paper,[2] entitled "On ankylosis or rigidity of the vertebral column." The symptoms of this condition were:

*Read before the New York Neurological Society, Nov. 7, 1899.

The article by Zenner in the November number of this Journal reached the authors of this paper too late to be considered by them.

[1] von Bechterew, Wratsch, 1892, No. 36; also Neurologisches Centralblatt, 1893, p. 426.

[2] v. Bechterew, Deutsche Zeitschrift für Nervenheilkunde, Vol. XI, p. 327.

First, immobility, complete or partial of the whole or part of the vertebral column, without any distinct painfulness on percussion. Secondly, a kyphosis of the cervical portion of the vertebral column, the head being bent forward and downward. Thirdly, a paretic condition of the muscles of the trunk, the neck and the extremities, with slight atrophy of the muscles of the back and of the shoulder girdle. Fourthly, a diminution of sensation within the distribution of the cutaneous branches of the nerves supplying the back and of the lower cervical plexus. Fifthly, paresthesiæ and pain in the back and in the neck, in the extremities and in the vertebral column. Occasionally symptoms occur pointing to irritation of the motor nerves as well. All other joints remain exempt, in spite of the progressive character of the disease. Traumatism and hereditary influences are the chief etiological factors. Briefly then, von Bechterew's cases were characterized by a chronic rigidity of the vertebral column, plus root symptoms, but without the involvement of any other joint.

In the same volume of the *Zeitschrift für Nervenheilkunde* in which von Bechterew's article appeared, Struempell[3] published a short communication, entitled "Observations on a form of chronic inflammation of the vetebral column and of the hip joint, with ankylosis." He points very properly to a statement made in the first edition of his text book (1884) in the chapter on chronic articular rheumatism and arthritis deformans. In the American edition, p, 861, we read: "A remarkable and, as it seems to us, unique disorder may be mentioned in passing. It leads very gradually and painlessly to a complete ankylosis of the entire spinal column and the hip joints, so that head, trunk and thighs are firmly united and completely stiffened, while all the other joints retain their normal mobility. It need scarcely be said that this necessarily causes a peculiar modification of the carriage and gait of the sufferer. We have seen two cases of this peculiar affection which resembled each other very closely."

A third case is described in the recent article. There is a general resemblance between the cases referred to by Struempell and the type established by von Bechterew; the chief differ-

[3] Struempell. Deutsche Zeitschrift für Nervenheilkunde, Vol. XI. p. 338.

ence between the two consisting in the implication of the hip joints and the entire absence of spinal root symptoms in the type described by Struempell. In the following year, 1898, Marie and Astie[4] took up the same subject, reporting cases very much like those described by Struempell, and proposing for these the name "spondylose rhizomélique." Marie's title was to imply the simultaneous involvement of the vertebral joints and of the hip or shoulder joints (root joints); but, inasmuch as other joints have been involved in some of the cases since reported, there is some justice in von Bechterew's[5] criticism that the name proposed by Marie is not wholly correct.

In addition to the leading articles just mentioned, a number of clinical contributions have been made by Baeumler,[6] Gowers,[7] Oppenheim,[8] Hoffmann,[9] of Duesseldorf; Valentini,[10] Bregman,[11] Sænger,[12] Schataloff,[13] Mutterer,[14] Hoffa,[15] Popoff,[16] and Leri.[17] Some of these were published prior to the recent articles of Struempell and of Marie. It should be especially noted that in the first edition of his book (1894) Oppenheim has a short section on "Arthritis deformans of the vertebral column," in which he refers to a group of cases bearing all the characteristic symptoms of von Bechterew's type. A careful reading of all of these reports makes it certain that there is a general resemblance between the cases described by these various writers. In some there is a superficial resem-

[4] Marie and Astie, Presse Médicale, No. 82 October, 1898; also Revue de Médecine, 1898.

[5] v. Bechterew, Deutsche Zeitschrift für Nervenheilkunde, Vol. XV, p. 37.

[6] Baeumler, Deutsche Zeitschrift für Nervenheilkunde, Vol. XII.

[7] Gowers, "Manual of Diseases of the Nervous System," 2d Edition, Vol. I, p. 263.

[8] Oppenheim, "Lehrbuch der Nervenkrankheiten," 2d Edition, p. 228.

[9] Hoffmann, Deutsche Zeitschrift f. Nervenheilkunde, Vol. XV, 1899, p. 28.

[10] Valentini, Deutsche Zeitschrift f. Nervenheilkunde, Vol. XV, p. 239.

[11] Bregman, Deutsche Zeitschrift f. Nervenheilkunde, Vol. XV, p. 250.

[12] Sænger, Neurologisches Centralblatt, 1898, p. 1144 (Society report).

[13] Schataloff, Neurolog. Centralblatt, 1898, p. 828 (Society report).

[14] Mutterer, Deutsche Zeitschrift für Nervenheilkunde, Vol. XIV, p. 144.

[15] Hoffa, Sammlung klinischer Vortraege (Volkmann), No. 247, 1899.

[16] Popoff, Neurologisches Centralblatt, 1899, p. 294.

[17] Leri, Revue de Médecine, No. 8, 1899.

blance, at least, to an arthritis deformans, which has by chance involved the vertebral column, and in others, as, for instance, in the one recently reported by Hoffmann, the condition is evidently a chronic rheumatic affection of the vertebral joints. Von Bechterew,[18] with a natural desire to claim priority in this matter, insists that his and the Struempell-Marie type have little in common, except the rigidity of the spine. But are the differences so striking that distinct types of vertebral disease should be maintained? A little light has been thrown on this discussion by the results of post-mortem examination.

V. Bechterew, who on clinical grounds believed that the process which caused the ankylosis of the vertebral column also involved the spinal nerve roots, found some proof of this assertion in a post-mortem examination[18] which he was enabled to make on one of the first patients he described. In this instance he found a chronic leptomeningitis of the upper cervical region compressing the spinal nerve roots. The posterior roots, particularly in the cervical region, were degenerated; the motor roots were less intensely affected. In the cervical and upper dorsal segments there was a marked degeneration of the posterior columns, more especially of the column of Goll and of a portion of the column of Burdach. These were secondary to the root degeneration; the gray matter of the cord had not been diseased. The degeneration of the spinal nerve roots was supposed to be due to the changes in the cells of the spinal ganglia; the spinal ganglia being adherent to the dura mater. The surprise of this post-mortem examination was the discovery that there was no primary lesion of the vertebræ or of the joints, and the author supposed that the rigidity of the vertebral column was secondary to a paretic condition of the muscles, resulting from the compression of the nerve roots, resembling in this respect the changes found in the vertebral column, in syringomyelia, and some other spinal cord affections.

The interpretation given by von Bechterew may be applicable to this special case in which, by the way, the root symptoms were much more marked than in any other patients

[18] v. Bechterew, Deutsche Zeitschrift f. Nervenheilkunde, Vol. XV, p. 45.

thus far described. Strong corroboration of von Bechterew's views is to be found in the fact that the spinal root pains preceded by many years the appearance of the vertebral ankylosis. If there were any doubt as to the identity of the two types of chronic spinal rigidity, these doubts would be confirmed by the results of the pathological examinations made by Marie and Leri. The former based his opinion of the pathology of the disease upon the study of a skeleton in the Musée Dupuytren, in which he found marked proliferation of the lumbar vertebræ and of the bones entering into the hip joint. Ossification had taken place between the various vertebræ. Marie inferred that the ossification of the anterior longitudinal ligament and of the ligaments connecting the ribs with the vertebræ must have caused the complete immobility of the spine.

In the *Revue de Médecine* of this year Leri[17] describes the autopsy on a case of "spondylose rhizomélique" recognized as such during life, in which there was complete ossification of the ligaments and an hypertrophy and ankylosis in the joints of the extremities. The ossification in the vertebral column was most marked on the convexity of the vertebral bodies. The autopsical findings of von Bechterew and of Leri differ to such a marked degree that if the findings of each are to stand as the anatomical substrata of the respective types, the two must be regarded as widely differing morbid conditions; but we repeat that von Bechterew's case was an exceptional one in many respects, and further post-mortem examination must be awaited before any positive conclusions can be reached. Meanwhile, it will be well to consider the various types from a clinical standpoint. But before doing so, let us present once more the salient features of each group of cases.

Type of von Bechterew:

Chronic rigidity of spine, often limited to cervical region; other joints free. Root symptoms predominate. Anatomical findings: chronic leptomeningitis with root and spinal cord changes; vertebral joints not affected.

Type of Strumpell-Marie:

Chronic rigidity of the spine with involvement of shoulder or hip joints. No root symptoms. Anatomical findings: ossification of ligaments, hypertrophy and ankylosis of joints.

*Case 1.**—B. B., 37 years of age, a Russian, tailor by trade; married; father of two living children; has lost none, and wife has had no miscarriages. He has been in this country 13 years. His parents died at advanced age; has four brothers, and has not lost either brothers or sisters. In the family there is no history of rheumatism, nor of tuberculosis; nor is there any neuropathic taint. In his early infancy he was healthy and had no illness, until the age of ten years, at which time he had an attack of influenza. Denies venereal infection. Habits have been good, drinking and smoking in moderation. Has been a hard worker; has never been exposed to so-called rheumatic influences. Had no deformity in former years; walked erect; was examined 15 years ago by an army physician and found fit for service. The present illness began about six years ago. The only cause that he can assign for it is a "cold." The disease began with pains in the left knee upon rising. This pain was increased on the attempt to walk. He is very certain that he had no fever and that there was no swelling or redness about the knee. The pain was worse during the day and continued with intermission for a year and a half, when he entered the Presbyterian Hospital. At this time the leg was put into some sort of extension apparatus. After two months he was considerably improved and was able to walk for one year without experiencing much pain. At the end of this period the pains appeared again in the same place, and, after lingering along for a few months, he entered the Montefiore Home.

The patient states that a slight cough accompanied the onset of the present illness. The expectoration was never bloody, and there were no night sweats or fever. One of the former physicians of the Home made the diagnosis of pulmonary phthisis and tubercular coxitis. The cough continued during the first year and a half of his stay at the Home, but he never had any fever, or any of the other signs or phthisical affections, and repeated examinations of the sputum failed to reveal the presence of bacilli. The orthopedic surgeons of the Home inclined to the diagnosis of tubercular coxitis. At the Home the knee was again put into an extension apparatus for two and a half months, but the patient's condition became distinctly worse. Both knees now became stiff; the

* After sending this paper to press we note that this patient's condition has also been fully described by Dr. Dana, (*Medical News*, Nov. 25, 1899.) His and our articles were prepared independently of one another; it is gratifying to note that the conclusions reached in both are practically the same.

The patients designated as cases I, III and IV were exhibited at the meeting.

left was swollen a little at times and was painful when manipulated, but was never red. He was kept in bed for ten months, during which time the hips and the lower part of the spine became rigid. The patient did not, however, complain of great pain in either region. The rigidity of the hips and spine became progressively worse, until he reached the present condition. At no time was there a rise of temperature. From inspection of the patient, it is evident that he is stiff in the knees, hips and spine, all other joints remaining exempt. His bowels are regular. Sleep is disturbed, awakening often during the night; micturition normal; appetite poor; has no pain nor ache, and according to his own statement, if it were not for the stiffness of the back he would feel well.

The examination of the patient in his present condition reveals a firm pulse of 96; respiration 18; weight 82 pounds; temperature normal. Patient is of medium height, but generally emaciated. When asked to mount the scales he cannot do so, though they are only four inches from the ground. He is compelled to use two supports and raise entire body the required distance. He is not able to walk or to stand without being held, both lower extremities being entirely rigid, the left one adducted and rotated inwards; the ball of the foot only touching the floor. The left leg forms an angle of about 45° with the right. The axes of both thighs are parallel and very close together, especially at the knees. In attempting to walk he is compelled to move the extremities in a rotary manner, makes short steps, shoves feet forward and jerks the trunk around. The spine is rigid, patient bending forward, the shoulders distinctly stooping, the left higher than the right. This forward tendency of the head and of the upper thorax is so marked that when he stands erect the left shoulder is on a level with the malar bones. The entire body is inclined toward the left, thus enabling him, while standing, to rest on the left foot. When standing erect only the toes of the left foot are in contact with the floor.

He cannot sit in an ordinary wheeling chair, but must rest on a sloping surface. When in bed, he turns as though made of a solid piece, and using his upper extremities only. The head is brachycephalic, and there is distinct occipital depression. The pupils are equal, the reaction normal, and all ocular and facial movements are normal. The pharyngeal reflex is present. All jaw movements, vertical and lateral, can be performed properly. Shoulder movements are free and limited to the left. Nodding movements are made imperfectly, and flexion, as well as extension movements of the head

are also limited. The upper extremities are moved freely. The muscles are flabby, the reflexes cannot be elicited; myotatic irritability is diminished; there is no diminution of the muscular power of the upper extremities. The thorax is flattened, especially in its upper portions. The sternum is very prominent. There is retraction of both apices, with prominent clavicles. There is a higher percussion note over both apices. There is somewhat diminished breathing over both lungs. No râles are heard, but inspiration is rather sharp with prolonged expiration. On deep inspiration the circumference of the chest is 76½ c. m., an increase of only ½ c. m. over the normal circumference. Heart conditions are entirely normal. Liver and spleen not enlarged. Evident rigidity of the abdominal muscles. The abdominal aorta can be easily palpated and appears to be near the surface. The knee-jerk is lively on the right side, normal on the left, and ankle-clonus can be elicited at times. The Achilles tendon reflex cannot be elicited on either side; plantar reflexes lively—flexion of toes and dorsal flexion of foot. Increased myotatic irritability. There is distinct atrophy of the extensors of the thighs and legs, more especially on the left side. No marked changes in electrical reaction. Motion below the ankles appears to be fairly normal; all the other joints are fixed. There is no sensory disturbance. A globular swelling of both knees; no tenderness; no redness. The joints appear to be hard and bony. As for the spinal column, it is seen that the vertebræ are rigid, that the dorsal processes have a marked curvature, and the lower are especially prominent. There is marked prominence of upper lumbar vertebræ; distinct depression of the lower two, while the sacrum is unusually prominent. There is no tenderness either over the spinous processes or along the nerve trunks. No spiculæ of bone are to be found on the dorsal surface or on palpation through the pharynx. A small amount of albumin has been found in the urine, but casts have never been detected. The specific gravity is 1020; there is no sugar; the reaction is acid, and of urea we find 7 grains to the ounce.

Under the advice of Dr. Elliott, the patient was anesthetized, and during narcosis all affected joints remained absolutely rigid. It is worth adding that there was an apparent persistent ankle-clonus during the anesthesia. In spite of all treatment, the condition has been growing steadily worse.

It will be seen from the history of the above case that the condition corresponds in almost every essential feature with the type of Struempell-Marie. The only exceptional circum-

stance to be noted is that the affection began in the knee and appeared to be limited to it for a considerable period of time before it reached the spine. It is true of all the cases thus far reported of this type that they affect men and women* in middle life; that the condition is developed in a subacute or chronic fashion, and that the stiffness of the hip and of the vertebral joints, occasionally of the knee joints, terminating in complete ankylosis, constitute the sole diagnostic features of the disease. The absence of root symptoms is entirely characteristic. With this first case let us compare the condition of another patient who has been under the observation of Dr. Fraenkel.

Case 2. J. S., 53 years of age, Irish, painter. Is married. Family history, in spite of thorough questioning, is negative. Parents lived to an old age. Two brothers are living and well. No indication of rheumatism, tuberculosis or other degenerative taint in family. Patient is married 25 years and has 4 living and healthy children; there were no miscarriages. Patient was healthy in infancy and childhood; was moderate in his habits; had no exposures or severe colds. Thirty-two years ago he had a chancre and was treated by internal and external medication, but claims never to have had any other manifestation of the disease. Otherwise he was perfectly well up to the onset of present disease, excepting for the fact that he was often subject to "sore throats." And he states that his present disease was the immediate consequence of such an attack of sore throat, which the then attending physician called "a mild attack of diphtheria." This happened 18 years ago. Since then he has been having sore throats on and off, but less often than formerly.

The first symptoms of the present illness were "rheumatic pains" all over for about two weeks, and then all settled in the hips. At no time was there fever, swelling or pain in the last named joints, but slowly progressive interference with the excursions of these joints and the immediately neighboring parts of the vertebral column was the constant and only symptom. In all other respects the patient believed himself thoroughly well. He was a man of average height, of good bony and muscular development; well nourished, and shows no signs of his age—hair being colored and skin remarkably elastic. Vegetative organs and circulatory system normal;

*It is evident from the communications of Hoffa and of Collins (at the meeting) that women also are subject to the disease.

no evidence of arterial atheroma. Head is freely movable in all directions; there is no evidence of involvement of any of the joints of the cervical part of the vertebral column. Shoulder, elbow, wrist and finger joints absolutely free. Respiratory excursions of the thorax are normal. Expansion 1½ inches. The vertebral column is not tender to percussion, pressure or jarring. The lumbar part of the column, however, is somewhat more prominent, and the musculature here feels somewhat contracted. The excursions of the lower dorsal and lumbar part of the column are almost absolutely abolished. The hip joints are entirely ankylosed; passive movements elicit no cracking or pain. The knee, ankle and toe joints are free. The spincters are normal.

There is no evidence of muscular atrophy anywhere. Sensibility and reflexes normal. The gait is very peculiar. Evidently the lower part of the column and the hip are firmly soldered, and patient, therefore, manages to go about in a rotary fashion, not lifting the feet from the floor, but by rotating them alternately along the vertical axis and bending the legs slightly in the knees. In a similar way the patient is unable to look sideways without turning around altogether. In bending, he does so carefully by letting himself down on the arm and bending his knees. He sits down in the same fashion. Palpation of vertebral column from pharynx and along the spinous processes is negative. No osseous spiculæ evident.

In this case we may readily see the close resemblance to the Struempell-Marie type.

Case 3. H. B., also a Russian, 48 years of age, tailor; is father of five living children, and has been in this country 11 years. A brother of his died of a disease characterized by weakness of the legs. Patient never smoked, was very moderate in drinking, and denies venereal infection. As a boy had morning headaches for one year. At the age of 15 years had a fever which kept him in bed for two weeks; lost his hair and became bald. Alopecia is probably due to favus; turned gray very early in life. His present illness began two and a half years ago, with pains in the sacral and lumbar regions. There is no history of trauma and no other disease preceded the onset of the present illness. The legs began to tremble and when he attempted to rise the heels began to beat a tattoo on the floor, and there was a drawing up of all the extremities. Six years ago he had pains in the right shoulder and forearm, lasting one year. There was no fever, but the affection was supposed to be rheumatic. The shoulder was somewhat swollen, and he could not use the hand and carried

it in a sling. The right leg was worse. In a few months he began to walk badly. He was bent forward, the spine forming an angle in the lumbar region. There was pain in this region on pressure. Difficulty in micturition was not pronounced, but there was chronic constipation and the sexual function was diminished. The trembling of the legs subsided, but the pain in the back became worse. The following is the condition of the patient as noted in the history of a year ago at the Montefiore Home.

The man is tall, well nourished, abundant subcutaneous fat. Hair gray, marked alopecia. The ears are asymmetrical, has a torus palatinus. When standing the right shoulder is higher than the left. He rises with difficulty and exhibits jerking movements of the muscles of the thighs. Upon sitting down he drops heavily into the chair, falling, as it were, through the last few inches of space. He bends forward and to the left, and has a spasto-paretic gait. The right leg is held stiffer than the left and is dragged more distinctly. The patient thinks that the peculiarity of the gait is due to pains in the back. The ocular movements, the heart and also the viscera are entirely normal. The tendon reflexes of the upper extremity are lively. Slight diminution of the gross muscular power of the right lower extremity. He cannot raise the right foot as well as he can the left. Upon letting the right leg down it drops the last few inches very heavily. The knee-jerks are lively and there is ankle-clonus on both sides. The plantar reflex is diminished on the left side. Sensation is normal throughout the body. There is distinct tenderness of the 12th dorsal vertebra, and this increases as we go downwards. There is some tenderness in the 4th left intercostal space. The left part of the vertebral column is distinctly rigid, and the muscles are in a condition of spastic contracture. During an examination made by Dr. Fraenkel, January 14, 1899, it was noted that there was a slight paralysis of the right lower extremity, scarcely any on the left side. The abdominal and cremasteric reflexes were lively on both sides, all other reflexes as at the time of first examination. Sensation did not appear to be altered, except that it was slightly diminished in the tips of the toes. Deep sensibility was normal.

On March 2, 1899, it was noted that the patient complained of having become much worse. He felt the pain, in the form of a semi-girdle sensation, radiating to the buttocks, and it is much more severe and more constant. He also feels that the right lower extremity is more contracted, and in both lower extremities there are constant and annoying paraesthesiae. When patient attempts to stand erect the whole body is curved.

He leans over to the left side, so that the umbilicus and jugular notch are not in a straight line. On the posterior aspect of the trunk there was a distinct curvature of the right ribs, and the lower portion of the vertebral column was twisted. He drags the right lower extremity and throws the weight of the body on the left. There is no ataxy, and resistance to passive movements is much less than on previous examinations. There is, however, very little actual paralysis. The tendon jerks in the upper extremities are lively; abdominal reflexes are lively on the left side and very much diminished on the right. The cremasteric is lively on the left and hardly present on the right. The plantar reflex is lively on the left and diminished on the right. The knee-jerk is lively on the right side, absent on the left; but a tapping of the left tendon is followed by contracture of the right side in all positions. The right Achilles tendon jerk is lively. No ankle-clonus. Left Achilles tendon jerk present, but much weaker than right. The tactile sense was preserved, but slightly diminished in peripheral parts of both extremities. Pain sense similarly affected, with spots of analgesia over peripheral parts. Around upper abdomen a girdle of hyperaesthesia. Lower vertebral column is carried stiffly and is tender to percussion from tenth dorsal spine downwards. Measurements carefully made showed a slight atrophy of right thigh and hip. Faradic and galvanic stimulation normal.

In view of the sudden development of increased root symptoms, of the increase in pain and of the loss of the left knee-jerk, the possibility of a neoplasm or of an exudate compressing the nerve roots was considered, and the patient was referred to Dr. Gerster, at the Mt. Sinai Hospital, for an exploratory operation. A laminectomy was done, two laminæ (D. XI and XII) were removed, and a portion of the enormously thickened lining was excised. No tumor or exudate was found; during the operation the surgeon remarked upon the unusual thickness of the laminæ and of the lining membrane.* Sections of this membrane revealed a marked increase of connective tissue. The patient made a good recovery; the rigidity is distinctly improved, and the knee-jerk has returned. His walk and his pains have been improved.

*In the hospital records the surgeons stated "the periosteum and dura were greatly thickened."

Were it not for the development of the symptoms chiefly in the lumbar region, although the shoulder joint was also affected during an early period of the disease, this case might be classified under von Bechterew's type; but the root symptoms were not marked until an acute exacerbation of the disease occurred; the disturbances of sensation, the atrophy, the loss of the knee-jerk, may be interpreted as symptoms due to increased irritation or compression of the spinal roots. The enormously thickened membrane would give some hint as to the character of the morbid process, but we shall attempt no further inference from this, except to put the query whether the removal of the laminæ and of a piece of the thickened membrane, with the consequent release of pressure, may not have been responsible for the slight improvement in the patient's condition.

Case 4. Was seen in the clinic of Dr. Sachs. The patient is 51 years of age; a depot-master; born in England. The family history is entirely negative. He was always well, with the exception of a luetic infection 30 years ago, followed by secondary symptoms. A number of years ago had inflammatory rheumatism, lasting for over 3 months. His present complaint began about 3 years ago with pain across the small of the back. It was intensified by every movement of the leg or of the foot, but when pressure was applied over the painful parts or over the sciatic nerves, he did not experience any increase of pain. By degrees he began to walk stiffly, and he noticed an utter impossibility to flex the thigh upon the trunk, or to bend the spine. In rising or in sitting down had to exercise special precautions. At the time of our first examination, it was found that there was no pain over the sciatic, but the right iliac region was painful on pressure. The right leg is smaller than the left, but this is due, as the patient states, to an old fracture. There was an edematous swelling around the ankle, which was explained sufficiently by the report of the examination of the urine, which stated that there was considerable quantity of albumin and sugar. The pupils reacted slowly to light; all other movements were normal. The knee-jerks were increased, and ankle-clonus was present on both sides. Ever since the trouble began the patient has had some difficulty in micturition, and of late had some retention, dribbling from overflow.

During an examination made at the clinic the rigidity of

the spine was most marked, so that the patient could not lie on his face without having excessive pain.

In view of the previous rheumatic and specific history, it was considered advisable to place the patient on a thorough course of the iodides, and since last March, the time of first examination, a very marked improvement has taken place, so that there is to-day much less rigidity than there was last spring. The patient is now able to rise with greater ease, and is able to walk about with far less discomfort. The bladder symptoms have remained very much the same, and the condition of the reflexes is not improved.

In view of the preceding symptoms, the diagnosis of a specific or rheumatic pachymeningitis was the most plausible one, and the case is cited here simply to prove how closely this patient's condition resembles that described by von Bechterew, with the exception that the lumbar region and the hip joint are affected rather than the cervical region and the shoulder joint.

It would surely be an easy matter to increase the number of these histories, for we have all seen cases of chronic rigidity of the spine. It is fair to ask whether the authors who have raised this discussion have described anything distinctly new. Von Bechterew's type must for the present, and on the strength of his own statements, be regarded as a secondary form of spinal rigidity; and if we once begin to describe secondary forms, we shall have to include rigidity of the spine due to syphilis, to injuries, to rheumatism, to arthritis deformans, or in association with a number of chronic spinal cord affections. It is of great interest to know that a marked deformity of the vertebræ may result from a spinal cord affection, but there does not appear to be sufficient reason, for the present, to regard this type of von Bechterew as a distinct clinical entity.

But what are we to say of the Struempell-Marie type? There is an apparent resemblance and certain striking differences between this type and the ordinary rheumatic affections. First of all, let us note that in the majority of cases of articular rheumatism, or of arthritis deformans, the vertebral joints escape and the smaller joints are the ones most commonly affected. In articular rheumatism there is distinct hereditary predisposition, which has not yet been established with regard to the type in question. Rheumatic affections are characterized by frequent remissions, whereas "spondylose rhyzomé-

lique" seems to be practically a progressive disease. Ordinary rheumatic affections occur about equally in men and women, whereas the other disease has until now been noted chiefly in men. It might also be stated that the one is amenable to treatment, and the more recently described affection does not show a tendency to improvement, although Hoffmann has recorded such in his case. As for the resemblance to arthritis deformans, it need only be said that though the latter affects the smaller joints chiefly, it is also progressive.

A comparison of the pathological conditions of the joints in rheumatism and in the form of spondylitis in which we are interested, brings out the fact that in one the synovial membrane is the chief seat of the disease, the affection of the ligaments being secondary; but there is no such proliferation and ossification of the joint as has been noted in "spondylose rhyzomélique." On the other hand, if we take into account the appearance of the joint in arthritis deformans, we must concede that the differences are not so striking. We get hypertrophy of the ligaments in both, the only difference being in the marked ossification of the joint in the one form, while ankylosis occurs in arthritis deformans, as well as in the Struempell-Marie type.

The morbid changes causing "progressive ankylotic rigidity of the spine" appear to differ in degree and in localization, not in kind, from those found in extreme forms of articular rheumatism and arthritis deformans; from the clinical standpoint, however, and as an incentive to a further and more thorough study of rigid spines, "spondylose rhyzomélique" merits careful attention.

EIN FALL VON ANGEBORENEM MYXŒDEM. Besserung durch Behandlung mit Schilddrüssen-tabletten (A Case of Congenital Myxedema. Improvement Through Treatment with Thyroid Extract). F. Sklarek (Berl. klin. Woch., 16, 1899).

A case of cretinism is presented in this paper. The patient, aged 16, had been placed in a school for feeble-minded children, but showed no improvement. Under thyroid extract both physical and mental improvement were very decided. In hopes of establishing menstruation oophorin was administered. Two hundred tablets (.05) were given in four weeks without result. The thyroid extract was omitted for a time, but the development of the myxedematous condition was so marked that the treatment was resumed. MCCARTHY.