Diagnosis of typhoid periostitis of the spine was confirmed by Dr. J. E. Goldthwait, who advised fixation and observation. A radiograph showed on careful study no difference from that taken in a healthy subject.

May 25: Some pain, with movements in lower back and above iliac crests. 28th: Patient com-

plaints of pain in back, lumbar region, through the groins and lower abdomen, promoted by turning from side to side; not present when quiet.

June 2: Plaster applied for cast of spine; removed and sent to harness maker's. 12th: No

improvement. Occasionally waked from sleep by pain from turning in bed, which persists frequently for hours. 13th: Leather jacket fitted (see figures). 15th: Great relief of pain with jacket; patient can move about much more freely; stoops forward with greater freedom. To report. Discharged much relieved.

July 3: Reports that for first week after discharge felt about the same, with pain in the left lumbar region on movement and dull ache in the left groin. For the past week much better. No pain while lying down. Slight dull ache while walking about. Walked two miles this morning without more than slight discomfort.

A letter received from the patient is as follows:

August 10, 1901.

DEAR SIR: In reply to your note of the 9th, would say, for the first week after leaving the hospital I could not see any improvement whatever; after a week or so I could see a gain every day, less pain each day until it was all gone. I have had no pain in back for about three weeks or so. Yes, I am better than when I was at the hospital July 3. I was there on the 29th. Dr. Lord examined my back. He advised me to take the jacket off for a while every day. I have done so. I can get around very well without it, but the back is stiff and lame without the jacket. There is a dull ache in the groins, which runs down in the private parts, sometimes in both sides; most, when walking or standing. The parts sweat very much. If you could recommend anything for this I would be very thankful. I remain,

Yours very truly,

HENRY O. BOHAKER.

In a letter just received the patient gives his present condition:

April 22, 1902.

DEAR SIR: In reply to your note would say my condition is about the same as when I saw you last September. My general health is good; appetite good. My back seems to be all right except when stooping at work. The muscles of the back seem lame and stiff at times, and there is a slight pain down the groin, more so after hard work. I weigh about 150 pounds, 20 pounds more than I did before I was sick.

ANALYSIS OF TWENTY-SIX CASES OF TYPHOID SPINE.*

BY FREDERICK T. LORD, M.D., BOSTON.

FROM 1889 to Jan. 1, 1902, twenty-six cases of typhoid spine have been reported in the literature. An analysis of these has been made in the hope that, in the survey of a number of cases, some general data may be obtained. Of the reported cases twenty-two of the twenty-six were in males.

To no especial factor, other than typhoid, can the occurrence of the spinal symptoms be ascribed. As a precipitating cause, however, mechanical strain is mentioned in six. Of these, two followed a fall,^{2 3} two the reassumption of blacksmithing,^{13 15} one stair climbing¹⁴ and one twisting the spine while sawing.²² The time of onset, as indicated by pain which was constantly the initial symptom,

* Read before the Clinical Section of the Suffolk District Medical Society April 16, 1902.

varies within rather wide limits: from the latter part of the typhoid to three months after defervescence. In fourteen cases the pain started during the typhoid or within two weeks after it. In eight cases it occurred within six weeks, and in the remaining four within three months. The pain was usually severe, situated in the lumbar or dorsolumbar region, frequently radiating to the hips, less often to the iliocostal space, abdomen and thighs. Remissions and exacerbations in the pain were common. Tenderness was frequently associated with the pain. It was mentioned in sixteen cases. Swelling of the soft parts in the affected region or neighboring tissues was noted in six cases. Stiffness of the spinal column was mentioned in eight cases. This symptom occurred on rising or walking or even when lying in bed.

Involuntary urine and feces were present in one case.¹⁴ In this the typhoid lasted for fifteen days. On the twenty-first day of the illness, a typhoid relapse began, ending on the twenty-

In seven cases the patellar reflex was increased. In two it was lost. In one there was an association of its absence with its previous increase.¹⁸ Of the twenty-six cases, therefore, the knee jerk was disturbed in eight, and of these, five were associated with radiating pain. Muscular spasm was described as cramps in the legs in three cases in which it is mentioned. In one of these there was adductor spasm also.²⁵ Disturbed sensation was present in five cases, in four associated with a disturbance of the patellar reflex. Its site was in the lower extremity, and in one case also in the lower trunk.

Symptoms of hysteria or neurasthenia were noted in six cases. In four of the six cases, reported by Dr. Osler, the patients were said to be nervous or hysterical. In Lovett and Withington's case a diagnosis of hysteria was made by Dr. Prince. In W. J. Taylor's case there were stigmata of hysteria.

Dr. Osler's first case was neurasthenic.⁶ There was pain in the back, radiating to the abdomen,

CASE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	TOTAL.
Muscular spasm.....														1	1										1		3
Radiating pain.....						1	1			1		1	1		1			1	1	1				1			10
Disturbed sensation in lower extremity; hyperesthesia.....																				1			1				2
Anes.....																1							1				2
Paresthesia.....														1					1								2
Increased knee jerks.....						1 sl.	?						1			1 ank. clon.		1	1 sl.	1				1			7
Absent knee jerks.....													1	1													2
Kyphosis.....			1 sl.	1			1 sl.									1	1	1	1				1				8
Hysteria.....							1									1			1								3
Neurasthenia.....						1		1			1																3
Rise of temperature.....	1											1	1	1	1			1	1			1	1	1			10

eighth. After an interval of nearly a week, the symptoms of typhoid spine were noted, pain in the lumbar region, with local tenderness and a rise of temperature for three or four weeks. The knee jerks were much diminished at first, later lost, to return again. There was also paresthesia in the legs, muscular cramps, besides involuntary urination and defecation. The process lasted for four or five months.

Symptoms referable to the nerve roots, such as muscular spasm, in other than the adjacent spinal muscles, radiating pain, disturbances of sensation and the patellar reflex, have been correlated in the table above, with the presence of a kyphosis, hysteria, neurasthenia and a rise of temperature.

As will be seen from the table, radiating pain was the most frequent of the nerve root symptoms, occurring in ten of the twenty-six cases. As might be expected, it was not infrequently associated with a disturbance of the knee jerks.

hips, and from the hip to the knee. The knee jerks were slightly increased. No organic change was found on physical examination. In his second case,⁷ the patient was nervous and hysterical at times. There was pain radiating to the thighs and knee. The lower dorsal vertebræ were slightly prominent. The knee jerks were perhaps slightly increased. His next case⁸ was nervous, perspiring easily, the hands and feet usually moist and cold. Local pain was practically the only symptom observed in this patient. His last example¹¹ likewise was nervous and apprehensive, with localized pain the most prominent symptom.

In Lovett and Withington's case,¹⁶ though there were symptoms of hysteria, there was a marked kyphosis, involving the eleventh and twelfth dorsal and first lumbar vertebræ. Pain, tenderness and muscular spasm in the affected region were prominent symptoms. There were also disturbances of the reflexes and of sensation.

W. J. Taylor's case,¹⁹ with stigmata of hysteria, had also a very distinct posterior deformity in the lumbar region, with thickening and rigidity. The right hip was painful, the right thigh numb to the knee, and the knee jerks slightly increased.

In the last two mentioned cases, Lovett and Withington's¹⁶ and Taylor's,¹⁹ the nerve root symptoms seem more plausibly the result of perispondylitis than of hysteria.

In Dr. Osler's second case⁷ there was slight prominence of the lower dorsal vertebræ, and it seems natural to infer a pathological process, even though there was a nervous and hysterical element at times, in consideration of the association of nervous symptoms and deformity in Lovett and Withington's and Taylor's cases.

The most interesting data concern the presence of a kyphosis, for from this, in connection with the nerve root symptoms, the suspicion of an organic basis for the process is as far as may be from the clinical signs confirmed. There is no mention of spinal deformity in ten cases. It is definitely stated as not present in eight and described in eight cases. In two of these it is said to be slight. In all but one²⁸ it involved several vertebræ. In this case it seems to have been confined to the first lumbar vertebra alone. The kyphosis in Gibney's Austrian Tyrol case was cervical, in all the others it was in the lower dorsal or lumbar region or both. As Dr. Gibney's case of the cabman in the Austrian Tyrol deviates from the type of the disease as seen in the other reported cases, its inclusion in the series may properly be questioned. This man, age 45, had what his physician called typhoid at twenty-two. The typhoid lasted four weeks; then after a few days he began to have pain in the neck. Deformity developed, and this with torticollis had persisted for twenty-three years. Sufficient evidence for its exclusion seems lacking.

Scoliosis was present in two cases.^{23, 24} Both these cases are reported by Neisser. In the first the scoliosis was associated with a kyphosis; in the second the scoliosis was the only spinal curvature.

The temperature was not mentioned in ten cases. It was stated as normal in six, elevated in ten. Of the ten cases with an elevated temperature, three had complications which might have explained a rise. Of the remaining seven cases, the temperature in two^{28, 24} ranged from 101.3° to 103.1° for a period of four and two months respectively.

The duration of the acute symptoms was not stated in four cases. In Gibney's Austrian Tyrol case the acute symptoms lasted for two years. Of the remaining twenty-one cases, the shortest period was fifteen days, the longest thirteen months. The average duration was about four and one-half months.

Relapse after an interval of freedom occurred in three cases.^{6, 9, 12} Its occurrence is not at variance with the course of other typhoid complications or sequelæ. For example, Dr. H. C. Parsons, in the Johns Hopkins Hospital Report, 1895, vol.

v, page 438, reports the appearance, subsidence and reappearance of a costal typhoid node.

The most satisfactory treatment has been rest in the horizontal position and the application of a plaster jacket, immobilizing the spine as nearly as possible, or plaster may be used as a model and a leather jacket, laced in front, prove more convenient.

The prognosis is good.

In general, the pathology of the process seems most reasonably a perispondylitis or spondylitis or both. A few of the cases may be neuroses. The coexistence of a deformity and nervous symptoms in one-half of the neurotic cases suggests that all the neurotic cases may be organic as well. Localized pain was present in all the twenty-six cases. It was associated with local tenderness in sixteen. Stiffness of the spinal column was noted in eight. These symptoms, taken together with radiating pain in ten cases, of disturbed knee jerks in eight and the association of these two in five, with muscular spasm in other than the adjacent spinal muscles in three, and disturbed sensation in the distribution of the spinal nerves in five, suggest the involvement of the nerve roots in a periostitis. A rise of temperature in seven, without other cause than the spinal lesion, is still further suggestive of organic trouble. The existence of kyphosis in eight cases seems to confirm the organic character of the nerve root symptoms, and definitely indicate bony as well as periosteal involvement.

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THE HUXLEY LECTURE.—The Huxley Lecture, which is given at the Charing Cross Hospital, London, will be delivered this year by Dr. William H. Welch of Baltimore.