The Journal of the American Osteopathic Association

PUBLISHED MONTHLY BY THE AMERICAN OSTEOPATHIC ASSOCIATION

Vol. 45, No. 3 | 139 N. Clark St., Chicago 2, Ill. | November, 1945

Observations on the Treatment of Hypermotile Joints by Injection

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INTRODUCTION

When I was 13 years old I fell through a trap door in a feed barn hay loft, landing on a hard plank floor almost 20 feet below. That was the start of a train of events leading up to this article. The fall gave me a severe left sacroiliac sprain, leaving me with a chronic weak back which kept me out of most athletics during high school and college. The first really serious attack of low-back trouble came on during my first year in osteopathic college, at which time osteopathic manipulative treatment was started.

Low-back trouble plagued me from then on, relieved only by osteopathic manipulation. In 1929 I was given a complete standing pelvic x-ray examination, which revealed a left leg shortness of one-half inch. A short series of manipulative treatments, and pelvic leveling by heel blocks, did help me very much, but I still had a bad low back which limited my activities considerably.

Seven or 8 years ago I saw an article by Dr. Earl Gedney, on sacroiliac injection treatment, and after investigation I started using the method. I secured such outstanding results that I instructed a neighbor osteopathic physician in the technic so that he could treat me. It cured me. I found I could resume golf, gardening, and many other activities that for many years I had not been able to engage in. From that time on I have been doing more and more injection work in the treatment of hypermotile joints, and at this time I feel I have something worth while to offer on the subject.

STATISTICS AND SOME DISCUSSION

I have treated approximately 500 cases of low-back weakness and several cases of hypermotile rib by the injection method, and from 100 of the former class treated in the past 7 years I have compiled certain statistics.

These 100 were not picked cases, but rather those on which I have the most complete records, and those carried to completion and observed afterward. All of them have standing x-ray plates in the anteroposterior position, and part of them in the lateral. (By the way, I firmly believe no physician should inject sacroiliac ligaments without x-ray facilities; the incidence of spinal anomalies, short legs, and unstable sacral angles makes this imperative.)

Following is a partial breakdown of the statistics given in more detail in the table.

Sex: Females—30, males—70.

Age: Youngest 12 years, oldest 75 years, average 39.15 years.

Spinal anomalies: Total 19; lumbarized first sacral—2; spinal bifida occulta—7 (fifth lumbar, 2, first sacral, 5); thoracic type lumbar facets—2; unilateral sacralization of fifth lumbar—2; transitional first sacral—3; imperfect arch first and second lumbar—1; fusion second, third and fourth lumbar—1; bifid arch fifth lumbar—1.

Short leg: Total 54; right—40; left—14.

Sacral angle unstable: 8, from 50 to 88 degrees.

Number of injections: Average about 6, more than half receiving injections on opposite side after affected side was normalized.

Months under my care: Average approximately 4; observation on most cases carried on from 6 months to a year or more.

Number of times treated by osteopathic manipulation: Approximately 15.

Results: Complete symptomatic relief—80; 90 to 95 per cent relief—14; 75 per cent relief—2; 50 per cent relief—2; complete failures—2. (The complete failures were both psychosomatic cases; the treatment overcame the hypermotility of the joint, but symptoms continued unabated.)

I have noticed that patients having arthritis of the low back all seem to show some improvement in arthritic symptoms immediately following injection; some to a lesser degree, but many to the point of very definite cessation. These most favorable cases are usually those with the definitely localized low-back arthritis, those which I should judge to be completely secondary to the constant irritation produced by low-back strain. I should say that part of this symptomatic change is due to the fluid injected acting as a foreign protein.

TECHNIC AND CASE MANAGEMENT

In every case, after the history is taken and physical examination completed, a standing anteroposterior x-ray view is taken, on a 14 by 17 inch film. My Bucky diaphragm is mounted on the wall in two grooved tracks with counter-balances, and has a vertical copper wire on the front surface which is directly

Fig. 1. Finding the correct point of entry for the needle over a left sacroiliac joint. The three black spots are india ink on the skin directly over the two posterior superior iliac spines with the spine of the fifth lumbar vertebra in the center. My left index finger is hooked just over the internal border of the superior iliac spine, and the needle is inserted through the skin just medial to that.

centered over the long axis of the plate; a plumb line was dropped from the lower end of the wire to the floor and a ½ by 8 inch strip was fastened to the floor at that point. When the picture is taken, the patient stands with his feet on either side and touching that strip; a 10 inch canvas belly-band is drawn across the pelvis, snug but not tight. This method gives an accurate check on the amount of pelvic sway from center. One or 1½ inches at the tops of the femurs is included in the picture to check for anatomical short leg. A lateral view is taken if there are any indications of abnormal sacral angle, such as a foreshortened sacrum, or a fifth lumber showing a wide ellipsoid view of the inferior border of the body.

With a complete diagnosis finished, osteopathic manipulative treatment is started. Heel blocks are used when needed, building up gradually in all cases having a shortage of over ¼ inch. Instructions are given in the use of cold applications in the home, and in most cases where lesion corrections are maintained for a week or 10 days, and the muscle soreness is overcome, injection is started. The first injection is only ½ cc. to establish patient tolerance. If the patient gets no reaction from this, the next one is either 1 or 1½ cc. a week or 10 days later, which usually gives some measure of reaction. All reactions can be controlled with the application of the ice-water bag for 5 minute intervals every hour or so on the bare skin directly over the joint.

In those cases of extreme hypermotility where it is impossible to maintain lesion correction from one day to the next, injection is started as soon as the condition becomes apparent. If the patient is in much pain the first injection or two is made with 1 cc. of Sylnasol mixed with an equal amount of Quinocaine

I have used many different solutions for injection of ligaments, but in later years have come to use Sylnasol (Searle) exclusively for several reasons. First, it is nontoxic in the dosages used, and second, there is a minimum of hard scar tissue production and a maximum of tissue proliferation. Also it will restore normal ligament tone in a very short time. Minimum dosage is ½ cc. and the maximum is 1½ to 2 cc.

Frequently I am asked how many injections are required. The answer is, enough to return the ligament to normal tone and size, which is very easy to determine by "needle feel." A normal ligament imparts the same feeling as one would get in introducing a pin into the old cedarwood pincushion—possibly a bit firmer. The ligaments encountered in this work many times feel like relaxed muscle tissue, or even adipose tissue, because of their flaccidity and complete loss of ligamentous tone. To those who take up the injection of ligaments for the first time, there will come a distinct surprise when they find how much they can feel when putting a needle into a ligament; it is really very easy to sense the exact tone, texture and depth of ligament.

It is advisable to accept these cases under the flat fee plan only. I have tried it on a pay-as-you-go basis, and it does not work out. It gives the patient an opportunity to get into the driver's seat, and it is surprising how many of them will take advantage of it. In many old chronic cases with soft, flaccid and toneless ligamentous tissue, the patient will derive so much benefit from the first one or two injections that he will quit right then, advising the doctor that he is cured and there is no sense in going on with treatment.

Fig. 2. Needle in position to make the injection. Notice the angle, which puts it into the center of the short posterior sacroiliac ligaments. (Needle is 2 inch, 22 gauge long bevel; syringe, Vim high pressure 3 cc. capacity.)

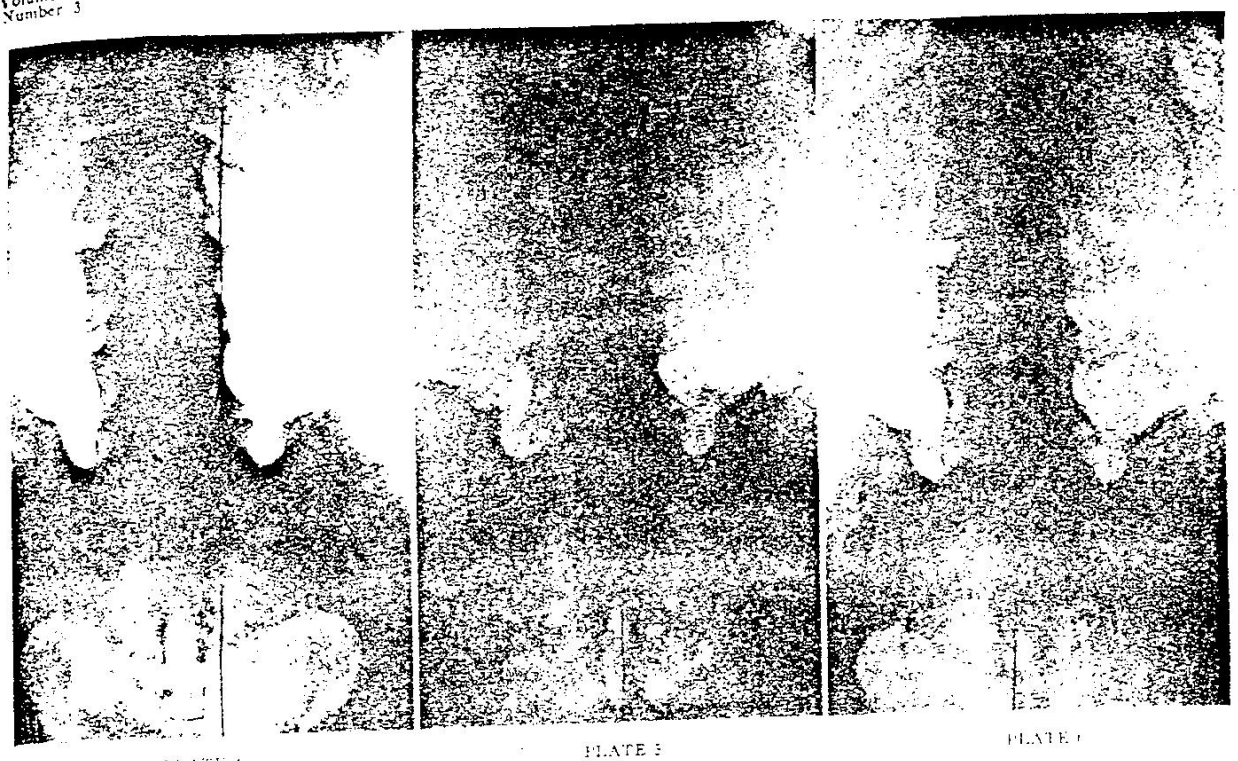


PLATE 4

PLATE 5

PLATE 6

experience, to produce almost miraculous results. That is the unstable sacral angle case. As far as I can determine from literature at hand, the treatment of such cases ordinarily is limited to the application of braces and belts, usually with unsatisfactory results. Use of the injection method in building up the strength of the supportive ligamentous structures of that region is, I believe, something entirely new in that type of case. As the table indicates, there are eight of those cases on which I have complete records, and while that is certainly not many, at least it is a start, to which I hope to add many more in years to come.

Case 32: The first case of this type that I treated and, so far, the very worst of all of them, illustrates what can be done with this treatment. Female, aged 44 years, came in December, 1942, with a history of a fall resulting in a "torn ligament in the low back"; under non-osteopathic care for the previous year. She had steadily gone from bad to worse until she was

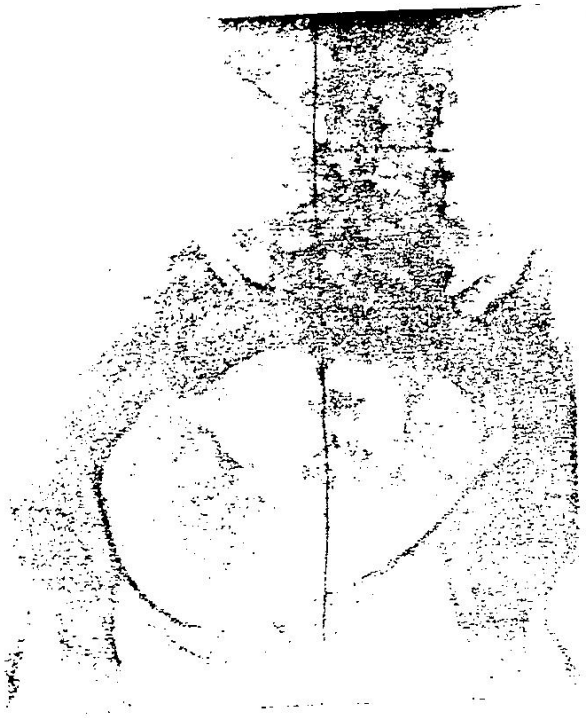


PLATE 7

PLATE 8

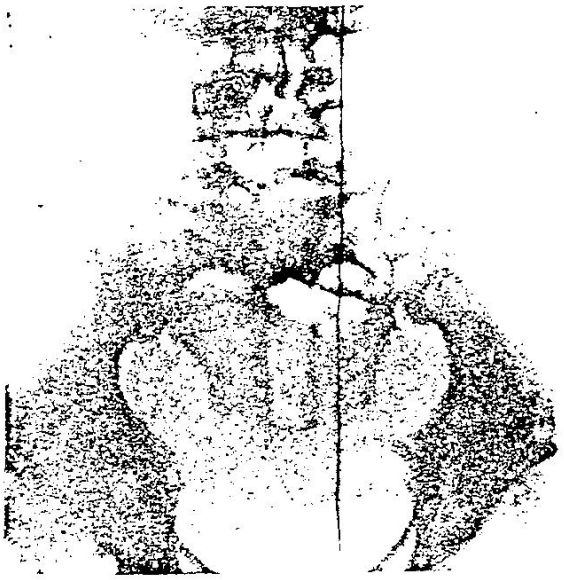


PLATE 9

totally incapacitated for any house work. She was a ranch woman, had reared seven healthy children and had never been to a doctor for anything except obstetrical deliveries until the fall occurred. After an anteroposterior standing x-ray plate was taken and viewed, further questioning brought out the fact that she had been in a severe runaway accident at the age of 12. A chuck wagon had overturned, pinning her under it with one side resting across her pelvis; she had been unable to walk for 3 months, but no doctor was consulted. (Doctors were few and far between in North Dakota in those days, the closest one being well over 100 miles away.) The anteroposterior plate showed a badly smashed pelvis, undoubtedly the result of greenstick fractures of both innominates, also a spina bifida occulta of the first sacral. I was much puzzled at first by the appearance of the upper portion of the body of the sacrum, until I realized that it was almost an end-on view; so a lateral standing plate was taken, which showed the unbelievable sacral angle of 88 degrees. Treatment was started, and continued for 6 months, the patient resuming her heavy ranch-house duties after 2 months had gone by. Ten injections were given, five on the right and five on the left, but not into the sacroiliac ligaments, because the first injection attempted there revealed fairly normal tissue. The injections were primarily aimed at the capsular ligaments of the lumbosacral joints, fanning out in that area above the superior fibers of the short posterior sacroiliac ligaments. Osteopathic manipulative treatment was administered frequently between injections, using the swinging leaf, normalizing muscle tone and stimulating circulation of the entire low-back area. I have checked on this case repeatedly and after 3 years the patient is still able to do all of her own work (Plates 7 and 8).

Case 71: Male, aged 43 years; iron molder; history of low-back trouble over 15 years, with a record of many visits to well-known orthopedic clinics and specialists. Standing anteroposterior plates revealed a bifid arch of the fifth lumbar and an apparently very short sacrum, indicative of an unstable sacral angle, so a lateral picture was taken, which

PLATE 10

showed the sacral angle to be 58 degrees. He was treated just 2 months, including five deep injections in the areas of the lumbosacral articulations on both sides, with osteopathic manipulation administered about twenty times. When injections were started the deep ligaments were soft and flaccid, feeling almost as if the needle was in adipose tissue. When he was flat on his back the toe-heel angle on each side was practically nothing—less than 10 degrees—due no doubt to the flacidity of the entire low-back supportive ligamentous structures. When treatment was finished that angle was 45 degrees on each side. Recovery was complete, and after 7 months he is doing his usual heavy work with no return of symptoms (Plate 9).

Case 12 is interesting as a pure sacroiliac sprain occurring in a badly deformed spine. Female, aged 48 years; history of a back injury 3 to 4 months previously; under non-osteopathic care (three different physicians) she had not improved at all; no x-ray examinations had been made. Standing anteroposterior view (Plate 10) revealed a left leg shortness of ½ inch, and a sharp upper lumbar scoliosis with fusion of the second, third and fourth. Repeated questioning revealed no history of any accident in her early life or of tuberculosis in the family; in fact she admitted that she had never been to a doctor before she hurt her back, and had done a man's work in the fields since she was 12 years old. The only explanation I could think of as to the cause of the lumbar deformity and fusion was a prenatal injury. Since all of her pain seemed to be in the right gluteal and groin regions, and she had an acute right sacroiliac lesion, treatment was started on that side. Heel blocks were used to level the pelvis gradually. Eight injections were given, and the lack of needle resistance

where the short posterior sacroiliac ligaments should have been was amazing; the needle seemed to drop into a 3 inch hole just medial and inferior to the right posterior superior iliac spine. By the time the eighth injection was given there was definite normal ligament resistance to the needle point ½ inch under the skin, and the patient had returned to her work on the farm.

HYPERMOTILE RIB INJECTION

I have treated about a dozen cases of hypermotile ribs by the injection method. This limited experience leads to the belief that in certain cases this treatment

TABLE

Case No.	Sex	Age	Arthritis	Spinal Anomaly	Sacral Angle	Short Leg	Duration Years	Treatment Months under	No. of Injections	No. of Osteo. Manipulations	Results (in percentage of symptom relief)
1.	F	26	no	none	N.	no	10	5	5R.	25	95%- rt. hip a bit stiff.
2.	F	31	no	none	N.	no	2	4	6R.	15	100%
3.	M	48	no	none	N.	L.3/16	25	2	4L1R	12	100%
4.	M	43	no	Sp.Bif.Occ. 1-S	N?	R.¼	20	3	3L1R	8	100%
5.	M	28	no	Imp.arch 1,2L.	N	L.¼	20	4	6R	15	100%
6.	M	58	mild	none	53	L.¼	10	4	5L3R	15	100%
7.	F	34	no	none	N	R.¼	7	6	5L3R	50	100%
8.	M	51	mild	none	N	L.¼	35	6	5L.	20	100%
9.	F	65	yes	none	N	R.¼	1½	7	7L.	25	100%
10.	M	40	yes	none	N	L.¼	20	5	5L.	25	90%- stiffness
11.	F	33	no	Disk op. 7yrs ago	N	no	9	5	4L.	10	75%- needs hysterectomy
12.	F	48	no	2,3,4L fused	N	L½	3	5	8R.	15	100%
13.	F	24	no	none	N	R.5/8	15	3	2R4L	10	100%
14.	M	62	yes	Sp.Bif.Occ.1-S	N	R¼	20	6	2L5R	25	100%
15.	M	34	no	none	57	R¼	1½	3	5L6R	20	100%
16.	M	31	no	none	50	no	45	3	7L	10	95% - some strain
17.	M	69	yes	Sp.Bif.Occ. 5-L	N	R½	½	3	4R	10	90%
18.	M	29	no	none	N	R½	14	6	7L	25	100%
19.	M	40	no	none	62	R.5/8	3	5	1R11L	30	90%
20.	M	38	no	none	N	L.½	6	5	6R		100%
21.	M	35	no	L.Sacraliz.5-L.	N	R¼	4	3	5R	6	100%
22.	F	59	mild	none	N	R¼	2	2	4L	15	90%
23.	M	17	no	none	N	no	25	4	4R2L	35	Psychosomatic- pain yet
24.	M	61	bad	10,11D,1L fused	N	R½	5	6	3R	30	100%- Arth. gen. bad
25.	F	32	no	none	N	R.5/8	7	2	3R	10	100%
26.	F	41	no	none	N	R.3/8	15	4	6R	25	100%
27.	F	36	no	none	N	no	5	6	5L1R	25	100%
28.	M	51	no	none	N	no	15	3	6L	10	100%
29.	M	40	no	none	55	no	7	5	3R3L	25	90%
30.	F	34	no	none	N	no	10	8	4L3R	50	Psychosomatic- pain yet
31.	M	26	no	L.Sacraliz. 5-L	N	no	27	7	5R4L	25	100%
32.	F	44	no	Pelvic fracture early, Sp.Bif. Occulta 1-S	88	no		6	5R5L	25	100% ck for 3 yrs
33.	M	13	no	Lumbarized 1-S Tn. type facets	A	R½	½	1	3L	8	50%- back very weak
34.	M	41	no	Disk op-16 yrs ago	N	R¼	20	5	5L2R	15	100%
35.	M	63	yes	none	N	L½	50	5	6L	15	100%
36.	M	37	no	none	N	R½	24	4	5L5R	15	100%
37.	M	66	yes	none	N	no	25	5	5L	15	100%
38.	M	56	yes	none	N	no	10	1	3L	10	100%
39.	M	32	no	none	N	no	¼	1	3L	20	100%
40.	M	75	bad	none	N	R½	4	3	3L	20	100%
41.	M	36	no	none	N	no	6	2	2L	15	100%
42.	M	30	no	none	N	no	10	4	4R	10	100%
43.	F	45	no	none	N	no	1	3	4R	15	100%
44.	M	34	no	none	N	no	10	3	4R	18	100%
45.	M	50	yes	none	N	no	2	6	6L	20	100%
46.	F	29	no	none	N	no	1	4	5L1R	15	100%
47.	M	41	bad	none	N	no	20	6	5R	10	100% arthritis gen.
48.	M	33	no	none	N	no	10	3	3L	25	100%
49.	M	36	no	none	N	R½	10	2	3L	10	100%
50.	M	30	no	none	56	no	15	4	5L7R	25	100%

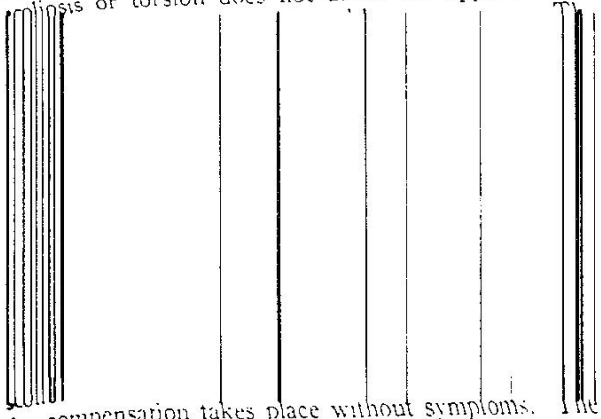
(Table continued on next page)

Case No.	Sex	Age	Arthritis	Spinal Anomaly	Sacral Angle	Short Leg	Years Duration	Months under Treatment	No. of Injections	No. of Osteo. manipulations	Results (in percentage of symptom relief)
51	F	40	mild	none	N	R.¼	1½	2	3L	8	100%
52	F	12	no	Sp.Bif.Occ.1-S.	N	no	1	1	4R	5	100%
53	M	36	no	complete sacro-lization 5-L.	N	R.3/8	15	4	4R	15	100%
54	F	23	no	Sp.Bif.Occ 1-S Thor. L. Facets	N	no	1½	5	8R1L	25	50%
55	M	37	no	Sp.Bif.Occ.1-S	N	no	4	3	5R	8	100%
56	M	38	mild	none	N	no	1	4	4R	12	100%
57	F	37	no	R.Sacralized 5-L	N	R½	1½	4	4R	10	100%
58	M	43	bad	none	N	L¼	1½	4	5R	15	75%
59	M	34	no	Transitional 1-S	N	R½	8	2	3R	6	100%
60	F	34	no	none	N	R¼	3	4	5R	8	100%
61	M	26	no	none	N	no	6	5	6R3L	15	100%
62	F	55	no	none	N	no	30	5	5L	25	90%
63	M	30	no	none	N	R½	15	5	4R4L	15	100%
64	M	18	no	none	N	no	2	3	4R	7	100%
65	M	33	no	none	N	no	15	3	4R2L	15	100%
66	M	49	mild	none	N	no	15	5	4L1R	12	90%
67	M	33	no	none	N	R¼	1	1	1R	3	100%
68	M	37	no	none	N	R¼	15	6	7L	10	100%
69	F	31	no	none	N	L5/8	5	3	5L	8	100%
70	F	29	no	none	N	R½	8	7	6R2L	25	90%
71	M	43	no	Bifid Arch 5L	S8	no	10	2	5R5L	19	100%
72	M	48	yes	Transitional 1-S	N	R½	20	3	5R	15	90%
73	F	16	no	none	N	no	1	4	4R	12	100%
74	M	50	no	none	N	no	15	4	4R	18	100%
75	F	50	no	none	N	no	3	3	6L	15	100%
76	M	31	no	none	N	L¼	12	3	3L	3	100%
77	M	38	no	none	N	no	4	4	3R	15	100%
78	M	37	no	none	N	no	10	4	5R1L	10	100%
79	F	13	no	none	N	no	1	2	4R	5	100%
80	M	38	no	none	N	L.5/8	10	3	3R	10	100%
81	M	29	no	none	N	R½	8	4	6R	10	100%
82	M	38	no	none	N	no	3	2	3R	15	100%
83	M	35	no	none	N	R.5/8	20	4	5R	12	100%
84	M	40	no	none	N	R½	21	4	6R	15	100%
85	M	29	no	none	N	r½	15	3	4L	9	100%
86	F	55	bad	none	N	no	25	3	3L	10	90%
87	M	44	no	none	N	R½	25	6	4R3L	15	100%
88	M	35	no	none	N	no	12	2	3R	4	100%
89	F	35	no	Transitional 1-S	N	R½	½	2	3L	8	100%
90	M	58	yes	Sp.Bif.Occ. 1-S	N	no	25	4	2L3R	15	95%
91	F	27	no	none	N	no	10	4	5L	10	100%
92	M	58	yes	none	N	R½	20	3	3L	15	90%
93	M	34	no	none	N	no	15	4	4R	6	100%
94	M	38	no	none	N	no	10	4	4R4L	4	100%
95	M	32	yes	none	N	L½	10	4	4L	10	100%
96	M	42	no	none	N	no	20	3	3L	5	100%
97	M	57	yes	none	N	L½	12	4	3L	7	100%
98	M	42	no	none	N	L½	17	4	3L	6	100%
99	F	43	no	none	N	R.5/8	25	4	4L	15	100%
100	M	38	no	none	N	R½	20	5	4R2L	15	100%

offers something that goes much farther than other methods. While the actual technic of injecting the costotransverse joint is much more difficult than in other joints, it is essentially the same. The particular tissues for the needle to enter are: the ligament of the tubercle, and the articular capsule. I have found that two to three injections in and around the region of these tissues are sufficient in most cases, using ½ to 1 cc. of Sylnasol each time. In those cases having an acute myositis of the area, with subsequent pressure neuritis and neuralgia, where it is impossible to maintain correction for a very long period, I give one to two injections of Farnsworth's Quinocaine, 1 to 3 cc. each time, to desensitize the area. Instruction is

given to these patients to protect the part from all motion if at all possible; we put the arm in a sling that carries the full weight of the arm, and use ice-water packs to the skin over the area for 5 minutes several times daily. Often I have mixed 1 cc. of Sylnasol with 1 cc. of Quinocaine and injected the ligaments at once, although the results are not achieved as quickly in this way, because of the dilution of the Sylnasol.

I find that many hypermotile rib cases are due to sacroiliac weakness. The reason is evident after a moment's consideration of spinal mechanics. The scoliosis or torsion does not affect the upper lumbar



for compensation takes place without symptoms. The thoracic region up to the fourth or fifth will also compensate, swinging the ribs somewhat anterior on the convex side and posterior on the concave, because of their floating and semi-floating character. From the fourth or fifth up to the second or third, they will not swing because of the angle at which the cartilage joins the rib to the sternum. Such swing would necessitate an actual end-to-end compression of the cartilages in most cases, bringing on a buckling or bulging at the sternal end, which actually occurs only in the most severe of scoliotic curvatures. Consequently the spine continues to compensate in that region, but at the expense of actual lesion production at the costotransverse articulations, the worst lesion being either the fourth or fifth because of the usual true horizontal position of one of their cartilages at the sternal end. (When I speak of torsion, I am thinking of the prescoliotic twist occuring secondarily in every true case of unilateral sacroiliac weakness.) In plates 3, 4 and 5 (especially 3) the torsion is very apparent. It is interesting that this case came because of a hypermotile rib on the left side, which gave considerable trouble in the left shoulder and arm. It disappeared completely after completion of treatment on the sacroiliac joint, no injection at the rib joint being needed after osteopathic lesion correction was maintained.

CONCLUSION

Treatment of hypermotile joints by the injection method is a very distinct advance over such treatment as has been used in the past. It offers to the physician who uses it, the opportunity of taking cases that have been shunted from pillar to post, from this clinic to that specialist, in a vain effort to get some permanent relief. The results in such cases will more than satisfy the conscientious physician, will make him proud to say he is an osteopathic physician, following in the steps of Dr. A. T. Still, one of whose best-known maxims was: "Find it, fix it, and leave it alone."

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