



Progress Report on Use Of Sclerosing Solutions In Low Back Syndromes

...by Earl H. Gedney, D. O.

THE fourth anniversary of the installation of sclerosing solutions into the perimeter ligaments of a lumbar disk space for the control of low back instability has passed and there seem to be convincing indications that the therapy is establishing itself as an effective method for control of much of the low back syndrome.

The general response to so new an approach to such an old problem has been most gratifying as have the scattered reports that have come in by word of mouth and the presentations this last spring in New York at the Eastern Convention. It is heartening to know that others are also achieving results and to see the confidence that so many members of the profession now have in this type of therapy.

You will recall that the first part of the work on the disk was done in Maine although that had been preceded by a number of years of study of the low back problem here in Philadelphia, both in practice and in the laboratories of the Philadelphia College of Osteopathy. Much of the credit for elaboration of this new technic is due such

associates as Paul Lloyd, Charles Soden, Angus Cathie and David Shuman, who all were generally helpful and offered stimulating suggestions, though we should never omit Bangor, Maine and its Osteopathic Hospital Staff which took so active a part in its genesis.

The results of this treatment were constant and almost bewilderingly effective and it soon was obvious that so impressive a procedure invited the stricter scrutiny more certainly obtainable in one of our higher centers of learning. The deep interest and emphatic insistence of a number of friends and colleagues were equally convincing, and the change was made to this area where full time could be devoted to a more comprehensive study of an unsolved problem. Faith in the therapy and in my profession was not unfounded and at this writing the case volume in the new location is in its third hundred.

Residual Pain

Throughout the establishment of new headquarters, careful follow-ups of the work in Maine have been carried on and one report has already been given before the orthopedists in our college of surgeons.¹ This report concerned a significant number of treated patients and truly set forth the results obtained. This report especially noted the presence or absence of residual pain and those direct results in which industrial medicine is so very interested: the percentage return to original

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occupation and the subjectively estimated percentage cure.

Sacroiliac Instability

However, during a visit in Maine last year a number of my former patients still under observation were seen with my successor in this work, Dr. Clifford Larlee. It was his conclusion that a great many of these patients with disk diagnoses needed treatment to stabilize the sacroiliac joints before they fully or near fully recovered. Furthermore, detailed analysis of the collected statistical material revealed the astonishing incidence of 49% occurrence of sacroiliac instability in the examined series of cases.¹ We entertained the possibility that an undetected instability might be betrayed once a neighboring deficiency was corrected and that the true occurrence of sacroiliac incompetence might be much higher. And it was not difficult to project this reasoning to include all symptomatic low backs excepting, of course, the organic and those cases hypothesized by Coventry *et al* of Mayo fame² in which there might be sufficient trauma to interrupt the continuity of the nucleus pulposus and initiate annulus degeneration. This authentically original approach was made more rational when Lindblom supplemented our knowledge with microscopic illustrations of the laterally invading phagocytes.³ What more ready conveyor of phagocytes than the recurrent and prolonged congestion of sprain consequent upon the treacherous support of shifting sacroiliac joints inadequately maintained by inadequate ligaments? The pathology and the altered

physiology of the symptomatic back are being diligently studied throughout the world and some logical advances seem to have been offered toward further understanding of pain as an entity. Pain of somatic origin still discourages analysis. One author states that it has been pretty well established that it takes about 300 mm of mercury pressure on a nerve trunk to cause pain to register in the higher centers.⁴ This is in the neighborhood of seven pounds, and by way of comparison is a fairly large sash weight and if true, the burden of proof is now on the proponents of herniated disk substance causing pain by pressure *per se*. Sprain with its component swelling and spasm offers another possibly more universal explanation of the multiple and at times puzzling findings at laminectomy.

Annulus Degeneration

As the annulus helplessly degenerates following whatever initiating process, there is space loss in the affected intervertebral space allowing the containing vertebral ligaments to become regrettably lax and unable to perform their legitimate stabilizing functions. Unless the embarrassed annulus undergoes a gracious fibrosis and arrests its further deterioration, it may proceed to relatively complete dissolution or any of the stages intermediate.² Accurate perception of this process in the cadaver, as well as in laminectomy, and in the myelogram, further augment the plausibility of the control of this syndrome employing sclerosing solutions to produce precisely controlled reactions in the containing ligaments gradually thickening and

shortening them to the adequacy desired and needed to perform the function. Also, should the process prove to be one in which there is a progressive and insidiously gradual degeneration of the disk substance, what other or better method has been suggested that with periodic treatment will maintain stability throughout this period of vacillation, should the perimeter ligaments not contract harmoniously?

Change In Perspective

With certitude, as the statistical material accumulated, it became increasingly and more clearly apparent that there must be a complete change in perspective. We now had a cause, the sacroiliac joint, to rationalize from rather than the effect, the disk degeneration.

At the bottom of the page is a statistical comparison of the treatment as originally carried out in sixty-four cases with the intervertebral disk the primary objective as against the present approach in thirty-six controlled cases with the etiologic sacroiliac joints receiving primary attention.

Closer and more deliberate scrutiny of the physical findings since this change in attitude seem to

indicate that every uncontrolled low back syndrome has at least one unstable sacroiliac joint and more often two. This statement is made with full knowledge of the imputations that may follow and would not have been made had not other discriminating collateral tests been formulated with which to judge the fallibility of external palpation.

As ligament tappings began to number into thousands and greater skill at finding and feeling the consistency of the structure to be injected, we were able to classify them by numbers and use the familiar 1, 2, 3 & 4 method so successfully practiced by the neurologists in gauging reflexes. The ligament having little substance and offering little resistance to the introduction of the needle or to the instillation of the sclerosing substance was given a rating of about one. At the other end of the scale with maximum substance and resistance the rating was approximated at about four or four plus. With these methods we have an accurate check on the physical findings while still an effective test for the progress of our therapy. If our diagnosis is correct our patient will respond and cooperate with en-

Percentage Requiring Treatment

Areas Treated	L 5	L 4	L 3	L 2	L 1	Sacroiliac
Disk Perspective	75%	90%	52%	0.3%	0.3%	49%
Sacroiliac Perspective	13%	24%	11%	0.5%	0%	100%

Average Number of Treatments

Areas Treated	L 5	L 4	L 3	L 2	L 1	Sacroiliac	Lumbers	Total
Disk Perspective	3.5	4.7	2.4	.3	.3	2	8	10
Sacroiliac Perspective	2.8	2.2	2.5	.5	0	8.2	1.3	9.5

thusiasm in direct ratio as the affected ligaments regain their robustness. Should he not, the surgeon had best re-examine the patient and meticulously recheck his findings lest he has wandered into one of the ever present pitfalls in diagnosis. The sufferer may "roll with the blow" under searching palpation or splint painful areas and nullify the most cunning diagnostic efforts to elicit loss of joint integrity.

The "Acute Patient"

The patient most liable to lead us into error is the one with an acute condition, although in all fairness to the suffering individual, his generalized spastic response to present irritation unifies the low back in a boardlike rigidity which too often defies analysis. The various segments have become so intimately integrated that the irritated patient cannot respond intelligently in an area of already compromised localizing perception.

Pressure almost anywhere proximal to the originally injured structure may excite the involved receptors and is persistently most discouraging and difficult to mask. Physiology is so altered as to disturb the electrolyte balance in the corresponding nerves enough at times to blot out the spinal reflexes normally obtained by percussion of the various tendons. This latter is statistically only helpful in about 25% of cases yet adds to the confusion if present in other than the initial circumscribed area. Joint motion tests are not well tolerated during this period and yield almost no information, and this patient's lamentable condition makes it hard to get a

recital of *definite* localizing symptoms.

The interim patient gives a much better account of himself and wise is the patient and the doctor who insist on care before they become so miserable. All the criteria of diagnosis: chief complaint, radicular patterns, reflex studies, Dandy's sign, sacroiliac joint signs and X-ray examinations are facilitated and a more precise diagnosis inevitably follows.

The efficacy of the chief complaints have been attested to as well as the radicular pattern when present.⁵ The patient knows where he hurts and the psychiatrists as well as the rest of us should remember this. Only one patient so far has gone on into what appeared to be a psychosis after having her back stabilized and rendered asymptomatic, while so many others have been seen to recover at least a modicum of mental stability after stabilizing an ailing back that should the present high rate of recovery continue, the psychological backache may parallel the gynecological into oblivion.

Dandy's Sign

Dandy's sign still is the most selective test for stability in the greater spinal articulation.

It fails us in spasm but should never be discounted even when confronted with space loss within the limits of the disk, rather it should be used to qualify the amount of disability as a result of this degeneration. In prone-flexion over the table break, pressure over the spinous process will induce motion beyond the normal. Some examiners have had difficulties in

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and easily performed and interpreted.

It goes without saying that all patients are filmed and qualified X-ray assistance is employed before embarking on a course of treatment. Their known criteria as well as those of the chemistry laboratory help sustain and clarify our working diagnosis. A qualified neurologist should see any case in which there is any doubt about the interpretation of elicited neurological signs. Myelogram, however, with its cruel vicissitudes might be assigned a role in neoplasm when suspected or to be employed only when all conservative measures including sclerotherapy have been exhausted. Excepting as stated, the latter makes little worthy contribution.

Treatment

Treatment of the ambulant patient is little different than the hospitalized. The principles involved are basically the control of segmental spasm and ultimate establishment of stability. Rest is fundamental and on a well constructed mattress and spring with ample buoyancy to guarantee against costly additional sprain in the deep relaxation of sleep. My encounters with rubber foam and soft inner spring mattresses have left me with less than flattering impressions. Analgesics are prescribed in sufficient dosage up to and including the narcotics contingent upon the gravity of the problem. Optimum traction will be invaluable in some cases and it is wise to allow the patient to negotiate his own limit of toleration. Some will arrive at 6 lbs. while others may use up to 30. Pelvic

Low Back Syndrome

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eliciting this test possibly through not detecting spasm or splinting on the part of the patient. The test is not without unpleasantness or downright pain depending on the local conditions and the patient is not to be reproved for his efforts at amelioration, instead with quiet persuasion he can most often be brought to relax even under the duress of this painful force.

Tests for motion in the sacroiliac joints are many and varied though like the myriad appendectomy techniques all may have their place. In a suspected posteriorly fixed ilium on the sacrum one of our favorite unlocking maneuvers is to bring the extended leg and thigh across the fellow with the patient prone and with the extremity locked in this position simultaneous pressure is made on the upper part of the ilium and the lower part of the sacrum. Pressure enough to cause motion is applied and palpated. These motions will vary from free migration of the ilium in its prescribed or unduly enlarged orbit about the sacrum, to a grinding glide or it may snap loose with a sudden audible 'crack'. Another discriminating test is to pick up the extended leg just above the knee with the patient prone-flexed over the table break and carry the extremity and attached ilium into the limits of extension while posteriorly palpating the changing relations of the ilium with the sacrum. Again, these tests are not advanced for any unique infallibility, only that they are simple

traction is least aggravating. Heat to tolerance may also be used and here again the patient is the sole judge within common sense limits. A shockproof electric pad at low heat delivery is an excellent source. An inexpensive sacroiliac or sacrolumbar support is also advised.

Choice of Therapy

Choice of therapy now will depend upon the presenting clinical picture. The more promptly we relieve the patient's pain the happier are all concerned, and since it is felt that localized spasms due to sprain consequent upon instability causes registry of pain in the involved segment, we first endeavor to pin-point the offending segment. If his complaint includes radicular

patterns other than those which might be attributed to L-5 or S-1 and they be beyond the sphere of the lesser analgesics requiring demerol or the opiates then direct approach has enjoyed auspicious results. The incriminated spinal segment or segments from which the ailing nerves emanate are unhesitatingly invaded and treated *if above the lumbosacral level*. The sclerotomic components of the affected sensory nerve may be so hypersensitive that it will be well nigh impossible to pass the spinal needle into the lateral spinal ligament, and one may have to settle for treatment to the ligaments of the lesser arthrodiads after anesthetizing the superficial tissues; but every little bit helps in the

control of this malady. The patient is advised to wear his belt if ambulant lest he tear out any of the 'green' tissue being laid down by the sclerosing solutions. He can be seen at convenient intervals as often as three times weekly. He may use heat for pain control if the area treated is deep, but if in the sacroiliac joints or the more superficial lesser arthrodiads, cold is preferable in that it does not produce hyperemia sufficient to syphon off the introduced chemicals calculated to produce the controlling fibrosis.

Sacroiliac Ligaments

If, however, the involved area is felt to be the foregoing excepted lumbosacral it is probably best to begin treatment in the sacroiliac ligaments. Their ligaments seem to be so intimately integrated that treatment into these latter seems often to simultaneously stabilize the fifth lumbar, enough many times to void the need for intervention although these people are warned that they may have a continuing degenerative process and may need care at a later date due to no fault of the method used. Should the pain not noticeably abate within about four weeks of treatment lower down, it is then probably best to turn attention toward the disk ligaments.

The technic of instillation of the sclerosing solution has been described¹ and generally remains the same, though there have been some improvements in the management of the sacroiliac ligaments. The advent of a much needed agent producing a less painful postoperative reaction was long overdue, especially since almost

every patient's treatment began here. The low threshold patients were complaining bitterly and excusing themselves with greater frequency from these harsh sessions. Several long-acting anesthetic agents have been tried in various strengths, and at this point in the investigation it is felt that uniformly good results are obtained with equal parts of Ascher's Duresia and synlasol. Except in rare instances the violent reaction has been minimized and sittings can be grouped more closely for the convenience and economics of distant patients. Amounts in excess of 2 c.c. are not used, and only in the tendon. The coefficient of sclerosis seems about the same. The number of treatments have not increased and the patient is much happier.

Summary

An effort has been made to present a report statistically setting forth the progress of treatment of the low back with sclerosing solutions.

A method for gauging the consistency of a ligament undergoing treatment has been suggested.

It is respectfully suggested that this approach might encompass and successfully manage the psychogenic low back problem if such there be.

A new mixture for use in sclerosing ligaments is zealously offered.

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REFERENCES

1. Gedney: THE OSTEOPATHIC PROFESSION, Vol. 21 No. 3 December 1953
2. Coventry et al: *Journal of*