

# Basic Sclerotherapy

By RODNEY H. CHASE, D.O.

*The physician who is familiar with osteopathic concepts and techniques can easily learn to use sclerotherapy.*

**T**he control of pain is our chief service in acute practice. We who are in general practice are keenly aware of this responsibility. Those of us who are steeped in the principles of osteopathic concepts and who use basic osteopathic techniques can soon learn basic sclerotherapy.

Let us begin with the appearance of the patient and his history. We note his posture and expression. First we want to know his chief complaint in his own words. "What bothers you most, and where? Does it go to the leg or arm, or does it travel up or down the back or neck? Where does it start?" We begin to get a picture of his overall pain experience — when and how the pain began. If the pain began spontaneously or after the simple act of tying a shoelace or reaching for an object, we can be almost sure that the area is unstable. If pain is mechanically related to a structural movement, our diagnosis must clearly be structurally related.

If we are dealing with a structural problem, we must obtain x-rays of the problem areas and we must know something about using these x-rays as blueprints are used by an engineer. Next, we obtain a basic lab screen, which is done to rule out organic and metabolic problems. People with increases in cholesterol, uric acid, or alkaline phosphatase level clearly will need additional therapy if we are to succeed in our sclerotherapy technique. As you know, anemias increase pain and predispose to pain syndromes. These are only a few examples of the metabolically related problems associated with structural pain.

## X-RAY STUDIES

Let us look at our x-ray evidence of instability. We must insist on clear x-ray pictures. Repeat them if they are too dark or too light. All areas x-rayed should be approached from three dimensions. Later we may see the need for functional studies, spot films, or special opaque studies. In doing a low-spine study, we must have a film of the patient erect. A truly progressive, unstable problem in the low back will seldom be helped by lift therapy alone. Some objective evidence in the x-rays is helpful in diagnosis. However, x-ray studies may not be revealing, especially in early acute syndromes. Some of the evidence we look for follows:

1. Narrowing of normal joint spaces, producing a sagging of the structural ligamentous support.
2. Calcification, lipping, spurring, and eburnation in joints, produced by wearing, inflammation, and pain.
3. Congenital anomalies, producing a structurally weakened area receptive to sprain and, later, pain.
4. Functional or organic curvatures or un-level pelvis resulting from weakened, unstable joints and gradually becoming worse.
5. Spondylolisthesis, spondylolysis, or retrospondylolisthesis, resulting in gradually increasing stress and weakening of supporting ligaments.
6. Evidence of straightening of the normal cervical and lumbar curves, demonstrating extreme muscle spasm to protect a weakened area or joints.

*continued*

7. Evidence of neural-arch defects, pseudarthrodial joints, or demineralization of the bones, with resulting weakness of the ligamentous structure.

8. Arthritis, osteochondritis dissecans, or osteitis deformans (Paget's disease). Lipping, calcification, and other osseous changes are indications of irritation and inflammation at the spinal levels.

9. Evidence of vertebral collapse or old fractures of the spine, producing major changes in the ligaments.

We usually note the x-ray changes — or lack of changes — on our patients' charts. Unless your radiologist is oriented to the osteopathic profession, some of your structural analysis must be done in your own office.

Without any x-ray evidence of instability, one should rely on a careful history, objective findings in the physical examination, and a perceptive sense of tactile readability of the ligamentous structures. Elicitation of pain or tenderness over the chief complaint area and a sense of hypermobility of the joint to the palpating finger are then helpful in the diagnosis.

#### EQUIPMENT AND EXAMINATION

Basic equipment for examining the patient should include:

1. An all-purpose motorized break table, such as the universal Ritter table.
2. Conveniently placed x-ray visualization for all films.
3. A neurologic hammer.
4. Two pillows.
5. An oscillometer for measuring peripheral-artery circulation.
6. A cloth tape measure for bilateral limb measurement.

In addition, an articulated spine is important — and also "thinking," sensitive fingers.

The process of a complete examination is time-consuming but valuable. An acutely distressed patient may resent routine procedures, and these may be completed later. The structural examination follows, in standing, sitting, supine, and prone positions. Orthopedic

and neurologic findings are recorded, and important positive and negative findings are noted on the chart. Osteopathic lesions should be treated promptly. Any suspected disk lesion should be treated by nonforceful techniques or by orthopedic medicinal therapy alone.

If we have adequate x-rays, a lab screen, and the permission of the patient to employ sclerotherapy, we can immediately proceed with initial treatment.

#### TREATMENT

The areas that must be treated are always prepared by scrubbing. Then amounts of 2 per cent lidocaine (Xylocaine), up to 4 cc. in each area, may be administered. At first, we employ 0.5-1 cc. of 1 per cent Xylocaine, with epinephrine added to the 2 per cent Xylocaine. Some patients may tremble slightly after therapy, but we favor having the patient stay awake. After the initial apprehension of therapy, the patient knows what to expect and we can gradually reduce the levels of 1 per cent Xylocaine with epinephrine. We can select from many types of solutions to use for the ligament-sclerosing effect. At first we used Farnsworth's formula No. 61 in all areas to get the feeling of the ligaments and their response. We found that treatment on a weekly basis was necessary with this type of solution. Later we used Plasm Q-U and Aquacaine (1:1 and 4:1), sodium morrhuate, dextrose solution (5 and 10 per cent), and finally

**Dr. Chase**, who received his preceptor training under the late Earl Gedney, D.O., and has been in general practice with his wife (Lillian Brose, D.O.) for 32 years, is an associate staff member of Allentown (Pa.) Osteopathic Hospital and past president of the American Osteopathic Academy of Sclerotherapy and chairman of its Committee for Clinical Education and Research.



the more recent pumice or silica solution.

The chemical proliferant reaction of the former solutions became well known, but lately the mechanical proliferant reaction of pumice is becoming more widely used. The heterogeneous solution of pumice is slightly more difficult to administer, and larger needle sizes are necessary — gauges 18, 19, and 20. As more experience is gained, the operator becomes more proficient and effective in therapy. Patients may be treated every two weeks until pain-free and then monthly.

The surgical grading of ligaments, initiated by the late Earl Gedney, D.O., has given us invaluable progress notes on our patients, and we know where we are with a patient as he progresses to stability. Grade 1 is the weakest ligament, and grade 4 is the strongest. Even though the patient has complete relief of pain, we treat him until he is stable. Then we put the patient on a check-up basis. He returns in three months and, if stable, he returns again in six months and then one year later. If he has any evidence of hypermobility, we give him a booster treatment. At one year he is given a repeat x-ray, anteroposterior and lateral, for comparative study with the original films. When the patient is under close surveillance, the x-rays should be repeated at two-year intervals. If a patient returns after years of absence, fresh films are essential.

**Lift therapy.** We use and recommend lifts to be worn in shoes in the short leg — provided there is no pain in this leg; otherwise we might make the patient worse. Young patients wearing lifts should be x-rayed (erect, anteroposterior views only) every two years with the lift in place. Patients wearing lifts who need regular manipulation to correct the lumbosacral mechanism should be given joint sclerotherapy to the lumbar and sacroiliac areas.

**Control of pain.** Pain control is vital to the success of therapy. A basic formula for initial visits is a combination analgesic and muscle relaxant. We have found Trancopal and Valium the most useful drugs, in combination with acetylsalicylic acid or aspirin-phenacetin-caffeine formulas. For night pain we may recommend Talwin or codeine and, later, Demerol — always taken after food and with milk or antacid.

**The neurologic hammer.** The most practical spinal areas for using the rubber neurologic hammer are the cervical spine (C5-7) and the low back (L1-5). Early familiarization and interpretation are important in easing diagnosis of changes noted during the course of therapy. If we find negative reflexes on one side of the cervical spine and positive ones on the other side, we know that there is some pressure on the neurologic structures greater than 30 mm. — clear evidence of radicular-type symptoms on the afflicted side. If we find just one reflex missing in the cervical spine on one side, we can tell which nerve is being affected. (Objective findings: C5 = radial nerve, posterior cord, brachial plexus; C6 = medial nerve, medial cord, brachial plexus; C7 = ulnar nerve, medial and lateral cord, brachial plexus.) If we find the reflex negative on both sides, we must conclude that there is some reason other than mechanical. Occasionally we notice that there are anatomic variations in reflex patterns. This is especially true in the lumbar spine. The most common variations are at L4 and L5. L1 is the cremasteric reflex, L2 is the adductor femoral, L3 is the pretibial, L4 is the medial hamstring, and L5 is the Achilles tendon. C5 is the distal radial, C6 is the biceps, and C7 is the triceps. All tendons should be completely relaxed for interpretation. As we progress in therapy, we notice that many of these unilaterally lost reflexes will return to a vigorous +4. We class the strength of the reflexes +1 to +4. All these changes should be recorded along with the therapy given.

Sometimes the reflexes will never return or be only slightly positive. Even though the pain has been eliminated, some residuum has been left to permanently alter the nerve structure. All the cervical reflexes should be recorded in a supine position while the area is held in a relaxed position. The cremasteric reflex is also recorded in the supine position. L3 pretibial is best recorded while the patient sits with eyes closed. L2, L4, and L5 are performed in the prone position. If the Achilles tendon is negative or sluggish, dorsiflexion of the foot with the knee flexed will enhance the reflex finding.

**Joint-ligament therapy.** We treat the cervical spine and shoulder joints while the patient is

*continued*

in a sitting position. The elbow and wrist joints are better treated in the supine position. The ankle, knee, and hip joints are simply flexed with the foot on the table in a relaxed fashion. The low-back-sacroiliac area is treated in a prone position with some table break. The interspinous and supraspinous ligaments are best treated in the lateral recumbent position, alternating from one side to the other on succeeding visits. We use skin marking to give us exact locations of the underlying structure by topographic anatomy.

**The cervical spine.** We usually start treating three levels at one visit. C3 to C7 is the area treated. If the disk deterioration is at C6, we start with one above and one below this area. Treatment of C5, C6, and C7 is the most helpful. One to 2 cc. of 2 per cent Xylocaine is injected into the interspinous area midline. Then 0.5-1 cc. of pumice is injected into the interspinous ligament; as we withdraw, some is put into the supraspinous ligament. Band-Aids are applied to the skin area, and the patient is instructed to take pain medication every four hours for the next day or two and to use four ice packs at the injected area

---

*The most basic of all  
the techniques is that  
for treating the keystone  
joint or the sacroiliac joint*

---

over a 24-hour period — each for 15 minutes. This alleviates some soreness and also helps treatment by preventing the early invasion of giant cells, which are anti-inflammatory.

**The lower spinal areas.** The most basic of all the techniques is that for treating the keystone joint or the sacroiliac joint. We begin by marking the skin, scrubbing the injection sites, and using 3-4 cc. of 2 per cent Xylocaine to a depth of 2 inches on each side. Then we inject the pumice (1.5-2.5 cc. in each side) to a depth of 3-3½ inches. Posterior superficial sacroiliac ligaments that are tender to the touch may be treated at the same time. We use 1 cc. of 2 per cent Xylocaine and 0.5 cc. of pumice for each area. Other ligaments treated in this area and in this fashion are the sacrotuberous and sacrospinous ligaments. Ten-

der areas in the gluteus minimus, medius, and maximus may be treated with 2 per cent Xylocaine and small amounts of hydrocortisone or triamcinolone. We also treat the digital notch behind the greater trochanter, where we find the gemelli and obturator muscles. It must always be borne in mind that the segmental ligaments are the primary sources of pain.

The dorsolumbar areas are treated with the patient in a lateral recumbent position. Usually, three to five levels can be treated at one time. Two cc. of 2 per cent Xylocaine is applied to each segmental area midline and then 1-1.5 cc. of pumice to the interspinous and supraspinous ligaments.

Some soreness or mild discomfort may follow the injections for three to four days. We tell the patient to avoid hot water during this time so that he does not stimulate his responses.

Another frequent site for treatment is the knee joint. We mark the sulcus of the knee joint bilaterally and palpate and mark the location of the collateral ligaments. We use 1 cc. of 2 per cent Xylocaine at each site and inject the ligaments and the edges of the femoral attachments of the coronary ligaments with 0.5-1 cc. of pumice. Some irritation or soreness, lasting for one to four days, should be expected. Sometimes a mild swelling occurs, but it soon subsides. The knee ligaments may be stabilized after four to eight treatments.

In similar fashion, we can treat such shoulder ligaments as the coracoacromial, the coracoclavicular, the acromioclavicular, and the glenoidal joint structure. In the elbow, we treat the radiohumeral ligament. The ankle-joint ligaments treated are the talofibular and the calcaneofibular on the lateral side and the deltoid ligament on the medial side. This is especially valuable in cases of chronic re-spraining or weak ankles. □

---

#### GENERAL REFERENCES

- Gedney, E. H. Disk syndrome. *Osteopathic Profession* 18:12 (1951), 11, 38.  
 Gedney, E. H. Hypermobile joint. *Osteopathic Profession* 4:9 (1937), 30.  
 Hackett, G. S. *Ligament and Tendon Relaxation Treated by Prolotherapy*, Fourth Edition. Denver: Denver Professional Publishing Company, 1968.  
 Shuman, D. *Low Back Pain*. Philadelphia: David Shuman, Publisher, 1958.