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THE OSTEOPATHIC PROFESSION

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Technics for Treating Instability of The Joints by Sclerotherapy*

... by David Shuman, D.O.

IN speaking about the work I do in treating unstable joints I refer to it as "joint sclerotherapy," which seems to me to be fairly well descriptive. It is scar treatment of joints. Over the past fifteen years it has proved of value in treating various weak or unstable joints among which the most frequently encountered are the unstable back, and under this broad classification I include (1) weakened, unrepaired disk, (2) spondylolisthesis, (3) anomalous joint development and (4) hypermobile sacroiliac. Then there are the "trick knee," recurrent shoulder dislocation, loose jaw and some others infrequently seen such as acromioclavicular, sternoclavicular, ankle and costochondral abnormalities.

The "trick knee": There may be one or two things wrong with the knee thus designated. There will be a weakening of the collateral ligaments with or without a cartilage that slips. Perhaps the most commonly complained of symptom in

**From a talk given to the associate staff of the Bashline-Rossman Hospital at Grove City, Pa., March 25, 1953.*

this condition is the feeling of insecurity. This is particularly evident when stepping down. At this time the parts disengage for a moment as the leg hangs free and then as the weight comes onto the leg again the parts may or may not engage properly. When they do not, there is a sudden unbalancing caused by the joint sidebending and unless the person "catches himself" in time, he may fall or at least feel that he will.

If the meniscus slips forward and stays stuck in that position, as it frequently will, we will then see a classical picture of the "trick knee." Complete extension is impossible, there is pain and swelling, and the patient limps about slowly and reluctantly on the ball of the foot on the injured side. If the meniscus can be manipulated soon after it comes out there usually is little trouble in getting it back and little or no discomfort to the patient. But if the meniscus has been out for several hours or longer it is hard to get back since there is usually considerable swelling. Sometimes I have had to use local anesthesia to do it. This condition occasionally occurs in women, but most of the ones I have seen have been in men who led an active, strenuous life and received some accidental injury in sports or otherwise. It is fairly common.

Diagnosis: A history of feeling insecure at the knee coupled with some trauma to the part of recent or ancient vintage suggests "trick knee" as a possibility. To check for hypermobility have the patient sit with the leg outstretched in full extension. Grasp the knee with both hands at the same time the ankle is anchored by your thighs and

then attempt to produce sidebending. With a normal knee none will be produced but in an unstable one it will be. It can be felt and seen.

Technic and management: Using a one inch 24 gauge needle, 0.2 c.c. of Slynasol is injected into the collateral ligaments. Sometimes both the medial and lateral collateral are done and at other times one or the other. The dose may be increased, depending on the patient's tolerance. Usually the treatments are given at weekly intervals. The patient should be told at the beginning that pain may be expected within a few hours after treatment. When the proper dose is given only a slight amount of pain is felt and ordinary activities may be carried on.

Dislocated Jaw

Jaw: When the temporomandibular joint is unstable there sometimes are frank dislocations at repeated intervals and at other times varying degrees of slipping accompanied by annoying sensations of clicking and jolting. It is not very frequently encountered. There may be a history of trauma but in some cases there is no explanation for the instability. The bite appears satisfactory in some of these.

Diagnosis: A history of repeated clickings or slipping is suggestive of the trouble. With the tips of the fingers over the joint it is sometimes possible to feel a vibration and at the same time hear a click as the jaw slips while it is being opened and closed.

Treatment: A one inch 24 gauge needle is used and the dose of Slynasol is 0.1 to 0.2 c.c. This is usually repeated at weekly intervals with early good results. Fewer injections

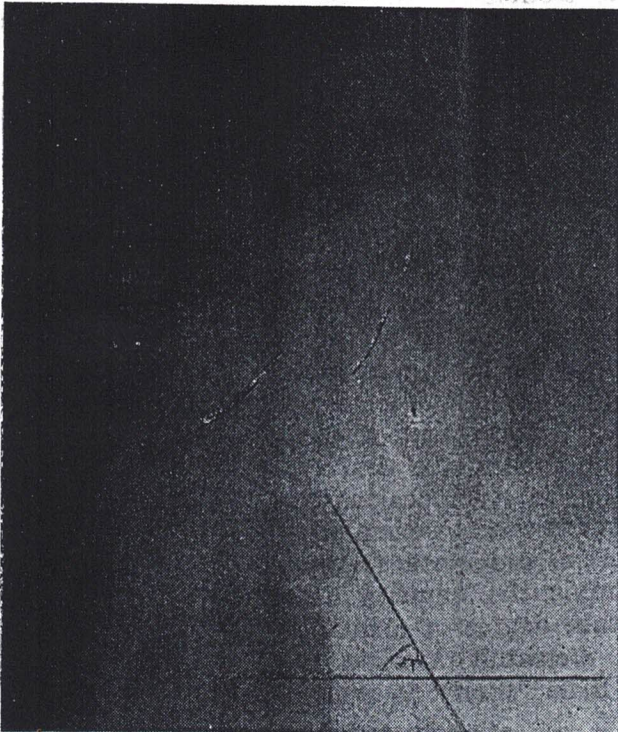
are necessary to stabilize a jaw than any other joint. Three injections are about all that are needed for even a very weak jaw. In this connection I recall the worst case of this kind I have ever seen. A middle aged woman was referred to me by another doctor. She had a history of repeated attacks of bilateral, complete dislocation, sometimes as often as twice a week. She frequently needed her doctor's help to get the jaw back and her diet had been reduced to very soft and liquid foods. Even when talking the patient did not open her mouth normally because she was afraid to. I gave her three injections bilaterally of 0.1 c.c. in 1947 and repeated checks with her doctor up to date indicate she has never had a return of the trouble.

Shoulder Lesions

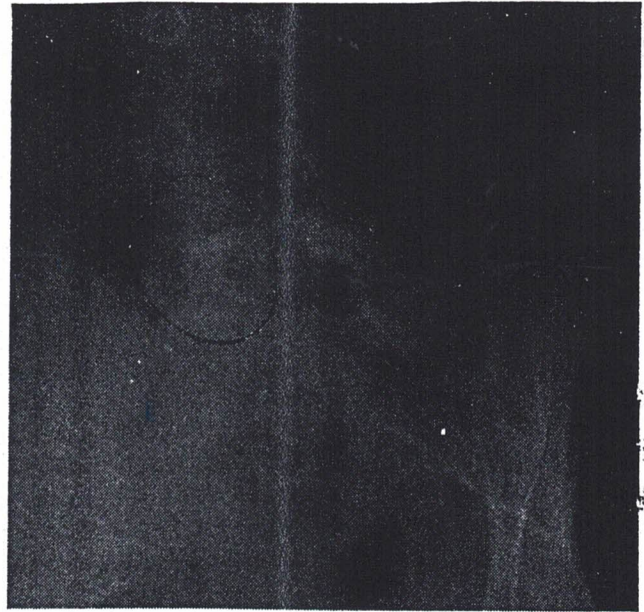
Shoulder: There is usually a history of some trauma to account for the initial dislocation; subsequent dislocations follow from movements which involve abduction. It may occur while turning over when asleep, putting on a coat, pushing up a window or just driving a car. I think the glenoidal labrum is probably involved. It would seem easier to understand subsequent dislocations if at the time of the first violence resulting in a dislocation the glenoidal labrum was loosened, making for a sort of automatic tripping action, dropping the humeral head when a certain degree of abduction is obtained. Certainly without the aid of this little "shelf" at the inferior lip of the glenoid there is hardly a socket worthy of the name.

Diagnosis: This is dependent on the history. I know of no test, phy-

sical or radiographic, which will determine the difference between a normal shoulder and one that is unstable enough to allow for repeated dislocations resulting from trivial causes. In most of our recurrent shoulder dislocations an initial trauma has been an almost-always-present cause. I have seen one case in which there was no trauma; it was bilateral and was apparently attributable to ACTH and cortisone. This patient was referred to me after operation had been recommended by an orthopedic surgeon. She gave a history of repeated dislocations which began shortly after the start of a course of ACTH. She wore an elastic cuff around each upper arm and these



A.R.: Lateral X-ray showing second degree spondylolisthesis of L 5 on S1.



D. G.: Oblique X-ray showing rudimentary facets between L 4 and L 5 on the right.

were connected across the back with a wide strip of elastic. She had worked this contraption out for herself. It prevented abduction beyond about 45 degrees and cut down considerably on the dislocations. She wore rather heavy braces of leather and metal about each knee. I gave her eight injections bilaterally to knees and shoulders. After six injections she discontinued wearing the braces. Treatment was completed in October, 1952. A report received from her on January 23rd, this year, stated there have been no more dislocations and she gets along without any braces.

Shoulder Technic

Technic: The hand on the involved side is placed back of the neck so as to expose the axilla fully. The head of the humerus is palpated and serves as a landmark. The injection is made into the capsule and at the glenoidal labrum by inserting the needle just below the head of the humerus. Use 1.0

to 3.0 c.c. of Slynasol and treat at weekly intervals. When you feel the humeral head also feel the axillary artery and keep it pushed out of your way while injecting.

Acromioclavicular: When this joint is weakened sufficiently you can actually see the separation of the acromion and the clavicle so that the acromion will appear at times several millimeters below the clavicle. The complaint made by the patient is weakness of the entire extremity. In well developed cases comparison of the two sides makes the diagnosis fairly obvious. Acromioclavicular subluxation is found as an occupational hazard among parachute jumpers but otherwise is encountered infrequently.

Technic: Using a one inch 24 gauge needle inject 0.2 c.c. of Slynasol into the acromioclavicular ligament. Support the joint with a sling and treat at weekly intervals. Healing is rapid and the patient notes a quick return of power to the extremity.

Back Conditions

Unstable back: Backache as a symptom is common and it may have causes other than those to be found in the back itself. The gynecological, gastrointestinal and urological causes I will not touch on here except to say that when physical and X-ray examinations leave you perplexed it would be wise to give some thought to these other fields for a possible referral mechanism.

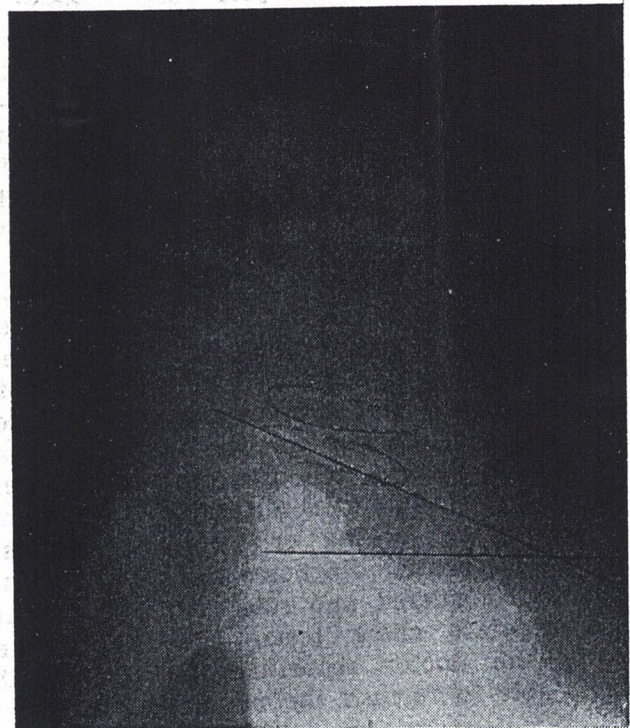
I believe the following are the most commonly encountered causes of unstable back, which is undoubtedly an important reason for backache, disability and referred pains:

1. Weakened, unrepaired disks.
 2. Hypermobility sacroiliac.
 3. Spondylolisthesis.
 4. Anomalous joint development.
- Certainly the greatest amount of joint sclerotherapy is done in this classification of disorders.

Disk Protrusion?

It has been taught that the disk causes symptoms by actual protrusion with pressure on nerve roots. This appears to be true in some cases. In others, however, there is no actual protrusion but the symptoms are present and there is definite degeneration of the annulus fibrosus. Some very interesting in-

(Continued on Page 32)



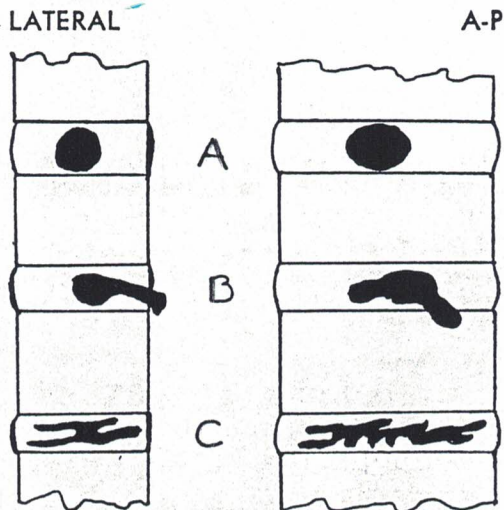
W.M.: Lateral X-ray showing decreased intervertebral space between L5 and S1.

Joint Sclerotherapy

(Continued from Page 23)

formation has come to light since the introduction of nucleography or diskography. The pattern made by the iodized, aqueous solution indicates that degeneration takes place in the annulus in a most irregular manner at times and not necessarily posteriorly nor necessarily to the extent that a protrusion is made against the nerve root. The important fact that is present in all symptom-producing disk cases, with or without actual protrusion or hern-

The following diagram shows normal outline of nucleus and degeneration of the annulus:



- A. Normal outline of nucleus. There is no degeneration of the annulus.
- B. Degeneration of annulus with protrusion. Present in a minority of disk cases. This is the only type that may be seen with oil or air in spinal canal (myelography).
- C. Degeneration of annulus without protrusion. Present in a majority of symptom-producing disks. This may not be diagnosed with spinal injections of oil or air (myelography).

iation, is that *there is lacking a normal annulus fibrosus*. It is apparent that the nucleus pulposus is the passive part, albeit the publicity-catching one, of this shock-absorbing, stabilizing structure; and the annulus is the active, strength-giving part which confines it and holds the bones together in a stable fashion when normal. The annulus has to degenerate before you get the picture of a spreading, useless nucleus. *Instability itself is productive of symptoms*.

Nature can absorb and repair in this part as the work of Linblom & Hultquist, and Coventry, Ghormley & Kernihan so aptly shows. With fibrosis or calcification as the tools of repair nature does secure stabilization. Another factor in support of the idea that instability is largely the cause of symptoms in "disk trouble" is the fact that surgeons secured a better result when they started to use arthrodesis in conjunction with their laminectomy and enucleation procedures.

Chamberlain Test

The Chamberlain test for sacroiliac motion offers further proof of the part instability plays in causing back symptoms. The Chamberlain test is a radiographic test to determine sacroiliac motion by studying changes at the symphysis pubis as the weight is borne first on one and then the other leg. The patient stands first on one leg on a block of wood about ten inches high and the symphysis pubis is against the film holder. A picture is taken and then he stands on the other leg while a picture is again taken of the symphysis pubis. In

the case of a normal joint no movement takes place at the symphysis and this is determined on the X-ray film by noting that each pubic bone has not altered its relationship to the opposite one. When, however, there is a weakness of the sacroiliac ligaments the pubes will change on this test. You may find that when the patient stands on the right foot the right pubes rises 2 or 3 mms. above the left and when he stands on the left foot, the left pubes will rise 2 or 3 mms. above the right one. In expressing the amount of change Chamberlain adds the two sides. This test will not show normal sacroiliac motion and when it is positive you may be quite sure there is instability in the sacroiliac joints.

Abnormalities

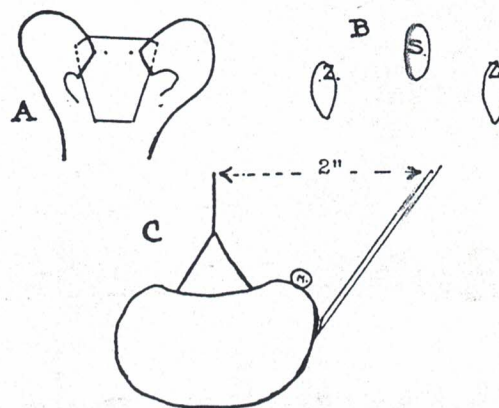
Spondylolisthesis and abnormal facets or zygapophyseals are two conditions with the common background of abnormal development. This occurs in the neural arch in spondylolisthesis and is often evident as an incomplete arch. The facets may have abnormal facing or be almost absent and so they cannot control spinal motion as they are intended to.

Diagnosis: We usually start out with a chief complaint of low back pain in the four conditions listed earlier. There are some exceptions to the initial complaint of low back pain, in that sometimes leg pain is mentioned first, but careful questioning will usually reveal that there has been backache before. The abnormal facet and the spondylolisthesis will be found on routine X-ray examination and not before. On physical examination it will be

found that the degenerated disk case as well as the spondylolisthetic one will report pain when pressure is applied to the spinous processes of the involved levels. There may be root symptoms from the spondylolisthetic as well too and it is usually the nerve above rather than the one below that carries the pain. In hypermobile sacroiliac palpation will reveal pain in this area. In abnormal facets there is usually pain on pressure over them.

In a routine examination of the patient with low back pain observe him in standing position. Note the

DIAGRAMS FOR TECHNIC



- A. Shows posterior superior iliac spine overhanging sacroiliac joint (dotted line). Needle is inserted about $\frac{1}{2}$ " medial to posterior superior iliac spine in a lateral and ventral direction.
- B. Illustrates relative positions of zygapophyseals about $\frac{3}{4}$ " lateral to spinous process and below it. Insert needle about $\frac{3}{4}$ to one inch lateral to tip of spinous process and deposit Sylnasol in capsular ligament of zygapophyseal joint.
- C. For disk treatment. Central arrow points to bottom of spinous process of vertebra above disk being treated. Lateral arrow indicates point two inches directly lateral where needle is inserted.

degree of tilt and scoliosis, presence or absence of the spastic side-bend known as sciatic scoliosis.

Can the patient bend forward and straighten?

Check reflexes. They are of most significance when not bilaterally the same. The straight leg and Lasègue's test are useful in eliciting a beginning sciatica.

Observe sacroiliac motion and tenderness, noting especially restriction or hypermobility, pain on pressure, and whether there is tenderness at the sciatic notch. Pain in sciatica from hypermobile or lesioned sacroiliac will begin here, whereas pain in sciatic nerve from

root involvement will not. In root involvement it occurs in "islands", not a continuous line.

Apply pressure over spinous processes, palpate lumbar muscles and observe motion. In your examination keep low back strain and fibrositis in mind as well as unstable conditions.

X-ray in Diagnosis

Tilt, scoliosis, spondylolisthesis and anomalies are readily diagnosed by X-ray. Retrolisthesis, narrowed disk spaces and spur formation are easily picked up and are suggestive of degeneration of the disk. Spur formation occurs only anteriorly and is believed to occur



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from increased mobility, stimulating the periosteum through the ligamentous fibers which are attached in front and not behind. This is considered analogous to the formation of larger bone ridges at the point of insertion of tendons of muscles which are used often. The Chamberlain test is helpful and significant when positive.

Technic: (1) For sacroiliac hypermobility, use a two- to three-inch 22 gauge to 20 gauge needle. Insert slightly medial to posterior superior iliac spine and deposit 0.3 to 0.5 c.c. of Sylnasol into posterior sacroiliac ligaments. (2) For facets, use a two-inch or three-inch 22 gauge to 20 gauge needle. Insert about $\frac{3}{4}$ to one inch lateral to tip of spinous process and deposit 0.2 to 0.4 c.c. of Sylnasol in capsular ligament of zygapophyseal joint. (3) For treatment of degenerated disk and spondylolisthesis, use a little local anesthesia at site of injection which is about two inches lateral to tip of spinous process of vertebra above disk being treated. Use a three- or four-inch 20 gauge needle and insert medially and ventrally at about a 45 degree angle. Inject 0.1 to 0.2 c.c. into the annulus at the disk or just above or below it. (See page 34 for diagrams).

Case Histories

W. M., a thirty-nine year old male, who worked as oven man at a bakery, was seen first on May 26th, 1952. His chief complaint was pain in right hip and right calf. Coughing, bending, walking or sneezing made pain worse. The pain, for which he consulted me, had started three days before and

was the worst the patient ever had. History revealed he had fallen six years before while bowling and had twisted the right hip. Since then he had bouts of back pain "on and off," but this was the first time he had pain in the calf.

Examination: When I looked at him in the standing position he was pulled over to the right in the position known as sciatic scoliosis. The rigidity of his muscles prevented him from either straightening up or bending forward. When he was in the prone position I elicited pain on pressure over the spinous processes at L 4 and L 5. Examination of his reflexes revealed the following: patellar—normal on the left and hyperactive on the right; the tibiofemoral and Achilles were bilaterally absent; the straight leg and Lasègue's tests were positive on the right and negative on the left.

Diagnosis was herniated disks at L 4 and L 5, and treatment was a course of seven Sylnasol injections to disks at L 4 and L 5. A check one month later revealed the patient had resumed steady work and was able to unload cookie pans at the rate of thirty per minute. He has had no subsequent complaints.

Complicated Findings

A 44-year-old housewife, Mrs. A. R., came with a complaint of pain in the lower back, right side, which had started three days before. The onset was gradual, but the pain steadily grew worse, and was aggravated by bending, coughing and sneezing. The pain radiated into both buttocks and the patient stated her right leg felt "heavy," and she dragged the limb. Exami-

nation in the standing position showed marked tilt to left with scoliosis to left. Spinous processes at L 4 and L 5 were painful to pressure. Straight leg test was positive on right; reflexes were normal bilaterally. X-ray showed a second degree spondylolisthesis, hypertrophic arthritis of lumbosacral joints and a marked pelvic tilt to the left.

Treating Disks and Facets

Treatment was sclerotherapy to L 4 and L 5 disks and L 5 facets: eight injections to L 4 disk, 4 injections to L 5 disk and six injections to L 5 facets. The dosage used in each injection was 0.2 c.c. of Sylnasol. Results were good and the patient now does her household work without pain.

Miss D. G., an eighteen-year-old salesgirl, had a presenting complaint of pain in lower back which was fairly constant. She was unable to bend without pain. The pain had begun about a year prior to her visit and was getting worse. She had not had the pain at any time before its onset a year ago. It was severe enough to interfere with sleep and was increased on coughing and sneezing.

Facet Pathology

Examination in the standing position showed tilt to right. The straight leg test increased back pain; reflexes bilaterally normal. Pressure on lateral joints at L 4 and L 5 caused pain. X-ray showed marked abnormality in the facets between L 4 and L 5 on the right; they appeared as minute rudiments

on the film. Short right leg also was noted.

Good results in this case were achieved through sclerotherapy to zygapophyseal between L 4 and L 5, and $\frac{1}{4}$ inch lift for right leg. She received eight injections of Sylnasol, 0.2 c.c. per injection. She was able to remain at work during treatment and has remained symptom free. One month after treatment was discontinued the straight leg and Lasègue tests were negative.

SUMMARY

1. Diverse conditions such as recurrent shoulder dislocation, "trick knee", hypermobile sacroiliac and "disk trouble" may be due to instability.
2. Weekly injections of sclerosing fluid are useful in regaining stability.

Philadelphia, Pa.

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