

Osteopathic medicine

M. SICKESZ AND E.B. BONGARTZ

Introduction

Pain that is relayed segmentally via a dermatome is of radicular origin. In osteopathic medicine, practitioners are frequently confronted with reflex differences, loss of sensitivity and/or loss of strength if the pain radiates to one of the limbs. Knowledge of segmental innervation is important for identifying the site of a possible neurogenic lesion. In very many cases, however, the complaints expressed by the patient cannot be placed in this category and no loss of sensitivity or strength can be established upon physical examination. In the absence of other causes, such as those of capsular or tendo-myogenic origin, this is referred to as pseudoradicular pain; in other words, there is no consensus on a diagnostic system for complaints of pain in the locomotor apparatus. From the therapeutic viewpoint a conservative approach is then appropriate, varying from rest to physiotherapy or from medication to alternative, additive methods.

In this article, one empirical method is described, viz.: osteopathic medicine. This method focuses on the use of palpation and examination to identify an abnormal position of the skeletal parts of the locomotor apparatus and to correct them by application of varying degrees of local pressure. This abnormal position is sometimes associated with local dysfunctioning. The abnormal position and the underlying pseudoradicular complaints must be positively influenced by manipulation (mobilization).

Diagnostics

Upon diagnosis, osteopaths establish deviations in the relative position of the different vertebrae by means of palpation and examination. To that end, an imaginary line is drawn between the fingers of the examining practitioner, which are placed on certain sites of the patient's body. These sites are determined on the spinal column, for example, by the spinous processes and the transverse processes, etc. Account is taken of the fact that the joint surfaces between the various vertebrae on the spinal column are practically all different in shape and size and their position relative to the co-ordinate system is consequently different each time. Knowledge of this is essential.

What are the deviations from the usual position that a vertebra in the co-ordinate system may display relative to the neighbouring caudally located segment? (The standard abbreviation used in osteopathic medicine is shown between brackets.)

1. The vertebra may rotate around the anterior-posterior axis (AP axis). It is assumed that this rotation continues so far, due for example to overloading, that it becomes locked in this position. This applies to cervical, thoracic and lumbar vertebrae. The vertebra tilts, as it were; it is in a lateroflexion position (LFP).

2. The vertebra may be displaced dorsally, both unilaterally and bilaterally, and will then be forced by the shape of the joint surfaces also to rotate slightly in the other two body axes. This applies to cervical, thoracic and lumbar vertebrae. The vertebra is displaced backwards, as it were, and we call this a dorsal displacement; it is in a dorsal position (DP).

3. The vertebra may shift sideways. Again, this is possible in the case of cervical, thoracic and lumbar vertebrae. Lumbar vertebrae present differently on palpation than cervical and thoracic vertebrae due to the shape of their joint surfaces. The vertebra shifts, as it were, laterally; it is in a lateral position (LP).

4. The vertebra may be displaced ventrocranially, either unilaterally or bilaterally. This is accompanied by rotation around a longitudinal axis and around the anterior-posterior axis; however, the latter occurs only in unilateral displacement. Bilateral displacements are seen after whiplash trauma: the vertebra is in a ventral position (VP).

5. The vertebra may rotate around a longitudinal axis. When this axis runs through the vertebral body, the dorsal part of the vertebra - in particular the spinous process - is displaced away from the median line. The vertebra rotates; this is a rotation position (RP). The positions may occur singly or in combination, i.e. a single vertebra could display all five of the deviations from the usual position at the same time.

How does one establish these deviations from the usual position in the separate parts of the spinal column?

- In the case of the cervical vertebrae, the transverse processes and the spinous processes can be extremely well palpated, thereby allowing the position of the neck vertebrae to be well determined. The examination is done while the patient is seated with the head hanging down.
- In the case of the thoracic vertebrae, the ribs give a magnified image of the position of the vertebrae. Together with palpation of the musculature adjacent to the spinous process on both sides while the patient is sitting straight and while the patient is lying in the ventral decubitus position, this provides sufficient indicators to determine the deviations from the usual position.
- In the case of the lumbar vertebrae, the diagnosis is largely made while the patient is lying in the ventral decubitus position. The position of the individual spinous processes is examined and the position relative to the underlying vertebra is also determined, as well as the position of the palpating thumbs, pressed into the tissue lateral to the erector trunci muscle.
- In addition, the position of the vertebrae relative to one another is also examined while the patient is lying in the left or right lateral decubitus position with the pelvis on a cushion. A properly functioning back should then show a certain curvature. The above-mentioned deviations from the usual position can soon be identified in this way.

The pelvis plays an important role in the diagnosis of deviations from the usual position in the spinal column. Three deviations may be established in the pelvis, viz.:

- a. tilted sacrum relative to a vertical line;
- b. distorted pelvis without fixation of the sacroiliac (SI) joints, and
- c. distorted pelvis with fixation of one or two SI joints.

Re a. A tilted sacrum is established by placing the patient in the ventral decubitus position, if necessary with a cushion under the abdomen if the patient fails to relax sufficiently. You then stand at the patient's head and place both index fingers at left and right of the cranial end of the sacrum alongside the superior articular process and press the fingers in the caudal direction. When one finger then moves more caudally than the other, this indicates that the sacrum is tilted and clamped between the two halves of the pelvis. In many cases this can also be clearly seen when the patient is in the seated position. This deviation may be caused by an asymmetrical vertical force, as in:

- falling on the buttocks;
- sliding down the stairs while seated;
- manual expression during labour.

Re b. A distorted pelvis is a pelvis in which one or both ossa ilii are rotated into the SI joint in the rest position, causing one or both cristae iliaca to be more cranial than the other. This is observed with the patient seated by placing the fingers left and right purely lateral on the crests.

In the case of a distorted pelvis without fixation of the SI joints, the functioning of the SI joints is checked as follows: sit behind the (standing) patient and place the right thumb on the sacrum alongside the spina iliaca posterior superior at the left side. A notional line is drawn to the left trochanter major and the left thumb is placed 2 cm away from the right thumb on this line. The patient is then asked to draw the left knee up to the abdomen, if necessary with the assistance of the hands. During the last part of the knee-lifting motion, the left thumb must describe a semi-circular movement and finish above the right thumb. If this happens, the functioning is in order. This examination applies to the left SI joint. For the right SI joint the placement of the hands should be symmetrically reversed.

The cause of the distorted pelvis may be due to deviations from the usual position of the lower lumbar vertebrae and/or to functional deviations or deviations from the usual position of the hip joint. A fused symphysis, which as syndesmosis should nonetheless show some mobility, may also be the cause of a distorted pelvis.

Re c. When no movement is observed in the SI joints bilaterally during functional examination of these joints in a distorted pelvis, there is nearly always a fairly appreciable (apparent) lower limb length discrepancy. This discrepancy is not true because it is based on the fact that the examination to determine the height of the two crests is repeated in the standing position and not in the seated position. If it is found upon repetition of this examination in the seated position that a tilted pelvis is still present, there is therefore mention of an 'apparent' lower limb length discrepancy.

A distorted pelvis due to bilateral SI joint locking is caused by fixation of one os ilium ventrally, as a result of which the acetabulum moves caudally; the other iliac bone is then fixed dorsally, which causes the acetabulum to move more towards the cranium. When these fixations are loosened, most of the torsion overstress is usually relieved. When the fingers are subsequently placed on the crests, bilaterally on the erector trunci muscle with the patient seated, one finger is frequently still found to be higher than the other; in this case a tilted pelvis is involved, where one of the os ilii has been displaced cranially or caudally.

A long existing tilted pelvis is 'cushioned' by the spinal column by allowing the vertebrae to rotate around the longitudinal axis, alternating left and right dorsally, up to and including C5. These twisting moments form a fixed pattern with fixed turning points. These fixed patterns are called 'formulae'. One of these formulae can be seen by asking a person with an anatomically normal back to rest one foot on an approximately 2 cm high platform and then stand with the knees straightened. One of the formulae - of which there are four - will then be formed. After removing the platform everything is restored to normal. The formulae are therefore physiological adjustments that can turn into deviations if they become fixed because the tilted pelvis becomes permanent. After correction of the tilted pelvis the formulae do not disappear unless they are treated adequately. This treatment, by manipulation, has a fixed, systematic sequence. The formulae are corrected in five treatments.

The cause of the tilted pelvis is excessive loading of the sacrum with opposing pressure in one of the acetabula; this occurs in sideward strain when lifting a load or in a fall on one of the os ischii.

The deviations from the usual position of the individual vertebrae are largely covered by the formulae. All the additional deviations of the vertebrae cannot be separately assessed and treated until approximately three treatments have been completed.

Complaints and symptoms

The above-mentioned deviations from the usual position of the vertebrae, which are often associated with dysfunctioning, frequently cause 'referred' complaints. The complaints are situated in the dermatome, viscerotome or myotome. In this way, for example, it is possible that complaints of pain in the leg with no radicular compression symptomatology on physical examination are caused by low lumbar deviations in the manual therapy sense. This also applies, of course, to cervicobrachialgia and to dizziness and headaches of diverse origin. With regard to the viscerotomes, it is noted that a connection is frequently found between diffuse cardiac complaints and deviations of the midthoracic spine. In nonspecific abdominal complaints a connection is also frequently seen with deviations of the lumbar spinal column. There is consequently also mention of a therapeutic approach to vegetative complaints that cannot be determined by means of instrumental diagnosis and which are susceptible to spinal column manipulation.

Therapy

Treatment consists generally of light pressure in the opposite direction to the deviation from the usual position, causing the vertebra to resume its normal position in the co-ordinate system. This will usually require several combined manipulations. It has been demonstrated empirically that the spinal column is governed by fixed laws. These laws entail, among other things, that:

- each vertebra must be treated separately;
- each deviation from the usual position must be treated separately, and
- there is a certain sequence in the treatment of these deviations from the usual position.

This local and specific pressure is exerted on the transverse process or spinous process, in the course of which the adjacent segments either have to be relaxed or possibly fixed in torsion. During this treatment, use is made of cushions of different heights.

The authors would like to express their thanks to their colleague E. Keijzer, M.D., Doctor of Osteopathy, of Lelystad, for his valuable comments.

References

1. Cyriax F. Textbook of orthopaedic medicine. Vol. I. II. London: Baillière Tindall, 1980.
2. Lewit K. Manuele therapie. Part 1 and 2. Lochem: De Tijdstroom, 1979.
3. Niboyet JEN. La pratique de la médecine manuelle. Saint-Ruffine: Miasonneuve, 1968.
4. Williams PC. The lumbosacral spine. New York: McGraw-Hill, 1965.
5. Sickness M. Orthomanipulatie. Alphen a.d. Rijn: Stafleu, 1981.
6. Biesinger E. Diagnosis and therapy of vertebrogenic vertigo. Laryngol Rhinol Otol (Stuttg) 1987; 66: 32-6.
7. Kunert W. Wirbelsäule, vegetatives Nervensystem und innere Medizin. Stuttgart: Enke Verlag, 1978.