I have read this article carefully and agree with it entirely. I firmly believe that the pulmonary ventilation of the normal pregnant woman is adequately served by normal spontaneous breathing and cannot accept that any special patterns of breathing will really improve on this state of affairs.

The only possible advantage, that might accrue to the pregnant woman who has received special breathing exercises, is a psychological one. It may give her something to concentrate on in early labour and this may give her the feeling that she can do something active "to help" during the first stage of labour. Conversely, this may result in a feeling of guilt towards her baby if in the later stages of labour she finds herself unable to maintain the pattern of breathing that she has been taught.

In the second stage I agree that training does increase the ability of the patient to co-operate with bearing down efforts—especially at the point of crowning of the foetal head.

In my opinion Dr. Blankfield's article is a well balanced and clear assessment of the subject of breathing in pregnancy and labour. It is an article that must be welcomed and is long overdue. It will help clarify a field that has, in recent years, become clouded and confused with unscientific methods and claims bordering on witchcraft.

I am,

Yours sincerely,

L. van Dongen

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CRONIC LOW BACKACHE
in the MIDDLE-AGED WOMAN

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Back pain may be described as a universal symptom. Almost everyone suffers from backache at one time or another in their lives, and some have it more or less continuously, but only a proportion of those who suffer from it, complain of it.

Women are more prone to the condition than men because of hormonal influences, changes of posture during pregnancy and because gynaecological disturbances may cause backache.

The complaint is often suffered in silence. Many people believe it is a normal sequel to childbirth or a natural accompaniment of the menopause. It is a subject which is often dismissed lightly, but much discomfort and disability can be ameliorated.

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The frequency with which long standing symptoms in the back and a neurotic personality coincide is notorious, what ever the cause, it is very likely that sooner or later there will be psychological implications.

The treatment of backache demands the time and patience of the practitioner. Backache is seen in equal numbers by the gynaecologist and the orthopaedic surgeon. There is in fact an organic cause to nearly every complaint in the back.

The assessment of the severity of pain, the cause of it and the treatment best fitted to the individual patient remains one of the more difficult problems in clinical medicine. It is by no means possible to arrive at a precise diagnosis, but the attempt must be made, for it is unusual to identify the specific structure causing pain in the back, even when X-ray changes are present.

Not many years ago, the concept of the slipped disc came into vogue. Doctors jumped at this notion as a gift from heaven and the diagnosis was exploited so that slipped disc became the diagnosis for almost every backache. The subject is complex. Almost any structure in the spine can in fact cause pain. Furthermore, many abdominal or pelvic organs can cause pain referred to the back, that is, seeming as if it were coming from the back.

Backache is a symptom and not a diagnosis. It presents frequently as an entity (as does headache).

To simplify the matter therefore, it is useful to classify backache into a number of clinical syndromes, since every
Osteoporosis is probably the commonest cause of chronic backache in the elderly patient. Although all parts of the skeleton are affected, the spine and pelvis are more extensively involved than other parts. Radiologically there is rickets and collapsed vertebrae are often seen.

The pain is characteristically worse when the patient is up and about or tired and is accompanied by rounding of the back and loss of stature.

At present it appears that removal of normal ovaries from a female of reproductive age will certainly result in osteoporosis.

Administration of exogenous natural oestrogens may prevent the development or extension of this process. Unfortunately, there is no evidence as yet that such female hormones can cure or improve osteoporosis once it has developed.

A. GYNAECOLOGICAL BACKACHE

Backache that results from a gynaecological lesion is diffuse in nature. The pain results from involvement or extension of pathological processes into the utero sacral ligaments and hence is always sacral or lumbo sacral in situation. The pain may be uni- or bilateral. Point tenderness is never a feature. The possible causes of gynaecological backache are as follows:

1. Menopausal backache and osteoporosis

Recent research has shown a relationship to exist between ovarian endocrine function and the density of bone. Osteoporosis is a metabolic disease of bone characterised by a disturbance between bone formation and resorption. The main disturbance is an increased resorption of bone which is related to production of hormones. The osteoporosis commences or accelerates in women soon after the natural or induced menopause and it does seem that osteoporosis is related to endogenous oestrogen deficiency. Recent work has tended to show that osteoporosis is more likely to develop when both calcium and sex hormones are deficient.

Whatever the pathogenesis of the disorder, the effect is a rafification of the bone. Nevertheless, while reduced in quantity, the bone is essentially of normal chemical composition.

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B. ORTHOPAEDIC BACKACHE

The causes of orthopaedic backache are extremely numerous. For simplicity sake, it is convenient to arrange them into Mechanical and Pathological groups.

In the first type, the bones and tissues themselves are normal, but there is some displacement of the normal relationships. These include derangements of the intervertebral disc, movement of vertebrae one upon the other, injuries of the back, and chronic postural strains.

In the second type, there is some pathological process involving the bones themselves, be it biochemical, infective or neoplastic.

1. Mechanical causes of backache

1. Intervertebral disc displacements

The intervertebral discs are situated between adjacent vertebral bodies. The disc itself is a jelly like substance...
contained in a fibrous ring and under certain circumstances and especially in the lower lumbar spine, it may herniate anteriorly and press on emerging nerve roots, and stretch ligaments, and low back pain and sciatica result.

The patient is generally well. There may have been previous episodes of low back pain and sciatica. The classical attack starts acutely while the patient is bending forward and trying to lift a heavy weight, and the pain is usually felt in the back and down one leg; this pain is worse on coughing and straining. There are typical local signs of tenderness, muscle spasm, and perhaps scoliosis. Neurological signs from pressure on affected nerve roots may be found. X-rays may show no abnormality, a diminished disc space, or signs of osteoarthritis.

Treatment consists of strict and complete recumbent bed rest with traction to both legs for at least 10 days to three weeks. Afterwards, back strengthening exercises and postural training are important. A plaster jacket or a corset may be needed for a time when the patient gets up. Only in resistant cases is further special investigation necessary and laminectomy and surgical removal of the disc necessary.

2. Acute traumatic injuries are usually followed immediately by severe pain. Spinal injuries may be stable or unstable. The fracture is treated on its merits. If there is no X-ray abnormality, the soft tissue injury is generally not serious and with adequate rest, full recovery can be expected. Almost everyone at one time or another hurt or strains his back, either from a heavy fall or a blow, but only very rarely does the episode cause pain and disability.

3. Chronic postural strain. This is characterised by long-standing aching pain in the back perhaps radiating to buttocks and thighs, aggravated by stooping, and punctuated by remissions and exacerbations. The middle aged woman frequently complains of low backache, especially after a day’s work, and worse on being tired. It does not usually keep her from her activities. The key to diagnosis is therefore the history, for both physical examination and X-rays are negative.

4. Spondylolisthesis: Slipping of one vertebra on another is known as spondylolisthesis. It is a rather rare abnormality. It may cause episodes of low backache and the diagnosis is established with the help of X-rays. Immobilisation in plaster or a corset may provide relief but if displacement is marked, surgical fusion of two vertebrae is usually necessary.

II. The pathological syndromes of backache

1. Osteoporosis has already been mentioned as being one of the most prominent causes of backache in the elderly female. The effects of osteoporosis occupy a considerable portion of the practice of an orthopaedic surgeon.

2. Osteoarthritis. This is a condition which involves the degeneration of joints as a whole, especially articular cartilage, associated with advancing age. The involved joints become stiff and painful. The spine is often the site for osteoarthritic changes, and many cases are diagnosed by the incidental finding of osteoarthritis of the spine on an X-ray when looking for some other pathology.

3. Acute and chronic infections

These should always be excluded in any case of low backache, as this may be the only symptom indicating the onset of a disease process.

4. Primary and secondary neoplasms

Severe backache in the elderly always raises the possibility of a neoplastic deposit in the spine. The pain is usually continuous at rest and often worse at night, X-rays may indicate such a lesion, and common sites for a primary should be sought.

5. Rheumatic backache

There is a group of conditions which includes rheumatism, fibrositis, lumbago, sciatica and arthritis. Recent investigations have tended to deny the existence of such conditions, but nevertheless there does appear to be a general condition of rheumatism to which certain types of people appear prone.

The intricate complex of joints, ligaments and muscles that constitute the lumbar and sacral spine provide infinite and varying possibilities for the source of pain and the site of a disease process. Sometimes tender nodules may be felt in the soft tissues, the exact nature of which are poorly understood. The term fibrositis may well be applied to this condition. The nodules often act as trigger points from which backache may originate.

TREATMENT

With such a bewildering array of possible causes for backache, it is not surprising that successful treatment can be so elusive. In general, treatment follows one of two lines:

1. Conservative treatment

Positive treatment often cannot be prescribed even for the more clearly defined conditions. In many cases of long standing low backache which are not discogenic, treatment may take the form of:

(a) Physiotherapy—exercises to strengthen the back and teach posture. Mobilisation exercises, massage, short wave diathermy and ultrasound and intermittent traction may all prove helpful in the appropriate case.

(b) Local injections of anaesthetic agents and hydrocortisone into tender areas may be extremely useful.

(c) Braces or corsets, to relieve strain on ligaments; these should always be supplemented with exercises.

In some cases, physical habitus and posture may suggest that defective posture is the cause of backache, and postural exercises and training are indicated.

2. Surgery

The place of surgery in low backache should be reserved for the relatively few clear cut indications. Operations for removal of discs and release of pressure on nerve roots is already a well established procedure. This is usually undertaken only after controlled and energetic conservative measures have been tried and have failed.

Fusion of the spine is seldom undertaken for low backache due to the lack of precise indications for surgery, and to the technical difficulties in securing a sound fusion. It is one of the fundamental principles of orthopaedic surgery to fuse a painful joint. Few patients with low backache have a structural abnormality that can be detected radiologically. Even when X-ray changes are present, it is usually impossible to say that the causes of such changes are the causes of low back pain. Degenerative changes per se are no indication...
for surgery because conservative treatment will give satisfactory results in more than half the patients. Indications for fusion are therefore clinical rather than radiological as studies have shown the similarity of symptomatology no matter what the pathology. In a proportion of cases therefore where there is persistent long standing low back pain that fails to respond to conservative measures and when the degree of degeneration warrants it, fusion is indicated.

CONCLUSIONS

The problem of low backache in the elderly female is thus seen to be a bewildering and difficult subject. An attempt has been made to explain the various causes of low backache and to simplify the problem by classifying the various possible causes into a group of clinical syndromes.

Each group is described separately and the methods of examination, diagnosis and treatment are discussed.

It is important to make a full assessment of the individual patient including her mental makeup, her environment, and the physical lesion.

ANATOMICAL FEATURES OF THE LUMBO SACRAL SPINE

By R. TREVOR-JONES

An interesting collection of abnormal lumbar vertebrae and sacra are housed in the Department of Anatomy, Medical School, University of Cape Town. This material inspired me to investigate the musculo-skeletal anatomy, as seen in the dissecting room, in an attempt to explain certain aspects of backache. Clinical records of the subjects dissected were too brief for any correlation of findings and symptoms.

The lumbo-dorsal fascia varies in thickness and over the sacrum blends with the fascial origin of the erector spinae muscle. From the erector spinae aponeurosis inter-muscular septa pass forwards to separate Multifidus completely from the sacro spinalis group of muscles.

Multifidus arises from the dorsum of the sacrum, the posterior medial edge of the iliac crest between posterior superior and posterior inferior iliac spines, the deep surface of the combined lumbo-dorsal and erector spinae fascia and the medial surface of the intermuscular septum which separates it from Longissimus. The intermuscular septum, in its upwards extension is attached to the inferior aspect of the mammillary processes while Multifidus arises from the superior aspect as well as the inter articular joint capsules.

Careful dissection reveals that Multifidus can be separated into sagittal lamellae arranged segmentally although the muscle looks like a solid wedge. That portion medial to the posterior inferior iliac spine passes to the sacrum and lower four lumbar vertebrae while the portion from the posterior superior iliac spine passes to first lumbar and twelfth thoracic vertebrae.

Longissimus and Iliocostalis have a common origin just lateral to the posterior superior iliac spine, from the erector spinae, from the erector spinae fascia and from the lateral surface of the intermuscular septum separating it from Multifidus. It can be divided into coronally placed musculo-tendonous lamellae passing to the accessory tubercles and adjacent laminae of the lumbar vertebrae.

Ilio-costalis is separated from Longissimus by a neuro-vascular plane and an intermuscular septum. This muscle also can be separated into coronally placed lamellae passing to the transverse processes of the lumbar vertebrae. The outer portions of these lamellae are formed into encircling loops which, with the erector spinae fascia and lumbar fascia firmly enclose the back muscles in the lumbo-sacral region.

This segmental pattern is found in foetuses. Multifidus then has sacral segments. A six piece foetal sacrum was associated with incomplete muscle segmentation. This lack of muscle differentiation was also found in an adult cadaver with a sacralisation of the fifth lumbar vertebra on the left side. The muscle anomaly however occurred on the