VERTEBRAL AND SACRO-ILIAC STRAIN IN THE SOLDIER.

BY CAPTAIN E. GORDON FLEMING,
Royal Army Medical Corps.

Two very common causes of disability which present themselves to the medical officer are lower lumbar and sacro-iliac pain. Often by the soldier's own volitional statement but more frequently only by careful questioning this is found to have been initiated directly as the result of some considerable physical strain. The man has been cranking a Diesel engine or has lifted a heavy weight or he has been subjected to some one of the other many stresses which fall to the serviceman's lot.

In the mild cases which come along the usual procedure is to recommend a few good liniment rubs and hope that the counter-irritation and physical stimulation may have the effect of relaxing a slight muscular spasm. More severe cases, those in which there is obviously some definite limitation of movement in the spine, may be accommodated in sickbays or reception stations where similar treatment combined with rest may effect a cure.

If removal of the symptoms does not take place within a few days the soldier is transferred to a hospital and, if this is equipped for the purpose, will there be treated by helio- and radio-therapy and any other physiotherapeutic measures which are advocated by the attending consultant. Such measures may produce a complete and permanent alleviation of the symptoms. If so all is well.

But many hospitals have neither the personnel nor the equipment to carry out suitable physiotherapeutic treatment and the patient may be left to lie in bed, perhaps for weeks, before he is ultimately returned to his unit, with the pain possibly alleviated but not cured. In the course of time he reports sick again and continues to do so until suitable treatment is recommended and becomes available to him.

The object of this article is to suggest the importance of obtaining an accurate history of the onset of the trouble and of inquiring, in particular, to possible circumstances of physical strain immediately preceding acute or chronic lumbar or gluteal pain. If such history is given it will provide a guide as to the diagnosis and probably as to the remedy.

Patients who give a history of strain immediately preceding an attack of lower lumbar or gluteal pain may be placed in three classes.

Those in which (i) the erector spinae has been strained with the possible rupture of some muscle fibres; (ii) the lumbar spine has been rotated on the sacrum to such an extent that it has remained in a state of semi-subluxation; (iii) one or other of the ilia has become rotated on the sacrum posteriorly and has similarly remained in a state of semi-subluxation.

As to the first class little comment need be made. It comprises that group of patients which presents no particular therapeutic difficulty. They are cured by rest and normal physiotherapeutic measures. The diagnosis has been simply backache or lumbago as the medical officer chooses to call it. They may have had some strain of the erector spinae and the appropriate treatment has been given.

The cases which come under the second and third classes are more perplexing but their diagnoses may be made within a certain measure of accuracy.

There is (i) The history of physical strain; (ii) limitation of spinal movement in one, or all, directions; (iii) tenderness and rigidity of the erector spinae on the affected side, and (iv) more marked tenderness immediately to one side or the other of the spinous process of the 5th lumbar vertebra or over the sacro-iliac articulation on either side.

The diagnosis is that of either lumbo-sacral or sacro-iliac strain which actually amounts to a partial subluxation of the joint involved.

A case which is illustrative in this regard is that of a young and otherwise healthy soldier who was being invalided home from Palestine with chronic lower lumbar and sciatic pain.
His trouble had originally developed whilst playing football and he was admitted to hospital in Egypt. After complete investigation and a long period of rest he was returned to his unit as fit. Shortly afterwards the symptoms re-developed. He strained his back again whilst using the troublesome "kick-start" of a motor-bicycle.

It was then decided to send him home. On board the hospital ship he was given palliatives and complete rest for about two weeks with no result.

Finally it was considered that he might be helped by a manipulation of his lower lumbar spine. This manipulation was performed and he was able immediately to pronounce himself fit and left the ship as a walking case without any symptoms whatever. His chief concern was that he would not be compelled to be taken ashore as a stretcher case.

If the cause of this man's complaint, the spinal strain, had been recognized more early and had suitable manipulative treatment been given to relieve it he could have returned to duty speedily, properly cured, and would have remained an active soldier. Man-power would have been conserved not only in so far as he himself was concerned but also in respect of the personnel necessary for his transport to and his treatment in the hospital ship.

The diagnosis in this case was based solely on the clinical findings. As in all similar cases there was negative radiological evidence. But there was definite tenderness to the right of the spinous process of the 5th lumbar vertebra and slight rigidity of the erector spinae of the right side. These signs, together with the history and in the absence of other pathological findings, were sufficient on which to form the diagnosis of lumbo-sacral strain.

The manipulation which was carried out is relatively easy to perform. The patient lies on the affected side as close as is possible to the edge of the operating table. The uppermost leg is flexed on the thigh to the extent that the dorsum of the foot is brought into contact with the popliteal space of the lower leg. The upper leg and foot are held in this position by an assistant. The operator now makes three contacts with the patient. Assuming that the patient is lying on his right, the affected, side the operator, standing as closely as possible to the operating table, places (i) his left hand on the left shoulder of the patient; (ii) the fingers of his right hand firmly in contact with the right of the spinous processes of the patient's lumbar vertebrae; and; (iii) his right knee over the knee of the patient's flexed left leg.

Then with a synchronization of movement three forces are applied. The patient's left shoulder is forced backwards by the left hand; the lumbar spine is pulled forwards by the fingers of the right hand and at the same time the operator's right knee presses down the patient's left thigh.

These three forces, which must be made simultaneously, have the effect of rotating the lumbar spine on the sacrum in the desired direction; in this particular instance, from right to left.

It should not be difficult to perform the manipulation after a little practice and no ill-effects will result from its trial, provided always that the operator has an adequate comprehension of his own physical strength in comparison with the muscular resistance of his patient.

Sacro-iliac strain is not so frequent as lumbo-sacral strain but it is more commonly recognized and acknowledged both in the acute and chronic stages.

A classical case has recently come under observation. A man had been coiling wire on a very heavy drum and, whilst making a strenuous effort to move this, he suddenly felt and heard a very distinct snap in his back. He collapsed immediately and, as he was unable to walk or to straighten himself, he was carried to his bed in his quarters. Subsequently he was moved to a reception station. Examination revealed acute tenderness over the right sacro-iliac joint and definite spasm of the erector spinae on the affected side. The usual palliative measures were adopted and were followed by only slight amelioration of his symptoms. He was admitted to hospital on the fourth day. X-ray, as was expected, showed no abnormality.

On the history on the case, together with the corroborative physical signs, it was decided to perform a manipulation which was carried out by the attending orthopaedic surgeon at the hospital.

The manipulation is somewhat similar to that previously described only it is particularly to be noted that the patient lies on the unaffected and not the affected side. In this case,
Vertebral and Sacro-iliac Strain in the Soldier

where the right side was affected, the patient was placed on his left side and his right thigh flexed on the trunk to an angle of 45°, the leg being similarly flexed on the thigh. Standing behind the patient the operator now places his left hand over the right shoulder whilst the heel of his right hand makes contact with the ilium posteriorly. Then with a synchronized movement he pulls the patient's shoulder towards him and presses the ilium away from him. This has the effect of rotating the ilium forwards and correcting the strain.

As happened in this case a very distinctly audible snap is heard and the ilium regains its normal alignment with the sacrum. This soldier was very much easier on the day following the operation and suffered only from the residual symptoms of the original injury. If the manipulation had not been performed the probability is that peri-articular changes would ultimately have taken place with resultant fixation of the joint in a position of abnormal adjustment. Chronic discomfort and disability would have occurred as was evidenced in the case first mentioned.

The empiric nature of the treatment employed in both of these cases must be stressed. In neither was there any radiological confirmation of bony mal-adjustment but in each there was (i) The history of strain; (ii) clinical evidence of localized tenderness and rigidity and, (iii) the audible and palpable return of a bone to its normal alignment on manipulation.

The incidence of similar cases is probably much more common than is usually recognized. The diagnosis is easy and the manipulative technique not difficult to acquire by practitioners of practical ability.

To epitomize the manipulative idea: strain of a spinal or pelvic joint may be relieved by applying force in the opposite direction to that in which the joint has been strained. Careful questioning as to the exact position of the patient on the occasion of his strain, the work he was doing and the direction of the forces involved in the causation of the strain, help in coming to a diagnosis. But the main and simple signs are those to which allusion has previously been made.

Early recognition of the cause of the disability and the presentation to the orthopaedic surgeon of the facts which have been gathered should greatly expedite the return to duty of many men who otherwise might be regarded as obscure cases of backache or sciatic neuritis and thus remain as chronic ineffectives for an indefinite length of time.