

## **THE DISC—BEFORE AND AFTER**

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Since the last war the name of prolapsed intravertebral disc (P.I.D.) has become the title of syndromes previously called back strain, lumbago and sciatica. These conditions now occasionally merit such drastic treatment as laminectomy and result in a high degree of both permanent and temporary disability. If the pre-war disability was great there would now be many people in the age group 50—70 showing the full effects of pre-war treatment, which was usually general-practitioner treatment. These people, having survived the natural course of the disease should by now be examples of its ultimate results. As a general practitioner, I know of no condition in the elderly which I would attribute to the results of those conditions formerly called back strain, lumbago and sciatica. On the other hand, I have patients who have had all the advantages of post-war, modern, specialist treatment and look as if they will go on indefinitely with a ten to fifty per cent disability.

Let us consider the factors that might cause a worsening of the condition and its prognosis. Industrial compensation and psychosomatic factors engendered may account for some cases but the wholesale invasion by specialist treatment is the only new factor and it has brought its own prognosis. It says in effect, “young man, your prolapsed intravertebral disc is a much more serious condition than the old-fashioned back strain, lumbago and sciatica”. In medicine the specialist indoctrinates the general practitioner and the general practitioner indoctrinates the patient. In the old days the specialist told us that back strain, lumbago, and sciatica were not serious matters, and, when we told our patients so, they accepted it, and psychosomatic adjustment occurred. Now, however, acting on specialist advice, we tell our patients that they have prolapsed intravertebral discs, which are much more serious in our minds than backache, lumbago, or sciatica, and so we dare not give the encouraging prognosis we formerly gave. In terms of psychosomatic medicine the patient has been indoctrinated by our new ideas, and actually has, and feels he has, a more serious malady than the

individual who suffered from the same condition before the war, and the psychosomatic factor cannot be mobilized in his favour to the same extent as formerly.

The question now arises why the psychosomatic factor should be so much in evidence in this matter, and the following considerations come to mind.

The muscles concerned are the anti-gravity muscles—the *erectores spinae* and *quadriceps*. In assuming the upright position these muscles must be altered whenever almost any action is done and since all voluntary actions have in the first instance to be thought out, and then, as a result of the facilitation granted by repetition, reduced to a sort of automatic pattern basis in the brain. It follows that the learning and integrating of muscular actions may make a very great contribution to the sum total of cerebral activity, and that this knowledge of muscular actions may be subject to the adverse effects of noxious stimuli just as noxious stimuli may affect the pattern of behaviour. Indeed, it is known that dogs, when subjected to stress, lose their acquired reflexes. In this connection it is strange that the disc syndromes in their typical forms arise under conditions of stress, and usually in association with healthy joints. A healthy joint is extremely sensitive, and the sudden interposition of a disc causing the blocking of a movement, established and taken for granted on an automatic basis, results in a severe adverse impulse registering its effects and calling in question the established fixed muscular pattern. This explanation would help in explaining why a healthy joint is so adversely affected by a displaced body (disc) while a diseased joint (such as osteoarthritis) is not so affected because the diseased process has acquainted the cerebral muscular pattern of its departure from the normal.

The psychosomatic factor may also be seen in considering why the playing of school games does something to develop a boy's character. It is well known that boys who are good at games are frequently more successful in life than their academic attainments indicated. In medicine, are not our thoughts running along similar lines when we suspect the possibility of mental backwardness if a child does not sit, walk and talk at the accepted normal times? If we accept some degree of inter-relation between the cerebral neuromuscular and intellectual faculties in infancy, is there any reason for not considering that this relation can exist throughout life? If this is so then the psychosomatic basis can be appreciated and the chief symptoms explained thus. A lower lumbar joint, being the chief weight-bearing joint of the upright position, must be subject to variations in muscular tension when almost any movement takes place in any part of the body. All these movements

are first learned as individual voluntary actions, and later their facilitation by repetition consigns them to a neuromuscular pattern basis probably in the post-rolandic area of the cortex. Electrical stimulation of this area can cause suppressor band activity. Is it not possible that the sudden intervention of a disc in the healthy joint, without warning of any kind, may cause a noxious impulse which (a) produces suppressor band activity, and (b) which is much more disturbing, calls in question the validity of all the neuromuscular patterns or judgments formed as a result of previous experiences? The individual to whom a disc incident occurs usually says "I can't get up". "Please do not help me", and in a few minutes he re-adjusts himself to a large extent. He has got to take stock of the muscular actions so long taken for granted. A similar experience on a minimal scale has probably occurred to most of us when we walk out of a lighted room and land on a step which is a shade higher or lower than we expect. The experience is disturbing and compels one to take stock of muscular movements, and some minutes may elapse before the feeling of normal ease returns.

If one assumes a noxious joint impulse has deranged the automatic pattern of neuromuscular action then the symptoms of P.I.D. can frequently be interpreted in the following manner:—A P.I.D. person at a time when he is free from pain, is laid on a couch. He readily admits that the affected leg is "not the same" as the unaffected one. He further admits that he is always conscious of it; that he has got to keep guard on it, that is, he has got to reinforce it with conscious effort. Relaxation of this conscious effort "lets him down" and this is particularly apt to occur when distraction occurs, as when getting off a bus or stepping off the kerb. It is this conscious effort of reinforcement which causes him to tire so readily. He may even feel well enough to do a few hours work but then the strain tells. This strain also tells in another way for the P.I.D. individual is emotionally upset and cries, while the person who has an amputation rarely does so.

If then the automatic neuromuscular pattern basis in the brain, can be altered by a noxious stimulus just as can happen on the behaviour side in similar circumstances it would lead one to base prognosis on the general mental make-up of the individual in the first instance modifying it according to the presence of favourable or unfavourable environmental circumstances. This accords with my clinical observations. *Mens sana in corpore sano.*

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