MEDICAL PRACTICE

Contemporary Themes

Pain Patterns in the Rheumatic Disorders*

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Summary

Pain patterns vary greatly in the different types of arthritis, from the localized agony without mental overtones in acute gout to the diffuse disorder we call rheumatoid arthritis, where inflammation of many joints, systemic illness, anaemia, anxiety, and depression are usually all present in some degree. Each pain pattern calls for a different therapeutic approach, physical, psychological, and pharmacological. Few patients suffer as much pain and suffering over many years as do chronic arthritics. It is all the more important to instruct them in the essentials of their own treatment. A patient with an occupied and instructed mind usually suffers less than an ignorant and depressed one, fearful of her disease and its complications and of the dark uncertain future that lies ahead.

"Pleasure is nothing but the intermission of pain."—JOHN SELDEN 1584-1654.

The assessment of pain-relieving drugs is difficult. Man is a complex reactor to painful stimuli, and even in animals, as Charpentier points out,¹ pain, as soon as it is fairly strong, concerns the whole of the nervous system, setting up varied and complex reactions. Pain must, he feels, be looked on as the aggregate of biochemical, visceral, motor, and psychic reactions, relatively co-ordinated, started and orientated by a stimulus.

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In other words, he states, pain is a behaviour. To analyse and measure pain he used male rats placed in cages with electrodes made of two flexible wires, the ends of which were bare and wound round the tail, bathed in physiological fluid, and isolated. Painful stimuli were delivered as electric shocks, each lasting 10 msec, given at 10-150 V, so that the current passing through the rat varied from 0.66 to 10 mA. Stimuli occurred around 30-second intervals. He found (1) an elementary rapid reaction—the startle reaction; (2) a simple non-specific reaction—the flight; (3) a reaction of an affective nature—the squeak; and (4) a co-ordinated final reaction—biting of the electrodes.

Charpentier suggested a scheme for progression of nerve impulse produced by a nociceptive stimulus, as shown in the Fig. He found that morphine and pethidine affected squeak and electrode rubbing but not the flight or startle reaction—

Proposed scheme for progression of nerve impulse produced by painful stimulus. (From Charpentier.¹⁷)

that is, these drugs had no effect on simple non-affective reactions but inhibited affective and co-ordinated reactions. These drugs had by this technique no effect on weak pain but great effect on strong pain. Aspirin, on the other hand, affected weak and strong pains. When given by mouth its action was dissociated, startle and flight reactions being inhibited while electrode biting was not. Imipramine also acted on strong and weak pains and on all the components of the reaction without dissociation but with a stronger effect on the startle reaction.² He concluded that if one admits that pain is made up of the totality of the sensations and reactions provoked by a nociceptive stimulus, then suffering appears as the consciousness of these sensations and reactions. This integration in the psyche is accompanied by the giving of a value, positive or negative, good

or bad, by comparison with internal and external stimuli received previously by the animal. Pain on arrival at the cortical level is transformed into suffering.

Attempts to produce experimental methods of measuring pain in man, according to Beecher,³ have been largely unsatisfactory, no dependable relation having been established between the action of analgesic agents and the experimental pain threshold in man. "The record is better for animals but," he states, "is still far from perfect." When we pass from experimental models in man and animals to acute and chronic pain in the different rheumatic disorders, the whole subject becomes even more complex, more complicated, and much more interesting.

Gout

The pain of acute gout is usually much more severe than in the other rheumatic disorders. It is an agony produced by acute inflammatory changes due to crystalline deposits of urate in the tissues. The patient has usually, however, no overtones of anxiety, despair, or depression. He is enraged and thwarted but he is not fearful unless the condition is misdiagnosed or undiagnosed or untreated over a long period. The treatment is rapid administration of the appropriate effective anti-inflammatory agent in full dosage. As soon as such therapy is given and the inflammatory process reduced, relief is rapidly obtained, but if misdiagnosed and incorrectly treated the condition may drag on for weeks or occasionally months; overtones of anxiety and depression then occur and the condition approaches and resembles any other chronic arthritis.

Osteoarthritis

Heberden's nodes in the terminal interphalangeal joints may appear insidiously and gradually or more suddenly and painfully. In the "hot Heberden" seen usually in menopausal or early postmenopausal patients the joint is red, hot, and acutely tender and shows all the local signs of an inflammatory reaction, resembling acute gout. The reaction here, however, is not to crystalline material but to hyaluronic acid.⁴ Here, as in gout, the importance lies in recognizing the condition for what it is and reassuring the patient that no more crippling or serious disorder is present. In chronic osteoarthritis of the hip and knee, however, locomotion and normal life is disorganized to a degree that brings sadness, depression, and despair. In osteoarthritis of the hip pains are often referred to the thigh or knee of the same side and the patient may assume that the trouble lies mostly in the thigh muscles or in the knee joint. The remarkable improvement in morale after effective operation on the hip is the result of increased mobility and relief from recurring or chronic pain. Depression in the arthropathies is frequently the result not only of chronic pain but also of diminished ability to move about, earn a living, and live a reasonably normal life. These patients, however, are not systemically ill and are not wasted or febrile. Their "pain" does not stem from systemic ill health but from a highly disagreeable, crippling, disabling, and thwarting condition.

Ankylosing Spondylitis

This occurs in a group of patients who prefer to remain active where this is humanly possible. They are usually young men who are working full time, interested in their careers and in their work, and are essentially forward-looking. They have, despite their usual cheerful outlook and absence of depression, severe daily pain; their nights are often pain-wracked and they wake early in the morning extremely stiff and in great pain. We have found, however,⁵ that they differ from patients with rheumatoid arthritis in usually complaining less and in having higher pain

thresholds. This may be due to three factors—(1) the absence of painful disability in small peripheral joints, except in a few cases; (2) in most cases the smaller degree of systemic disturbance, compared with rheumatoid sufferers; and (3) the fact that they have a positive programme of exercise and activity and are encouraged to live active lives, a therapeutic orientation very different from that in rheumatoid arthritis, where rest remains the central theme. This positive form of therapy in a positive group of patients, 80% of whom in our clinic are working full time, results in a smaller intake of analgesics than in the case of rheumatoid patients and a more normal life and attitude towards it.⁶

Though depression and anxiety states occur we find that they are less common than in rheumatoid patients. The distraction of an active way of life and a form of management and therapy based on activity seems to be all important; this applies also to the women. In pregnancy these patients do not remit, as do rheumatoid patients, nor do they relapse in the puerperium, the aggravation of symptoms being often caused by the trauma of extra work in the home with care of the newly-born child. Pain in spondylitis is primarily due to a painful stiffness of the spine and sacroiliacs, and in the more severe cases the hips and shoulders also. Secondary pains are due to injuries in structures too rigid to yield to stress; to bony tenderness, as in ischial tuberosities and the pelvic crest, where lytic lesions and periosteal reactions are common; to painful areas of increased mobility between fixed segments of cervical, dorsal, or lumbar spines; to thoracic stiffness; and occasionally to cord compression symptoms due to atlantoaxial subluxation. The pain of upper cervical ankylosing spondylitis is frequently referred up into the occiput and back of the head, and of thoracic spondylitis to precordium and abdomen, sacroiliac reference being usually into the buttock and back of the thigh.

When peripheral joint involvement occurs the pain picture and depressive and anxiety overtones more nearly approach the pain pictures of rheumatoid arthritis. Additional factors may be dyspepsia, often aggravated by therapy, and fatigue and exhaustion from sleepless nights. When one considers the number of unpleasant symptoms from which he suffers the spondylitic patient complains little, and we have found that as his complaint worsens and cripples him more his pain threshold rises—again the opposite of what we find in rheumatoid arthritis. In clinical trials of analgesic and anti-inflammatory drugs these patients prove usually to be excellent observers, factual and accurate, and not given to overstatements or placebo reactions.

Other Spondylarthropathies

What is true of the patient with idiopathic ankylosing spondylitis described above is not necessarily true of those with spondylitis secondary to Reiter's disease, ulcerative colitis, Crohn's disease, or psoriasis. Here the picture is a blend of peripheral and central arthropathy complicated by the skin condition in psoriasis which can be productive of severe distress and discomfort, by the colitic symptoms in ulcerative colitis, and by the peripheral arthritic and other features of Reiter's disease, where a feeling of guilt may also be present. Acute Reiter's disease may also be associated on occasion with an arthritis almost as acute as gout.

Rheumatoid Arthritis

The pain complex in this disease is extremely variable, for the disorder may affect one or 50 or more joints for a week or a lifetime. It may be accompanied by extreme systemic illness or none at all and may leave the subject mentally normal or suicidal. We have found that the pain threshold is lowest in those confined to house and home; time off work is, as might be expected, highest in the low-threshold group. The pain syndrome in rheumatoid arthritis may be considered as a complex

of (a) discomfort arising from peripheral inflamed joints—a combination of pain, stiffness, swelling, and impaired function; (b) systemic illness—fever, fatigue, anaemia, and tachycardia; (c) depression and anxiety—the “thwart” syndrome of irritation and depression from inability to perform simple functions without help; (d) overtones from drugs—Cushingoid features from corticosteroids or diarrhoea, constipation, dyspepsia, or headaches from anti-inflammatory and analgesic agents; and (e) symptoms arising from complications such as peripheral or compression neuropathies, arteritis, crush vertebral or other fractures, pericarditis, pleurisy, etc.

Each case is an individual problem, for each person reacts to this highly variable chronic disease differently. One resents it and attacks those nearest and dearest who are trying to help, another accepts it and modifies and adapts her life accordingly. The “*typus robustus*” of de Haas *et al.*,⁷ who, although smothered with rheumatoid nodules and with high titre of rheumatoid factor in the blood, continues to make his active way through life with little or no time off work but with a keen interest in his work and activities contrasts strikingly with the alternative, whom one might call “*typus supinus*,” who early gives up the fight, goes to bed, and develops flexion contractures and bed sores. The importance of appreciating the multi-faceted nature of the pain suffered in these cases is obvious, for each facet calls for a different drug and a different approach on the part of the physician. Simple analgesics often benefit the patient with long-standing disease and little active inflammation, while drugs with additional anti-inflammatory properties are particularly useful for the active case. Antidepressants are often used in the patient with pain combined with the “despair syndrome,” and imipramine has been shown to be effective in a controlled trial.

Prolapsed Intervertebral Disc

The backache and sciatic pains caused by the lumbar disc prolapse is so common that almost everyone has a taste of it at some time in his or her life. Pains of this type are unpleasant when they last a few days, but when they drag on for months are so complicated by depression, despair, and anxiety that unpleasant pain becomes almost intolerable suffering. With any of the rheumatic disorders it is the absence of improvement that saps the spiritual strength of the sufferer. When month follows month without any improvement and symptoms increase rather than lessen, it is then that the sufferer most needs the help of his physician, who must give all the psychological, pharmacological, and physical assistance he can. Faith in the future must be upheld; extremely few of these “disc” patients fail to recover completely, and an optimistic attitude is therefore justifiable. Absence of faith in physician, therapy, or the future in any persistent arthropathy adds to the patient’s suffering and leads to an increase in analgesic requirements. In this condition, as in all the chronic rheumatic disorders, some explanation to the patient of what the disease is about and how it may progress and some idea of the rationale of therapy is all important, for ignorance may be productive of more anxiety and more symptomatology. The diabetic outpatient who tests his own urine and injects his own insulin is not apprehensive or depressed, nor should be the informed rheumatic sufferer.

Polymyalgia Rheumatica and Giant-cell Arteritis

Painful stiffness, worse at night and in the early morning in shoulder and hip girdles, is the essence of the discomfort suffered by these patients, usually over the age of 60. If diagnosed early and treated with corticosteroids these symptoms almost invariably rapidly remit, but the diagnosis is often missed and the patient treated as a case of either osteoarthritis or functional nervous condition or both for many months with ineffective analgesic drugs or physical measures with a steady decline in

morale and no real effect on the symptoms. The response to corticosteroid therapy is as satisfactory as any other form of therapy is unsatisfactory. The headache experienced in cranial arteritis is one of the most unpleasant pains met with in rheumatological practice and its relief with corticosteroids one of the most impressive and satisfactory; blindness, where therapy is delayed, brings its own complex of suffering and disability, the worse as it occurs so rapidly in one who least expects it.

L’Homme Dououreux

Szasz⁹ wrote instructively and entertainingly of the patient whom we have all seen repeatedly and from whom we have all suffered; the patient, usually but not always female, who never improves whatever therapy is given and whose diagnosis always remains uncertain as nothing positive is ever found. If by chance something positive is found no help is obtained from its correct treatment. These patients have chronic pain as a career. They crave medical or surgical (but not psychiatric) attention to make them legitimately ill persons. They are specialists in their own illness and their own symptomatology. They soon exhaust their friends, relatives, and doctors by the unaltered chronicity of their complaints and their constant full-time dedication to them. They have no desire to relinquish the suffering which authenticates their role. As Szasz states, in the game of painmanship they are professionals; their aim is to produce and to continue to suffer undiagnosable pain and unrelievable suffering. They help to keep quacks, fringe therapists, and, regretfully, many doctors, physiotherapists, manipulators, and acupuncturists in business. They are not ill in a physical or psychiatric sense and they are no more mad than is a man in love or a fervent patriot; they have, if you like, a disorder of the imagination. Mr. E. P. Brockman, orthopaedic surgeon at Westminster Hospital some years ago, used to say that the only thing that made these patients look pleased was when he said “I fear I cannot help you. Your case is too difficult for me.”

Many patients attending rheumatic clinics have no recognizable rheumatic disease and little attention has been paid either to their diagnosis or to their treatment. Psychogenic rheumatism was at one time a fashionable diagnosis and remains common. It is commoner in women of the lower social classes, who are often obsessional, aggressive, and resentful. “If there’s nothing wrong with me why do I have all this pain?” is a common question. The pain is often continuous and may be described in vivid terms, often radiating in unusual directions. The patient may also suffer from headaches, and a history of previous similar illnesses is helpful.¹⁰ The management of such patients is a problem. It is important to recognize the existence of non-disease in rheumatology as well as other subjects. An example is non-gout in a patient with pain in the big toe and hyperuricaemia for some unrelated reason. The importance of the condition lies in its conversion to real disease by the use of toxic and unnecessary drugs.

Congenital Indifference to Pain

In the opposite camp are those patients who physically and mentally normal have such a high pain threshold that they damage their tissues, as do sufferers with tabes dorsalis and syringomyelia, from repeated trauma from which they experience little discomfort. Such patients may develop severe secondary degenerative changes in their joints before adult life is reached. MacDonald Critchley¹¹ recorded that neurologically there are no abnormalities. Their sense of touch and discrimination is normal, though they may sometimes be insensitive to smell or taste. Many such patients never suffer from itching. Corneal responses may, he says, be sluggish or absent. One such patient, a woman of 40 years, entered our clinic many years ago. Suffering from severe rheumatoid arthritis for 11 years she had not lost

a single day's work as a telephonist during that time. She had never, she said, suffered pain, only inconvenience, and never took analgesics. Her pain threshold was found to be extremely high. She hobbled cheerfully through life in spite of advanced arthritis. Her case was mentioned by Clark.¹³ After failing to attend for some three years she reappeared in a wheel-chair. She was grossly myxoedematous and could not walk because of fractures of the femur and humerus and gross oedema of the arms and legs. She complained again, not of pain but of the cold and of inability to get about; she responded satisfactorily to thyroxine. At all times she was cheerful and optimistic.

The Occupied Mind

Looking over the whole field of chronic pain in the rheumatic disorders we are tempted to suggest that the occupied mind suffers less than the unoccupied one, for the mind distracted by other things, particularly by constructive things that the sufferer wishes to do, whether it be setting up chain stores, becoming a millionaire, helping Society's lame dogs over stiles, or even (so long as he feels it is important, interesting, and worth while) collecting stamps or writing poems.¹⁴ But these activities must be important to him and he must be distracted by them. At night, however, things are harder for him, as there are fewer distractions than in the day and there is little to come between him and his pain. Pains and painful stiffness at night and in the early morning may be the outstanding complaints in rheumatoid arthritis, ankylosing spondylitis, polymyalgia rheumatica, and in some cases of degenerative disc disease and carpal tunnel median nerve compression.¹⁵ We think that these two aspects of therapy, daily occupation of mind and body and night time therapeutic cover, have been neglected. Occupational therapy is effective only when it occupies the individual's whole being for most of his day; short periods of occupational diversion like short periods of physiotherapy and exercises are far less effective than an attitude of mind towards an occupation and activity that fills the mind and the waking hours. Some individuals have such a positive attitude to life; the less lucky ones have to be encouraged to live as full a life as their arthritic condition permits, and here the help of their physician and close friends and relatives is all important.

Therapeutic Pain

Just as many sufferers with migraine prefer the disorder to the unpleasant overtones of its treatment with ergotamine, so many arthritic sufferers find some treatments worse than the disorder for which it is prescribed. Patients with rheumatoid arthritis in addition to the symptoms of their disorder may have nausea,

anorexia, or dyspepsia from aspirin, diarrhoea from mefenamic or flufenamic acids, headaches from indomethacin, constipation from codein, or the many features of Cushing's disease from corticosteroids. Drugs may produce aches and pains in and around joints, as outlined in the *Adverse Drug Reaction Bulletin*.¹⁶ Drug interreaction may also produce symptoms. When odd, unexpected symptoms arise in any case it is as well to look critically at the treatment sheet of the patient.

Malignant Disease

Pain in malignancy, whether from multiple myelomatosis, metastatic, or primary malignant disease, may be slight or severe, uncomplicated, or complicated by fear of death and symptoms of the primary disorder. In these patients diagnostic uncertainty and fear of the future may cause more distress than the actual neoplasm. This was well shown in a patient who came to us with a year's undiagnosed back pain. She was in great distress largely because of diagnostic uncertainty and was receiving four injections of pethidine every 24 hours. As x-ray films were normal we reassured her and she became almost symptom free on simple analgesics two or three times a day. Nevertheless, six months later metastatic lesions became apparent at her original site of pain. The pain in this case was a real one, but, magnified by anxiety, became agony and produced extreme distress. Diamorphine given by mouth with alcohol or by injection if and when necessary, starting in small dosage and increasing as pains increase, may be started at first intermittently as pain arises, but later, when pain is a recurring theme and anxiety mounts, dosage should be given every few hours to anticipate pain and prevent the recurring episodic agony and distress that ends so many lives. For a patient who knows what is coming twilight is preferable to the full light of day.

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