

American Handbook of Psychiatry

Complex Problems of Pain
As Seen In
Headache, Painful Phantom,
and
Other States

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Complex Problems of Pain As Seen In Headache, Painful Phantom, and Other States

To the sociologist, pain and the threat of pain are powerful instruments of learning and social preservation. To the biologist, pain is a sensory signal that warns the individual when a harmful stimulus threatens injury. To the physiologist, pain is a sensation like seeing or hearing, but he tends to ignore its conscious perceptual aspects, because consciousness has as yet no physiological equivalents; one might say that he is studying the pain "signal." To the psychologist, on the other hand, the important thing about pain is the brain's translation of the signal into a sensory experience. He finds pain, like all perceptions, to be subjective, individual, and modified by degrees of attention, emotional states, and the conditioning influence of past experience. To a man with an incurable cancer, pain is a destructive force. His suffering began too late to serve as an effective warning and it did not stop after the warning had been given.

To the layman, the sensation of pain, which he has known all his life, seems a perfectly straightforward, noncontroversial matter. "Hot" and "sharp" were among the first words he learned; his earliest memories are associated with the pain of accidental injury and of parental discipline; when he was hurt, he struggled and cried out. Man has accepted these reactions as the natural manifestations of physical suffering. Experience has taught him

that pain can be caused by many different kinds of stimuli, even those such as heat or pressure which are distinctly pleasant in moderate intensities. Almost all parts of his body are sensitive to pain, and he assumes that other people are equally sensitive. He knows that pain is caused by physical injury, and believes that its intensity is proportional to the force of a blow, the heat of an iron, or the depth of a wound.

While this concept of pain as a physical quantum, measurable in terms of stimulus intensity or the body's response to injury, seems a reasonable everyday interpretation, there are many situations in which it does not apply. Superficial wounds usually are more painful than deep ones, because the skin is much more richly supplied with sensory nerve endings than are the deeper tissues. Bullet wounds are usually painless, partly because the impact of the missile can temporarily paralyze nerve conduction. Most internal organs can be cut, crushed, or burned without causing distress. There also are enormous individual variations in sensitivity to pain. At one extreme are patients with such conditions as causalgia, facial neuralgia, or postherpetic pain, their skin so sensitive that the lightest touch or even a breath of air precipitates an acute exacerbation of pain. At the other extreme are those unfortunate children who can lean against a hot stove without being distressed, who constantly injure themselves because they were born without normal susceptibility to pain, i.e., congenital indifference to pain.

The obvious biological significance of pain leads one to expect that it must always occur after injury, and to conclude that the intensity of pain felt is proportional to the amount and extent of the tissue damage. Actually, in higher species at least, there is much evidence that pain is not simply a function of the amount of bodily damage alone, but rather that the amount and quality of pain felt are also determined by previous experiences and how well memory substantiates them, by an individual's ability to understand the cause of the pain and to grasp its consequences, and even by the significance of pain in one's own family or group culture.

Considerable evidence shows that persons also attach variable meanings to pain-producing situations, and that these meanings greatly influence the degree and quality of pain felt. During World War II, Beecher observed the behavior of soldiers severely wounded in battle. He found that when the badly wounded were carried into combat hospitals, only one of three complained of enough pain to require morphine. Most of the soldiers either denied having any pain or had so little discomfort as to require no medication for relief. These patients were not in a state of shock, nor unusually stoic, nor totally unable to feel pain; for example, vigorous complaints about inept vein puncture were made. When Beecher returned to civilian practice as an anesthesiologist, he tested a group of patients, who had just undergone major surgery with incisions similar to the wounds received by the soldiers, to determine whether relief of pain was required. In contrast

to the wounded soldiers, four of five were in such severe distress as to require relief.

Beecher concluded that “. . . the common belief that wounds are inevitably associated with pain, that the more extensive the wound the worse the pain, was not supported by observations made as carefully as possible in the combat zone. . . . There is no simple direct relationship between the wound per se and the pain experienced. The pain is in very large part determined by other factors, and of great importance here is the significance of the wound. . . . In the wounded soldier (the response to injury) was relief, thankfulness at his escape alive from the battlefield, even euphoria; to the civilian, major surgery was a depressing, calamitous event.”

The importance of the meaning associated with a pain-producing situation is made particularly clear in conditioning experiments carried out by the Russian physiologist, Ivan Pavlov. Dogs normally react violently when given strong electric shocks to the paw. Pavlov found, however, that if dogs were consistently presented food after each shock, the animal developed a new response. Immediately after a shock, the dog would salivate, wag its tail, and turn toward the food dish. The electric shock now failed to evoke any responses indicative of pain and became instead a signal indicating that food was on the way. The dog's conditioned behavior persisted when Pavlov increased the intensity of the electric shocks and even when they were

supplemented by burning and wounding the dog's skin. Masserman carried the experiment further. After cats had been taught to respond to an electric shock as a signal for feeding, they were trained to administer the shock themselves by walking up to a switch and closing it.

The Transmission and Perception of Pain

An excellent survey of medical concepts of pain has been written by Prococci; Clark and Hunt have updated these theories comprehensively. In the specific sensory-trans-mission system, epicritic or bright pain is thought to pass readily from the dorsal root into the spinothalamic tracts to the thalamus, and thence into the sensory cortex. Pain thresholds are known to be altered by the state of excitation of the reticular system of the internuncial pool and by the state of discharge from cortical centers.

The nonspecific sensory system—the reticular activating system—is known to receive collaterals from the specific fiber pathways to convey sensations of pain, as well as other sensations. The discovery of this system and its functions provides one of the links explaining certain clinical paradoxes. This system has the capacity for the modulation of sensory attentiveness. Thus, the severely wounded soldier can be nonattentive to pain when some other state of awareness such as strong feelings, fear of death, or great joy at being alive, is overriding. It may be speculated that reactions to pain, or the seeming lack of response observed in the wounded of various nations, may be modulated by cortical influences directed to the reticular activating system and then variously fed back to both the cortex and the periphery. It is known now that, when stimulated in the bulbar and reticular areas, this system is capable of blocking afferent volleys in the spinal cord.

There is evidence that a physiological system exists that may either intensify or lessen an incoming sensation and, in fact, may defend the organism against too intense a stimulation or heighten its capacity to attend threats to the system.

Of particular interest to the clinician is the fact that transmission of impulses within the nonspecific activating system may be modified by pharmacological means. It appears that anesthetics exert their primary effect in blocking conscious response to noxious stimuli by dampening conduction through this system. Very likely the phenothiazine derivatives, important in clinical psychiatry, act upon this system as well. The modern psychological and pharmacological modes of sensory alarm functioning allow more comprehensive explanation of many of the variable expressions of pain found in the clinic.

No longer can complex pain problems be explained solely by relying upon the older concept of a specific sensation from the periphery to the cortex. Instead, the concept of a prolonged or intractable painful or anesthetic state is a perceptual action system designed to signal either distress or, paradoxically, gratification of pleasure.

Perceptual processes are established by repetitive experience encoded in the large cortical areas of the brain, where, in turn, the adaptive patterns of

behavior are coded. To the physiological model of the systems subserving pain must be added the great modifying influences of man's cerebral cortex wherein are implanted the long and continuing experiences of suffering, and the adaptive behavioral patterns for relief that are initiated at birth and expanded, from experience, throughout life. These learning experiences occur primarily in the human environment, the surrounding persons, most notably the family, who inflict and assuage pain.

The experience of pain signifies to the patient that he is suffering structural or functional damage. When this percept is conveyed to the clinician as a complaint, the latter commonly interprets it as a consequence of a "physical" or "organic" lesion. Although the pain percept is an innate response to injury to the organism, its associated complaint in language may be modified by learning processes established by the family and the cultural environment. Through the learning experiences, a patient's complaint of pain may communicate not only a signal of bodily damage but also a message of social importance, that of a need for help or for pleasurable gratification through a supportive relationship with another person. One may intensify this conditioning through the secondary gratification obtained by the avoidance of the painful stimuli. Here is the source of the difficulty in establishing the meaning of the symptom in chronic pain conditions.

The symbolic meaning of the symptom of pain is established in the

manner in which an individual has learned to complain, or not complain, and to use the symptom of pain as a means of relating himself to others. The clinician's ability to understand this meaning for each individual determines the ultimate ability to assay the proper meaning, initiate the indicated intervention, and provide the person with a rational management devoid of untherapeutic emotionality. Confronted with the complex problem of a patient complaining of a long-standing painful condition, the clinician must ascertain not only whether there exists a physical disability causing a painful percept but also: (1) Will a physical procedure relieve the symptom? (2) Is the symptom expressive of a psychiatric disability? (3) Will removal of the symptom unmask a serious personality disorder? (4) Will this, in turn, result in serious interpersonal issues and even, perhaps, in eventual medico-legal problems?

What is the investigative evidence to support the contention that the pain complaint often has meaning determined by other than the activation of a specific sensory system? Hardy, Wolff, and Goodell attempted to study the response of various individuals to the measured amount of energy required to induce a threshold pain. This they did by exposing a small area of the skin to radiant heat and asking the subject to indicate the feeling of pain. Only by using trained subjects was it possible to obtain a relatively fixed pain threshold.

Various other investigators have failed to substantiate any consistency in the pain threshold, and have discovered that it might be increased as much as 40 percent by hypnosis and could be altered by analgesics as well as by suggestion. Furthermore, such studies make it apparent that in addition to the pain threshold there also is a highly variable threshold for reaction to pain that is highly individualistic. What has been learned from these careful studies is that the responses to painful stimuli vary greatly in relation to the personality makeup and emotional state of the particular individual, and also that the responses to painful stimuli vary among different individuals.

This point is illustrated by observations on various unsatisfactory therapeutic efforts. Penman studied 275 patients successfully treated by alcohol injection of the Gasserian ganglion for trigeminal neuralgia. Only 20-25 percent were relieved of the pain by this procedure; 22 percent reported that they were worse off than before treatment. In the latter group there was either an obsessive preoccupation with the resulting paresthesia or an eruption of neurotic or psychotic symptoms. In the dissatisfied group were found dependent, inactive, and elderly persons, all of whom had suffered pain at least six months before treatment was given. This emphasized once again the influence of personality organization and the significance of the pain to the adaptability of the person.

That cultural influences determine the individual's reaction to pain has

been demonstrated in the report by the sociologist, Zborowski, who examined the attitudes of Italian, Jewish, and old American patients (those who had lived three generations in the United States) when confronted by a painful illness. Some were described by the doctors as being “emotional” in responses to pain. The underlying attitudes toward pain were different, however, in the several groups. Some patients seemed concerned mainly with the immediate fear of the pain experience and were disturbed by the actual pain sensations experienced in a given situation, while some patients reported concern about the symptomatic meaning of the pain, the significance of the pain to their health and to the welfare of their families. It was noticed that once the pain was relieved, some patients dismissed their suffering and reported contentment. Other patients were reluctant to accept drug therapy, worried over the effect of the drug upon health, were concerned that the drug would not be curative, and sometimes hid the pain-relieving medication. Finally, even if the pain were relieved, some patients were often depressed and worried, fearful that the disease was not cured.

These observations are of importance in the management of pain problems. With pain of immediate importance to the patient, the physician has to provide early and adequate relief; whereas with pain-threatened patients, one must relieve the anxiety in regard to the source of the pain, as well as the pain itself. The members of some groups are not fearful of expressing their emotions. They complain a great deal, call for help, and

expect sympathy and assistance from their families. Although this behavior is approved and accepted in their culture, it is not accepted by certain other patients. The physician, too, may easily be provoked to distrust and dislike patients because they do not conform to the doctor's ideas and patterns of acceptable behavior in facing painful illness. Some more stoic patients tend to minimize responses to pain and to avoid complaining and provoking pity. They are anxious to cooperate with those who are expected to take care of them.

Whenever a patient describes a painful illness, the physician who knows that some emotional disturbance is associated in time with the onset or recurrence of his complaint should suspect that psychic processes are operative in its maintenance. Most frequently such events are the death of or separation from a parent, spouse, or lover; difficulties in relations with an employer or some parental figure; or threat of illness. Some patients with an emotionally motivated, painful complaint have intermittent attacks of pain that may be induced through discussion of the appropriate anxiety-laden topics. Others, notably those in whom the-pain represents one of the symptoms of an obsessive neurosis, a hypochondriacal state, or a depression, complain of a more or less persistent symptom. In such instances, the psychic conflict is less easily identified.

Patients complaining of suffering from intractable headache, backache,

atypical facial pains, pain in phantom extremities or other parts, who seem entirely undisturbed by their symptoms but suddenly grasp at the affected part when the interview is finally focused on their important personal conflict, make the difficulty apparent to the skillful examiner who should push on with further inquiries and not be distracted by the symptom. Also, in psychotherapy, patients often actively hallucinate pain in localized bodily areas before revealing the distressing interpersonal events underlying the painful experience.

Headache

One of the most common pain syndromes which every psychiatrist sees in patients is headache. The terms “headache” and “head pain” refer to a variety of symptoms and syndromes of diverse origins, produced by many mechanisms. An excellent classification has been made by the Ad Hoc Committee on Classification of Headache.

1. Vascular headache of migraine type
 - a. classic migraine
 - b. common migraine
 - c. cluster headache
 - d. Hemiplegic and ophthalmoplegic migraine
 - e. lower-half headache
2. Muscle-contraction headache
3. Combined headache, vascular and muscle contraction
4. Headache of nasal vasomotor reaction
5. Headache of delusional, conversion, or hypochondriacal states
6. Nonmigrainous vascular headaches

7. Traction headaches

8. Headache due to overt cranial inflammation

9.-13. Headache due to disease of ocular, aural, nasal, sinusal, dental, or other cranial or neck structures

14. Cranial neuritides

15. Cranial neuralgias

Psychiatric or psychogenic aspects of headache are specifically involved in the vascular, muscle contraction, combined, delusional, conversional, and hypochondriacal states, and also—to a lesser secondary extent—in the other types. An excellent review of the literature on psychogenic headache has been written by Boag. Headache is a symptom, not a disease. Psychological factors may be precipitating, conversional, or a factor in the selection of the head as the body part in delusional and hypochondriacal states. In every headache problem, thorough medical and neurological evaluation should precede or be conducted concomitantly with the psychological and psychiatric evaluation. The clinical features, including major and minor criteria, physiological factors, psychological factors, and treatment will be noted only for the types of headache most likely to be seen by the psychiatrist.

Vascular Headaches of Migraine or Its Variants

Clinical Features

Sharply defined neurological or visual prodromata usually precede the onset of a one-sided headache of two to four hours' duration. The pain is usually in the anterior part of the head, quite intense, commonly associated with nausea and vomiting. Early in the headache phase, the pain is throbbing or pulsatile. Mood disturbances may accompany the prodromal or headache phase, or both. In some patients the involved cranial artery may be visible, palpable, and tender. Neurological complications such as ophthalmoplegia, hemiplegia, and speech disorders may accompany the attack. A family history of such headaches is found in two-thirds of the patients.

Vascular headache variants are facial cephalgia, weekend headache, and menstrual headache. These types usually do not have sharply defined prodromata, may last from two to twenty-four hours, are of variable severity, and may change from throbbing to a steady ache. Cluster headaches occur in clusters of short duration, usually without prodromata, are strictly unilateral, and almost always on the same side in the anterior or orbital distribution. The pain is severe, accompanied by nasal and ocular congestion, occasionally with miosis and ptosis, and precipitated by vasodilators such as alcohol.

Physiological Factors

Arterial dilation and surrounding tissue reaction occur concomitantly.

Often one major artery in the carotid system becomes dilated, but constriction may precede dilation. The cause of the arterial changes is not known, but evidence suggests a neurogenic factor with subsequent accumulation of tissue substances which produce small-vessel dilation, edema, and tenderness. Vasomotor centers and the cerebral cortex play a major factor in the central origin.

Psychological Factors

Recent studies of a series of vascular-head-ache patients reveal that while no single personality type predisposes to the vascular headache, many patients of the obsessional personality type may be liable because they suppress or repress anger or rage by supercontrol mechanisms. Substitutionary or compensatory perfectionism, ambition, success-striving, and excessive environmental demands may produce vulnerability to autonomic nervous system stress, as well as situational and intrapsychic conflicts. As a group, the patients are intelligent and demonstrate unusual adaptational patterns to cope with life stresses.

Difficulties in adapting to major phases of the life cycle, such as adolescence, menstruation, separation from home and family, starting work, changing jobs, marriage and parenthood, or in dealing with critical life crises, such as the death of a spouse or being passed over for promotion, may

precipitate bouts of vascular headache. In many vascular-head-ache patients, an underlying core of depression may be demonstrated when the usual defense mechanisms are no longer successful in maintaining repression. The majority of migraine sufferers who come to psychiatrists (and certainly we see only a few of them) are from families who take great pride in attainment, follow rigid forms of behavior, and deny the expression of direct or verbal aggression. Because such families punish members who defy these standards by excluding them from the family group, any feelings of resentment or hostility toward a parent or another close person tend, therefore, to be deeply rejected or repressed, producing conflict with associated anxiety. The struggle between inevitable emerging hostility and the need to maintain the family standards in order to continue the desired relationships shapes the interpersonal matrix that triggers the headache.

Not infrequently, the anticipation of the headaches becomes a crippling life pattern, and the patient may show increasing withdrawal from personal responsibility and socialization. When psychopharmacological treatment accompanied by psychotherapy is successful, many patients find attacks of vascular headache less frequent, less severe, and life more bearable.

Treatment

Migraine is most successfully treated with ergotamine tartrate with

caffeine. Associated symptoms may be treated with antispasmodics, antiemetics, or sedatives. Best control is attained when the medication is taken early in the prodroma stage of the headache. The variants do not respond so dramatically to ergotamine and caffeine. Cluster headaches are notorious in their difficulty of treatment; some respond to ergotamine tartrate, but many do not. Although pain relief is a major goal, narcotics are dangerous because of the recurrent nature of the illness. Psychotherapy of a joint-venture type is especially helpful in teaching the patient alternative adaptational patterns to life stresses. Psychoanalyses have been reported in detail by Brenner and associates, Fromm-Reichmann, Selinsky, Sperling, and Robinson. Psychopharmacological treatment of depression with tricyclic antidepressants is indicated. Because the depressions are unipolar, one must try the various substances such as imipramine hydrochloride or amitriptyline hydrochloride in order to find which type of tricyclic drug is effective for a particular patient. Sufficient dosage must be utilized. Alcohol must be specifically prohibited to those persons who are sensitive to it. While the prevention of headaches is not very successful, methysergide maleate has been useful, but must be carefully monitored because of side effects and complications in therapy.

Muscle-Contraction Headache

Clinical Features

Autogenic feedback mechanisms have been reported as successful in the treatment of migraine and muscle-contraction headaches. Recurrent, of variable severity, and persisting from several hours to days, muscle-contraction headaches are described as dull, pressing, or aching. The pain is suboccipital, usually bilateral, and extends to other areas of the head, including frontal, temporal, and band-around-the-head, and may also involve the facial musculature. The scalp and neck may be tender on pressure with the hand. Prodromata are not present, and nausea and vomiting are rare. The headache may be temporally related in onset to a specific stress. Family history is usually unimpressive.

Physiological Factors

Ischemia is a possible factor in producing muscle contraction and pain. It is presumed that tension and emotional stress can cause muscle tightening with prolonged muscle contraction.

Psychological Factors

Persons of every personality type have been demonstrated to be subject to muscle-contraction headaches. States of prolonged chronic anxiety are most common. Irritability, depression, insomnia, fits of weeping, and overconcern about the opinions of others are usual accompaniments in patients with this type of headache. In the worst cases, there is severe

regression with constant headache and the patient is bedridden day and night, requiring total nursing care. Invariably the family is involved, and the frequency of interpersonal conflict is high. Uncovering psychotherapy leads to denied and repressed hostile, aggressive feelings, and unacceptable sexual impulses and ideas. In the early stages, attempts to hide the weakness associated with headaches are accompanied by holding the head high or craning the neck in defiance of the urge to give up and give in. This type of psychological body language most commonly demonstrates anxiety neurosis. Characterological disorders, neuroses, body-image disorders, posttraumatic neuroses, depressions, and psychoses have frequently been identified initially as muscle-contraction headaches.

Treatment

Although psychiatric treatment is necessary, the first consideration is providing some respite from the pain. Antianxiety psychopharmacological substances, such as chlordiazepoxide hydrochloride, diazepam, and meprobamate in adequate dosage give much relief. Muscle relaxants such as carisoprodol may also be helpful. Heat and massage are usually beneficial if used concomitantly. These pharmacological substances and physical therapies are sustaining while the psychiatric problem is in process of definition.

The taking of a detailed history, exploring the patient's complaints with great care and precision, requires much time. The psychiatrist should evaluate the pain and explore the social, family, work, and pleasure attitudes and environment, as well as the patient's responses to stress, personality traits, long-range life goals, and habitual patterns of coping with tension in order to build, in his own mind, a model of the patient's life. Once this has been attained, the problem areas can be specifically defined. Such an evaluation may reveal a characterological disorder, a neurosis, a body-image disorder, a posttraumatic neurosis, a depression, or even a psychosis. Depending on the psychodynamic formulation of the meaning of the symptoms to a particular patient, a psychiatric treatment program can be planned and a treatment goal established. Whether the route lies with supportive psychotherapy, uncovering psychotherapy, guidance and educative approaches, or psychoanalytic investigation must be decided. One would usually strive for resolution of the patient's conflict and some modification of personality structure.

Combined Headache

Combined headache is a combination of the vascular and muscle-contraction types. A clear definition of the factors which fall into each category assists the psychiatrist to understand the physiological and psychological components, and plan a treatment program to encompass the

various identifiable parts of the combination. Experience teaches that, in many instances, successful treatment of the combined-headache patient requires close collaboration between internist, neurologist, and psychiatrist, with each physician understanding the nature of the expertise and treatment plans of the others, and willing to interact in this way. When cooperation is not present, the patient collects conflicting statements, involves the physicians in divisive maneuvers, and can easily sabotage the therapeutic efforts of everyone involved.

Delusional States and Conversion

Friedman and Frazier showed in 1971 in a selected series of 250 headache patients—all of whom had had previous treatments, multiple physicians, and were treatment failures by their own declarations—that 25 percent had organic brain disorders not previously diagnosed, and 28 percent had psychoses not previously diagnosed. This highly selective sample of long-term headache sufferers clearly indicated that headache can mask very severe illnesses, and that such masks are utilized defensively, for long periods of time, to avoid knowing the true cause and treatment of the symptoms. Monosymptomatic delusions of headache and body delusions occur frequently in schizophrenia, as well as in manic-depressive psychosis (bipolar), involuntional melancholia, and unipolar illness.

Conversion reaction may present symptomatically as headache. The symbolic meaning of the head and its special importance have been recognized throughout history. From earliest childhood, developmental experiences involve the head-placed organs of special sense, i.e., eating and learning. Considering the head as locus of the intelligence and so many critical senses imprints the necessity of protecting it, and also defines it as the source of many conflicts.

Every psychiatrist has seen a delusional patient who concretely defines a perception in terms of the organ of perception. Similarly, our society, regarding the head as symbolic of organizer, controller, or director of the entire organism, uses the terms “headman,” “headmaster,” “headquarters,” and “headwaiter;” or, very simply, calls the person in charge “the head.” This metaphor, with some variations, is constant in everyday speech, even in regard to inanimate things and natural phenomena. The “head” is the upper end of beds, valleys, stairs, and pages; the useful section of hammers, golf clubs, and many other objects; the culminating point of cabbages, flowers, and pimples; the source of a stream; and the leading end of a ship, train, or parade. The head of the table, even when the ends are identical, is, of course, the place of prestige.

Some authors have considered headache in broad adaptational and psychogenic context. It has, for instance, been suggested that the vascular

mechanisms in many headaches are related to normal circulatory changes that accompany intense and prolonged mental activity, especially in a setting of relative frustration, with the circulatory process extending beyond normal range when the activity is not brought to a resolution or conclusion. Grinker and Robbins related it to the evolutionary migration of complex and integrated functions toward the head end of the organism and the complex sensory, postural, and symbolic activities integrated there. Interest in the expression of psychological and emotional tension in this part of the body has led, in turn, to consideration of postural reflexes and muscle tension. This points up a general tendency, identified in headache sufferers, both to locate the ego and psychic functions generally in the head, and to elaborate further symbolic transformations of such beliefs. Wolff wrote: "Since the human animal prides himself on 'using his head' it is perhaps not without meaning that his head should be the source of so much discomfort ... or that the vast majority of discomforts and pains of the head . . . are accompaniments of resentments and dissatisfactions." Kolb, observing that personal attitudes toward the head are derived from early learning and appreciation of body functioning and image, sees the expression of concerns related to intellect, brain function, or emotional capacities in terms of head-referred complaints, particularly headache. Rangell and Rosenbaum discuss the more complex symbolism of the headache symptom as a compromise formation representing the impulse and the defense against it. Both authors describe

cases illustrating different complex patterns of interrelated defense mechanisms. Rangell notes that conversion symptoms of this type are not confined to hysterical patients but may also occur with either obsessive-compulsive neuroses or depressions.

Posttraumatic Headaches

This type of headache is reminiscent of the war neurosis and so-called “combat fatigue.” Patients so afflicted often have vivid and terrifying nightmares as well as “startle” reactions, that symbolize the threat to survival experienced at the time of trauma.

Often, very careful intravenous administration of sodium pentothal or sodium amytal provides the patient with just enough sedation to release his mental controls, allowing him to talk freely of the events surrounding the traumatic accident and to abreact the terror he experienced. When this is done, several persons should be present because these patients often abreact with considerable physical and motor excitement.

One of my posttraumatic headache patients, a twenty-one-year-old Canadian farm boy, had suffered a leg fracture and toe amputation from catching his foot in a hay baler. Because of the loud noise of the machinery, his father did not hear the son’s cries until the baler turned at the end of a fence row. When he saw the boy writhing in pain and in a state of shock, he

shouted, "Oh, my God, he's dead!" Under amytal sedation the young man fought furiously, as if trying to free himself from the machine. Reliving the situation with great clarity, he then fainted. In the weeks after this session, the material he abreacted during the amytal interview was slowly brought to his awareness and he was relieved of his headache. The syndrome such patients suffer has a quality resembling a psychoneurotic conversion type of symptom, with the symptom as the symbolic mental representation of an unacceptable conflictual impulse.

In some cases of posttraumatic headache, the most significant component in perpetuating the symptoms is the compensation received by the patient. The most usual compensation is, quite simply, relief from disliked duties, responsibilities, or employment. The patient utilizes the accident as a means of flight from an unpleasant job or some other situation about which he has had long-harbored fantasies of escape. A second factor, desire for financial remuneration and security, is demonstrated by the fact that these patients often are employees of big corporations, the government, or other institutions which provide benefits for injured workers.

Still a third component sometimes interwoven into the continuation of symptoms is the attention, support, and solicitude these patients may long have desired, and now gain from family members or an "understanding" physician. They are, therefore, understandably reluctant to surrender a

symptom that provides such remarkable profits. Such individuals tend to project, assigning their feelings and attitudes to those around them. They sense and react to the wariness and suspicion that they arouse in the physician, and in other ways also demonstrate great insecurity.

One of my posttraumatic headache patients was a forty-one-year-old chemical-industry worker who injured his knee on a cracking tower, became faint, and fell against an outside steel ladder. His faintness was associated with fear of a fatal fall off the ladder onto the ground seven or eight stories below, or into a mass of pipes, boilers, and other equipment. Immediately following his feeling of faintness, the patient developed a headache. Results of a neurological examination were negative, but after recovering from the minor knee injury, he still complained of severe head pain associated with dizziness. He found the condition so disabling that he could not leave the ground to climb into the towers as his work required.

During an amytal interview, the patient associated his fear of death from a fall with the memory of a friend's fatal plunge at the same plant six years before. He then voluntarily described a childhood experience in which he fell from a bicycle, striking his head on the pavement. He recalled his parents' oversolicitous attitude toward the minor head pains he suffered.

After the interview, the patient connected the multiple accident history

with his expectation that his company would continue the compensation which he had been receiving for nine months. After short-term psychotherapy, with direct interpretation of his desire to be cared for, the patient came to understand the nature of the psychological connections he had made about the accident and returned to work with a gradually abating headache pattern.

Hypochondriasis

Hypochondriasis, i.e., persistent pathological concern about the health of the body, is expressed in marked diffuse preoccupation about malfunctioning organs or parts. This concern tends to usurp all other interests. Although at one time the term “hypochondriacal” was used only for those patients who had no organic pathology, it is now used sometimes for those with excessive preoccupation about actual organic illness. Symptoms of the hypochondriacal state include complaints of pressure in the head, inadequate memory, inability to concentrate, irritability, poor sleep patterns, with any of these accompanied by multiple aches and pains, and all of them dwelt on and described compulsively and repeatedly.

Many of the patients have basic character defects, or a serious internal or visceral body-image problem. Although typically classified as a neurotic disorder, hypochondriasis may actually incorporate beliefs about the body which are delusional, hence psychotic.

Hypochondriasis is a compensation for serious defects in self-esteem or for unaccomplished ideals in life. Many of the patients are bored, self-centered, and lead dull, uninteresting lives. Many are victims of a series of embittering misfortunes. Their symptomatology is the somatic expression of the resentment and concern they are otherwise unable to express, and serves to maintain their balance between rationality and irrationality.

The patients usually present the physician with a list of bodily complaints in addition to headaches. Although the psychiatric approach should aim toward reeducation, it is unrealistic to expect total relief of the symptoms. In general, the prognosis is poor. It is difficult to discuss their symptomatology with them or to treat the headaches directly. After the therapist gives a long explanation of the nature of body symptoms and of how the condition might have come about, the hypochondriacal patient will say, "Well, of course, that doesn't apply to me. Now what about my headaches?"

The lesson that body symptoms can be expressions of psychological problems must be subtly taught. For the patient to acquire a new view of frustration, tension, and anxiety, the physician must maintain an objective, unemotional approach and be careful not to promise, even by implication or attitude, that the patient's physical symptoms will disappear; nor must he permit the patient to think that just visiting the physician will make the symptoms magically go away.

The physician should assume a joint-venture approach: "Yes, you have symptoms, and yes, I have some knowledge. Perhaps, working together, we may be able to understand the nature of your headaches and other symptoms." This attitude eventually reassures the patient and enlists his cooperation. He gradually understands that the doctor will make no pronouncements, and that it is the verbal explorations between the doctor

and himself which, by leading to a more lucid comprehension of his life situation and bodily complaints, may in some measure ameliorate his condition.

Causalgia and Painful Phantom

Causalgia is a posttraumatic syndrome characterized by persistent, diffuse, burning pain, which is aggravated by stimuli that may be trivial or purely emotional. The frequency of causalgic pain following, nerve injury is approximately 2-5 percent in case reports, being much more common in the upper than in the lower extremities. The patient is usually debilitated by it and sometimes completely dominated by its timelessness.

Phantom pain can occur after the healing phase of an amputation or an extensive avulsion. It is described as a burning, twisting, cramping, sharp, shooting, cyclic pain perceived in the vicinity of the absent body part, usually an extremity. While the nonpainful phantom is considered to be a normal condition following amputation, the painful phantom is a pathological circumstance reported in as few as 8 (0.36 percent) of 2200 patients by Ewalt, Randall, and Morris.

There are three main theories attempting to explain the phantom phenomenon and the painful phantom:

The Peripheral Theory

The peripheral theory states that persisting sensations from the nerve endings in the stump are assigned to those parts originally innervated by the

severed nerves and result in these phenomena. According to this theory, a neuroma develops, scar tissue is formed, and the circulation is decreased. These factors, plus other mechanical defects and irritants, result in a constant bombardment of impulses to the conscious mind giving rise to the phantom and the pain.

The Central Theory

The central theory proposes that phantoms are due to conscious processes that are more or less independent of sensory impulses from the periphery. A question in this theory is whether awareness of the body is learned or innate. In the structural or nativistic version, the phantoms reflect the constant features of central representation of the sensory and motor systems.

The body image is built up in the early years of life from multiple postural, tactile, and visual-sensory impressions. The body image usually has the same extension as the body surface, so that with loss of a body part there is a reactivation of former perceptive patterns. The organization of these sensory impressions probably takes place in the parietotemporal cortex. With the passage of time, the phantom part shrinks as the body image is reorganized through new sensory impressions. The evidence given for this theory is the following:

1. No phantoms are found with congenital absence of limbs or early childhood amputations, evidently because the body image is not fully developed before the age of six. Also, no phantoms are seen in adults if there is long anesthesia of the limb prior to amputation.
2. The phantom is kept natural and more vivid if the patient exercises it.
3. There is increased sensitivity in the stump with a telescoped phantom than in the contralateral homologous limb. This is interpreted as reflecting central reorganization, since there are no changes in the stump to account for this heightened sensitivity.
4. Incorporation into the phantom of extra factors such as rings is observed.
5. Phantoms fade and telescope according to cortical representation. The fingers and toes are more in contact with the environment and have more nerves and cortical representation than many other body parts. Therefore, they are of greater importance in the body image, and their phantoms will persist longer.
6. Fading is considered to be due to the gradual increase of central suppression of afferent impulses as the body image is reorganized.
7. Involuntary movements of the phantom are likened to Jacksonian seizures, a central process.

8. The patient has the ability to call up the phantom at will and to move it voluntarily.
9. Phantoms may be temporarily lost after certain brain injuries or surgery only to reappear later because of central reorganization.

The Mixed Theory

The mixed theory combines the peripheral and central theories and proposes that the state of the internuncial pool is responsible for the phantom sensations. According to this theory, peripheral irritation stimulates internuncial neurons so that reverberatory, self-perpetuating circuits are set up. Impulses go peripherally and centrally from these neurons, resulting in perception of the phantom and pain. As impulses are overcome by conscious inhibition, the phantom approaches the stump. If sensations are too painful and enduring, the conscious inhibition is ineffective, and the phantom and pain persist. This accounts for the success of peripheral methods of treatment in the early stages of development of the painful phantom, and for failure later when cord and brain surgery may not work. However, the phantom pain is often unrelieved by surgical procedures. Thus, there has been more inquiry into the dynamics and motivation in phantom limbs.

One psychiatric theory proposes that the phantom is a wish-fulfilling hallucination resulting from the denial of a lost part, and that pain results

from denial of the affect associated with the loss. Some psychoanalysts stress the decreased positive aspects of self-concepts, i.e., that the amputee feels castrated and deprived, and that he lacks an intact personality.

The rule of denial is also stressed, although it is held by many that denial has a limited place in the phenomenon. Kolb feels that denial does not cause the phantom, which is a healthy psychological response. Rather, those patients who do not experience a phantom are in fact denying their loss. He attributes the lower incidence of phantom breast, penis, and so forth, to the mechanism of denial. The phantoms are repressed because the patients cannot accept the loss.

Weiss and English maintain that the phantom results from the amputee's narcissistic demand to retain the limb, and that the pain has the functional value of convincing him on an unconscious level that the limb is present. He manages this denial through activity.

Simmel believes that the phantom is genuinely experienced and may become a focus for denial instead of being motivated by denial. Also, the emotions and anxiety associated with the body loss are not denied but rather the patient is overwhelmed by the effect.

It has been proposed that the phantom is a product of the unconscious and subject to its law. Phantoms, like dreams and hallucinations, undergo

condensation, displacement, and secondary elaboration, and can pass through solid objects. Simmel explains that phantoms are lacking in early childhood amputations because there are not enough wishes about body organs at that time. Pain results from provocation of the unconscious by peripheral stimulation or by psychic conflicts between the opposed desires, regaining the loss versus adjusting to reality.

The importance of the patient's personality in his reaction to amputation or afferent denervation should not be underemphasized. In a study of combat casualties, psychiatric disturbances were related to the patient's personality and not to the nature of the injury. It is felt that the patient's emotions give force to the perceptive patterns activated by body loss, and that the variety of responses to mutilation results from the varying personalities.

The patient's attitude about his body and the emotional significance of his body parts are determined by family and cultural attitudes toward the body and its parts. His body image is reinforced by these emotions and attitudes. Therefore, on loss of certain body parts, varying emotions and reactions to the event will come into play depending on the personality makeup. The obsessional patient, for example, has considerable difficulty in adapting to any bodily change, whether it's a small dental bridge or an extremity prosthesis.

It is only natural that a patient shows some anxiety concerning an amputation. It is normal that an amputee mourns for the lost body part and is anxious about its disposal. It was found in a study of war casualties that 64 percent of the patients showed anxiety or other psychiatric symptoms, which were unobserved by ward personnel. It is abnormal, however, when an amputee has persistent pain unrelieved by narcotics and not characteristic of physical disease. Of those with a painful phantom, less than 20 percent had signs of physical disease in the stump.

Kolb claims that states of fear, perception, and associated ideas influence the internuncial pool in such a way that pain results, i.e., psychic pain is projected via the internuncial pathways into the phantom, resulting in the painful phantom. In the war studies, patients with this kind of pain showed a marked psychopathology that was thought to reflect a premorbid personality disorder. They gave evidence, for instance, of reckless behavior and exhibitionism. Such patients are often hostile, demanding, and uncooperative, and complain about neglect within and outside the hospital. There seems to be a parallel between these patients and paranoids.

Kolb finds no consistent personality structure or defect, but feels that these patients are generally maladjusted to their environment and to a prosthesis. A chronic painful phantom represents an emotional response to the loss of an important body part that is significant in the patient's

relationship with others. Hostile feelings with resultant guilt feelings develop toward those with whom the patient identifies as mutilating or mutilated, and also toward those on whom he is dependent and whose rejection he fears. It was noted that hostility was the forbidden impulse in these amputees. The pain may symbolize punishment for these hostile and guilty emotions. Of twenty-one patients with painful phantoms, fourteen had previously had a close emotional attachment to another amputee.

Kolb thinks that amputations arouse fantasies of personal mutilation which are overcome by repression. These fantasies may come to the fore after amputation, resulting in such hostility and guilt feelings that even reference to an amputee can elicit phantom pain. Pain can also be caused by mentioning a person on whom the patient depends. Besides the hostility factor, pain has the functional role of binding this person to the patient. An interesting finding is that there seems to be a correlation between loss of function and phantom pain. Patients with functioning prostheses tend to have normal phantoms, whereas those with no prostheses or only cosmetic ones show an increased incidence of pain.

An interesting psychological phenomenon found in amputees is the projection of their own defects into the environment. For example, an amputee often thinks normal people have amputations, while on closer inspection he finds this is not so. On figure drawing tests, a patient may fail to

draw in the part that he lacks, or he may distort the figure in other ways. In Rorschach tests, figures are cut off. Amputees may have wish-fulfilling dreams in which the limb is present and functioning normally, or anxiety laden, repetitive dreams reexperiencing the injury leading to amputation. All these illustrations may be considered manifestations of a disturbance of body image. Haber, in a study of postoperative reactions following amputation, found that some amputees try to overcompensate to make up for their loss, but others may become depressed and mournful.

Treatment

What then are some of the treatments for causalgia and the painful phantom? Initially, rapid interruption of sensory impulses could be assured by the use of local block in the area of injury, or by such modalities as rhizotomy, cordotomy, tractotomy, thalamotomy, or leucotomy. The use of ultrasound physiotherapy with the stump, psychopharmacologic agents, and psychotherapy when indicated may be helpful. Relief by the use of chlorpromazine, reserpine, and electroshock alone has been reported. Imipramine and amitriptyline have been helpful as analgesics.

The psychotherapist should investigate the overall circumstances of the patient, exploring his attitudes about the injury or amputation, preferably before an elective amputation, with a view toward understanding the

patient's feelings about his body image, his associations to his body parts, and the relative value placed on body parts by himself and by his family. In addition, the patient should be given the opportunity to discuss his fantasies about the appearance of his injured extremity or about the disposal of the amputated part. Considerable time should be spent exploring the patient's attitudes towards amputees and mutilated people, and previous associations with individuals who have undergone amputation or mutilating injuries. His attitudes, as gleaned from literature, about Captain Ahab in *Moby Dick*, Captain Hook, or others, should also be investigated in an effort to assess his overall feeling about bodily parts in terms of his own relative overevaluation of them.

The patient should be reassured by the surgeon or physician as to the mode of disposal of the amputated part. The damaged remaining body parts, that is, the stump or the causalgic area, should be shown to be accepted by the physician by his viewing and examining the area frequently, and thus communicating to the patient its acceptability. More important, prior to an elective amputation, the patient should be counselled that he can expect to have phantom sensations and that this is a normal phenomenon. If this is done, he may be spared much of the considerable anxiety that will occur when he awakes from the anesthetic still feeling the absent extremity.

After a satisfactory sympathectomy, causalgia patients often make a

much more satisfactory social adjustment when placed on a schedule of regular supportive contact with their physicians. This medical dependent relationship offers opportunity for discussions of personal problems under the symbolic presentation of mild sedative-analgesic combinations.

Conclusion

In summary, when evaluating and treating patients with a complicated pain problem, one cannot understand the meaning of persistent, painful complaining unless one considers the meaning of the symptom and its origin in prolonged learned experiences in the patients' family, culture, and daily life. One should investigate their personality structures and those emotional stresses to which they are abnormally reactive.

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