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RÉSUMÉ

Trente-quatre cas de dermatoses attribuables au poli à ongles sont à la base de cette étude où il est démontré que certains ingrédients donnent des "patch-tests" positifs lorsqu'ils sont testés au hasard chez des malades qui fréquentent la clinique dermatologique pour dermatoses variées, et que la grande majorité des ingrédients donnent la même positivité lorsqu'ils sont testés chez des porteurs de dermatoses attribuables au poli à ongles. La laque à la nitrocellulose est l'agent étiologique le plus important, puis viennent les résines et les teintures. La présence de benzol dans la nitrocellulose rend celle-ci plus anaphylactisante. JEAN SAUCIER

THE PAIN OF CANCER FROM A NEUROSURGEON'S VIEWPOINT*

BY FRANK TURNBULL

Vancouver

THE pain of cancer is a visitation of the devil. In the beginning it never serves as an adequate warning of disease. When it arrives the growth is almost always long past the stage when surgical or radiation therapy will result in cure. After the pain is established it frequently increases in intensity. Near the end it may cause agony of a character that is beyond description. A pain which first responds to aspirin, soon requires the addition of codeine in increasing doses, then hypodermic injections of codeine or morphine, and finally the purposeful development of morphine addiction.

Medicinal therapy would be satisfactory if sedative and narcotic drugs always completely allayed the pain. Because the patient's expectancy of life is short there would be little concern about changing the character and increasing the strength of the drug. But therapy is nearly always one step or several jumps behind the pain. Surgeons, even the most sympathetic, are loathe to order more sedatives. If the doctor was treating himself for such a pain the drug bill would likely be tripled. From my observations cancer patients as a group are heroic about pain. When they have to throw aside all their reserve and weep for a hypodermic injection, medical therapy has come to a sorry pass.

Surgical or radiation therapy will often cure the disease and at the same time arrest the pain. But the cure of cancer is rarely absolute. If the patient lives beyond a short span of months or years the inevitable recurrence and dissemination of the growth occurs. With secondary cancerous implants pain is more frequent and more severe.

The judicious use of sedatives and narcotics may be entirely satisfactory in cancer which is accompanied by mild or moderate pain. These cases, which comprise the majority of cancer victims, are rarely seen by the neurosurgeon. But drugs may have two serious limitations in patients with severe pain. Firstly, they may be quite incapable of relieving pain, even though supplied in massive doses. Secondly, when given in a large quantity to patients who are still active and well-preserved, they may cause rapid physical and mental deterioration which is out of all proportion to the progress of the malignant disease.

During the past few years it has been claimed by some investigators that cobra venom given hypodermically in regular small doses will relieve the intractable pains of cancer. The mechanism of its action is not understood. It is dispensed in 1 c.c. ampoules. The dosage that is recommended is two to three ampoules intramuscularly for three to four days and thereafter one ampoule per day or every second to third day as a maintenance dose. My experience with this drug is too meagre to draw conclusions. For what it is worth I can say that in six cases the treatment has been a failure. It might be a different story if one were using freshly prepared venom or a synthetic preparation of the active principle. I would like to see the method given a wider trial in one of our convalescent hospitals, for it must have some merit. The ease of application recommends it for patients in very poor general condition, and for those with cancer of the lung or thyroid where surgical measures of relief are impractical.

* Read to the staff of the British Columbia Cancer Institute, November 25, 1940, and in abstract, to the Vancouver Medical Association, April 1, 1941.

The surgical measures which may be employed to relieve the intractable pains of cancer consist of alcohol injection of nerves, subarachnoid injections of alcohol, section of nerves, and cordotomy. There are no fixed rules regarding their application. The choice of procedure will be influenced by the situation of the pain, the patient's general condition, the state of tissues at the site of proposed operation, as well as by the operator's technical ability and experience.

Two large groups in particular may require neurosurgical treatment. There are those patients who suffer from pain in the head and neck, for whom one may consider alcohol block or section of nerves. A still larger group of unfortunates are plagued with pain in the lower back, pelvis, and legs and for them a subarachnoid injection of alcohol or cordotomy may be necessary. A consideration of these two groups will serve to illustrate the advantage as well as the shortcomings of neurosurgery in cancerous patients.

Cancer of the mouth, tongue or nasopharynx may cause a great deal of localized pain which sometimes, but not always, can be alleviated by surgical or radiation treatment. When severe pain starts spreading beyond the visible local lesion it is not as readily controlled. On a strictly anatomical basis it might appear a simple problem. Why not cut all the pain nerves?

Pain from the head and neck is conveyed by four sets of nerves. These are the two trigeminal nerves, which serve the face and jaws, two glossopharyngeal nerves, which carry sensation from the tonsils and pharynx, the sympathetic nerves which accompany blood vessels to every part of the head, and the cervical nerves supplying the neck. Even the vagus nerves may occasionally carry pain sensations from the throat and inner ear. Whether the sympathetic nerves convey painful impulses or merely initiate pain stimuli which are then carried by other nerves is a matter of debate. For the purpose of this discussion it is sufficient to know that if all the somatic sensory nerves from an affected area are cut there may still remain pain which must be related to sympathetic activity.

It is obviously impractical to consider surgical obliteration of all the pain pathways of the head and neck. But although the likelihood of complete and permanent eradication of pain is slight, it is still possible in a large percentage of cases to give the patient a reasonable degree of comfort. Relief from pain will be more certain in those cases where the pain is localized and within the domain of one major nerve.

The glossopharyngeal and the cervical nerves cannot be blocked with alcohol. To obliterate any or all of them requires a major operation. For section of a glossopharyngeal nerve the approach is made through a curved incision behind the mastoid. The cerebellum is retracted and the nerve exposed at its point of exit from the skull. Cervical pain is only satisfactorily controlled by section of posterior sensory roots which are exposed through a hemilaminectomy.

For pain in the trigeminal area one has a choice between alcohol block or surgical section. When pain is restricted to the lower side of the tongue within its anterior two-thirds, or to the lower gum margins, alcohol block of the third or mandibular division is the simplest procedure, and may be sufficient. Block of any other peripheral branches of the trigeminal is seldom worthwhile. If the pain involves a wide portion of the trigeminal area an alcohol block of the Gasserian ganglion may frequently be used to advantage.

In the performance of the injection the needle passes through the cheek from a point just lateral to the angle of the mouth and enters the ganglion after passing through the foramen ovale. It has to be carried out under local anæsthesia, with infinite care. Following this injection the whole face on the affected side is insensitive to painful stimuli. The chief hazard is the resultant insensitive cornea which must ever after be protected carefully to prevent keratitis. For patients who have lost an eye through malignant disease, but who are still plagued with orbital pain, it is very satisfactory.

With increasing experience in the use of alcohol block of the trigeminal ganglion I am beginning to feel that it has a greater place in the treatment of the intractable pains of cancer than has section of the sensory root. There are, however, some definite indications for operative section of the sensory root of the trigeminal. An obvious example is the patient whose cheek is so affected by cancer as to obliterate all the landmarks for injection or raise the danger of infection. In such cases, retro-Gasserian neurectomy or medullary tractotomy is indicated. When pain involves not only the trigeminal but also the glossopharyngeal area, both nerves may be sectioned through the same posterior approach beside the cerebellum. Frequently the

pain has also spread down below the jaw into the domain of the cervical nerves. In these cases the unilateral cerebellar approach to the trigeminal and glossopharyngeal nerves may be extended downwards to include a hemilaminectomy and section of upper cervical posterior sensory roots.

The cases of intractable pain in the lower back, pelvis, legs comprise a miscellaneous group. What should be done depends chiefly on the patient's general state of health. An important factor is the degree of involvement by malignant growth of the bladder and rectum and particularly the degree of voluntary control of these organs.

Alcohol subarachnoid block, which was introduced into this country only a few years ago, received at first a good deal of acclaim, but recently more criticism and less praise. In this procedure, posterior sensory roots as they lie in the subarachnoid space are bathed in a strong solution of alcohol. Sensory roots from the 12th thoracic to the second sacral can be treated in this way. The patient is placed on his side with the back arched lateralwards so as to bring two or three selected posterior roots higher than any other part of the subarchnoid space. By a lumbar puncture through the nearest interspace one-half to one c.c. of absolute alcohol is slowly injected. The alcohol, being of lower specific gravity than cerebrospinal fluid, floats up, surrounds the roots, and destroys them. The corresponding peripheral areas are made wholly or partially anæsthetic to pain. It is not a difficult or a painful operation. If the pain is restricted to two or three lumbar segments on one side it is a satisfactory treatment. But the pain usually involves many segments and commonly both sides. If one attempts to anæsthetize a number of lumbar and sacral segments there is grave danger of causing flaccid incontinence of bladder and bowel. It is possible to deal with the affected roots in a careful series of alcohol injections and stop just short of serious weakness of the sphincters. In my experience one may relieve, but not completely abolish the pains in this way. If the patient is already incontinent as a result of cancer, or is bed-ridden in a hopelessly advanced stage, it cannot make him any worse and, when used radically, has great value.

The only procedure which will completely relieve widespread pains in the pelvis and legs without paralyzing bladder and bowel is cordotomy, a transection of the pain tracts in the spinal cord. The operation is usually performed at the level of the third thoracic segment. This is high enough to arrest not only painful impulses which are carried in by the lumbar and sacral nerves but also sensory fibres which ascend with sympathetic fibres outside the spinal canal and enter the cord in the upper thoracic region.

The laminæ of two vertebræ are removed, the cord exposed, and then with the aid of very definite landmarks the anterolateral pain tracts are transected. A general anæsthetic is preferable although a local anæsthetic can be used. The operation is completed in one and a half hours or less. If a bilateral section of the pain tracts is made the bladder will require catheterization for a period of five to ten days. The patient may be out of bed in two weeks. There is rarely more than temporary weakness of the legs. For pain associated with carcinoma of the abdomen or pelvis it is advisable to section the pain tracts on both sides even though the pains are referred almost entirely to one side.

The use of a major operation for purely symptomatic treatment in a patient with a hopeless prognosis is obviously a very serious matter. Two questions must be answered beforehand. How long is the patient likely to suffer or, more precisely, how long has he got to live? Is he able to stand the operation? Exact prognosis of life expectancy is a most difficult matter except in the last stages. As a rule I think that we tend to overestimate the number of years in the early stages, but underestimate the number of months near the end. We are prone to say, "Why operate, he will likely be dead in a couple of months," and then find that we are still facing the same problem in the same patient four months later. The immediate operative risk is slight in patients who are in reasonably good condition.

They can stand a great deal if it will rid them of pain. I have twice had the unhappy experience of not making one of my incisions into the cord deep enough. Following operation the level of anæsthesia to pain did not reach high enough on one side. The total pain was greatly reduced but that was not enough. In the first case a natural reluctance to submit the patient to a second operation and re-open the operative wound led to procrastination and an unsatisfactory cure. In the second case I reopened the wound within twenty-four hours,

completed the operation, and had the most gratifying result that I have yet witnessed.

Cordotomy in a patient who has already had subarachnoid injections of alcohol is fraught with danger. The combination is very likely to cause a permanent flaccid incontinence of bladder and bowel. It is unwise to employ the alcohol injection unless there is no likelihood of cordotomy ever being required.

Neurosurgical relief of the intractable pains of cancer is usually requested at too late a stage. The time to consider such treatment is when the pain becomes so severe that it does not respond completely to moderate sedation.

RÉSUMÉ

Contre les douleurs dues aux diverses formes du cancer le neurochirurgien a à sa disposition les injections intra-nerveuses d'alcool, l'injection sous-arachnoidienne d'alcool, les sections de nerfs et la cordotomie. En général, ces procédés sont utilisés chez les malades dont les douleurs sont situées à la tête ou au cou, ou encore, au bassin, aux lombes et aux membres inférieurs. Le choix de l'opération est affaire de localization et de prévision de succès. Le problême est complexe car les voies de la douleur dépassent souvent les avenues traditionnelles. On se contente parfois d'un confort relatif et d'une simple diminution des algies, surtout à la bouche et au cou. Tous les nerfs ne peuvent pas être bloqués par l'alcool; parfois il faut injecter l'alcool dans le ganglion lui-même comme c'est le cas lorsque le cancer détermine des névralgies rebelles du trijumeau. Dans les grosses lésions cancéreuses de la joue, on fait la section rétro-gassérienne. On fait encore la tractotomie du V et du IX, et à la région cervicale la rhizotomie postérieure. Le blocage sous-arachnoidien à l'alcool n'assure pas de garantie absolue d'anesthésie et donne des ennuis sphinctériens. Seule la cordotomie enlève radicalement les douleurs sans paralyser la vessie et le rectum. Il faut opérer dès que la douleur n'est plus calmée par les sédatifs habituels. JEAN SAUCIER

INTERSTITIAL CYSTITIS*

BY EMERSON SMITH AND F. D. CONROY

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THE term we have chosen to use for this condition, which has been referred to in the literature under a host of names, is probably the most ancient of them all, for Skene in 1887 reported a few cases of a rare bladder disease, which he called "interstitial cystitis". Mercier and Le Fur, of France, in 1907 described some cases which we now believe to be the same condition. About the same time, Nitze, of Germany, described it under "cystitis parenchymatosa". It remained for Hunner in 1909 first to recognize these cases as a clinical entity, and he published his first paper in 1915, using the term "elusive ulcer". Kretschmer in 1920 reported his results in 14 cases, using Hunner's term "elusive ulcer". Since that time he has been the most prominent and enthusiastic writer on this subject. It is probably safe to say that nothing has been added to Hunner's original description of this condition, and that progress has been along the lines of therapy and the more frequent recognition of the disease. It is not a true ulcer of the bladder, and it is not elusive.

ETIOLOGY

It is a disease of adult life, occurring mostly in females between the ages of 40 to 60 years; we have had no cases under 40 years, and our average is 48 years. Its incidence in males is variously quoted from zero to 15 per cent. To date we have found no cases in the male.

Hunner originally thought that the cause of interstitial cystitis was a focus of infection somewhere else in the body, and also attributed many cases to an initial granular urethritis. Herbst has delved deeper into etiology than most, having done some experimental work on dogs in 1937. In a number of animals he ligated the vessels of the posterior wall and vertex on the external aspect of the bladder. To this area he then sutured the vagina and uterine horns, first scraping the external surface of the bladder to encourage adhesions. In some cases he placed an infected spicule of bone from a tooth abscess (*S. viridans*) between the sutured organs, and he was able to produce a lesion that resembled interstitial cystitis both cystoscopically and histologically. In no case did the infective process from the bone spicule penetrate the serosa of the bladder wall. Whether these experiments produced the genuine disease or not, it seems to us they are based on a sound hypothesis, for all workers have found this condition occurring predominantly in females. Also, they have often undergone at least one, and sometimes several, pelvic or abdominal operations. Although these have been thought due to errors in diagnosis, it may be possible in some cases that they are an etiological factor in the disease. From all this it would seem that we are still

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