UNILATERAL PREFRONTAL LOBOTOMY WITH RELIEF OF IPSILATERAL, CONTRALATERAL, AND BILATERAL PAIN

A PRELIMINARY REPORT*

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The relief of somatic pain of organic origin through bilateral prefrontal lobotomy was first described by Freeman and Watts in 1937.1 Similar results have subsequently been reported by others.2,3,4,5,6,7,10,14,15,16

Unilateral prefrontal lobotomy with relief of ipsilateral, contralateral, and bilateral pain is here reported.

CASE REPORTS

Case 1. V. A. No. 10025. This 54-year-old male was admitted to the Veterans Administration Hospital, Kingsbridge Road, New York City on Oct. 3, 1947, with a painful swelling of the left side of the face, jaw, and neck. Seven months prior to admission, a small lump had appeared in the left side of the neck and had gradually increased in size. After 4 months, medical advice was sought. The man was admitted to a hospital in another city, where a biopsy was made, and the diagnosis of carcinoma was established by microscopic examination. The exact site of origin of the carcinoma could not be definitely established. At that hospital, the patient was given X-ray therapy, which did not affect the growth of the tumor, and he was transferred to the Kingsbridge Hospital for relief of severe pain in the left side of the neck.

Examination at this time revealed an under-nourished white male in obvious pain who could speak only in a hoarse whisper. There was a large, hard tumor mass near the angle of the left jaw, which extended forward and downward into the submaxillary area and backward over the origin of the sternocleidomastoid muscle. The skin over the tumor was indurated and had two extensive ulcerations. The origin of the tumor could not be determined. Examination within the mouth revealed some swelling in the left posterior pharynx, but the membranes were not ulcerated. The pillars of the tonsils and the lateral part of the tongue on the left side were swollen, tender to touch, and painful on swallowing and chewing. While being examined, the patient complained of pain located over the left frontotemporal region radiating backward behind the ear and downward toward the tumor mass in the neck. He also described pain deep in the ear, which was aggravated by chewing. All of these pains were continuous, aching in character, and very severe; all were sharply lateralized to the left side.

The patient was treated on the medical wards of the hospital from Oct. 3, 1947 to Feb. 5, 1948. During the first 3 months of this time, he received morphine 0.010 gm. q. 4 h.; for the last month, 0.015 gm. q. 4 h. Neither of these dosages ever completely relieved him of pain.

On Feb. 5, 1948, a prefrontal lobotomy was performed under direct vision, using the technique previously described by this writer,11 but performed on the left, or ipsilateral, side only.

Immediately following the operation, and for several days thereafter, the patient had a

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clouded sensorium. However, he responded promptly when addressed. Gradually his confusion cleared but was followed by apathy. After about 1 week, there was a marked and rapid improvement in all of his psychomotor activity. His answers were quick, sharp, and accurate. He was pleasant and cooperative. There were no abnormal emotional states.

On Feb. 6, 1948, the patient received codeine 0.060 gm. 4 times. On Feb. 7, 1948, he received no narcotics or analgesics. On Feb. 8, 1948, he received codeine 0.030 gm. twice. Since that date, he has neither requested nor received any narcotics or analgesics. It is particularly interesting that the patient at no time showed any of the mental, sympathetic, or somatic signs commonly associated with withdrawal of morphine.

When asked if he still has pain, he promptly responds that he does; but he never shows signs of pain and never asks for medicine. This condition has persisted to the time of this report, 1 month after operation.

Case 2. V. A. No. 101898. This 52-year-old man was admitted to the Veterans Administration Hospital, Kingsbridge Road, New York City, on April 4, 1947. Study revealed a carcinoma of the larynx. On April 30, 1947, laryngectomy and tracheostomy were performed. Following this, the patient was discharged from the hospital, free of pain. Several months later, a swelling appeared in the right side of the neck beneath the angle of the jaw, which grew rapidly and became painful. He returned to the hospital during the summer, and a diagnosis of metastasis to the cervical lymph glands and deeper structures of the neck was made, and intensive X-ray therapy was given.

The patient was readmitted to the Kingsbridge Road Hospital in January, 1948, this time for relief of intractable pain. The pain was located principally behind the right ear but spread upward toward the vertex and forward into the face. It was constant, sharp, and quite severe,

Fig. 1. Case 1. Photograph taken before operation, showing extensive carcinoma of the left side of the neck. The patient was relieved of all pain by unilateral prefrontal lobotomy performed on the left, or ipsilateral, side.
and was also referred deeply into the external auditory canal. Swallowing and chewing intensified the pain. It was confined completely to the right side of the head and neck.

Examination at this time revealed a hard mass located primarily below and behind the angle of the right jaw, with extension into the submandibular, retromandibular, and cervical regions. This mass was ulcerated and infected. Esophagoscopy was performed which revealed extension of the tumor into the esophagus. This extension was biopsied and microscopic examination revealed that it was an epidermoid carcinoma.

At the time of admission, he was taking codeine 0.060 gm. q. 4 h. However, the pain rapidly became worse after he was admitted, so that it became necessary for him to have

![Image](image_url)

**FIG. 2.** Case 2. Photograph taken several months after laryngectomy for carcinoma showing extension of the primary tumor into the right side of the neck. This patient was relieved of all pain by unilateral prefrontal lobotomy performed on the left, or contralateral, side.

morphine 0.15 gm. q. 4 h., and subsequently q. 3 h., in order to give him even partial relief.

On Feb. 26, 1948, prefrontal lobotomy was performed on the left, or contralateral side.

During the first 24 hours immediately after the operation, the patient’s sensorium was intermittently clouded. This clouding grew appreciably less during the second 24 hours, and 48 hours after operation, the patient was practically clear in his sensorium. A few days later, his psychomotor activity was essentially normal. He now spends a great deal of time reading, particularly engineering journals.

During the evening following operation, the patient received Demerol 0.050 gm. on two occasions. Since then, he has never asked for nor received medication for the relief of pain. At no time after the operation has the patient shown any mental or somatic signs of withdrawal. There have been no restlessness, sweating, complaints, or pleading for medication. He has been at all times relaxed. He has slept well and eaten well.

When this patient is now asked whether he has pain, he smiles, shakes his head “No,” and makes the sign “Zero” with his fingers.
Case 3. P.H. No. 874569. This 59-year-old woman, referred to me by Dr. Cushman Haagenson, was admitted to The Neurological Institute on Feb. 25, 1948 for relief of intractable pain in the midthoracic spine and about the midthorax bilaterally. On June 30, 1947, she had had a left mastectomy for carcinoma. During January, 1948, there developed pain and tenderness in the midthoracic spine. X-rays taken at this time showed evidence of destruction and collapse of the body of the 5th thoracic vertebra and areas of probable destruction of several other thoracic vertebrae, and of the left transverse processes of the 3rd lumbar and 1st sacral vertebrae. In addition to pain in these regions with obvious X-ray changes, there was also severe pain in the cervical region, presumably due to metastases, although these could not be demonstrated by X-rays.

Examination of the patient revealed an elderly Italian woman whimpering constantly with pain and intermittently screaming. The slightest movement of the patient, in fact the slightest jarring of the bed, set off paroxysms of pain. Prior to her admission, she had been receiving Demerol 0.200 gm. q. 3 h. This medication had no apparent effect on her pain; she was constantly begging doctors and nurses for more medicine. General physical and neurological examinations under these conditions were necessarily incomplete. However, there was no evidence of local recurrence of tumor at the site of mastectomy, no paralysis of the extremities and no gross sensory loss. The patient's sensorium was gravely clouded, probably because of heavy doses of narcotics.

On Feb. 25, 1948, prefrontal lobotomy was performed on the right side only.

There was some mental confusion during the first 24 hours after the operation, but this
rapidly cleared during the second 24 hours. Since that time, she has been well oriented as to
time, place, and persons, enjoying visitors and engaging freely in conversation with them.
Her mood has been continually cheerful since the operation.

In accordance with a preoperative plan, the patient was given morphine 0.010 gm. q. 4 h.
during the 1st postoperative day. During the 2nd postoperative day, this dosage was given
q. 6 h. During the 3rd and 4th postoperative days, morphine 0.008 gm. was given q. 6 h. On
the 5th postoperative day, codeine 0.090 gm. q. 6 h. was given. Beginning on the 6th post-
operative day, the codeine was omitted altogether. From that day on, no narcotic or other
analgesic has been given. At no time since the operation has the patient complained of pain
or asked for medication. The medication which she did receive was given to her solely to
minimize the symptoms that were expected to follow the withdrawal of morphine. With-
drawal symptoms never materialized. The general restlessness, observed preoperatively,
rapidly subsided during the first 2 or 3 days after the operation.

When the patient is now asked whether she has pain, she replies, “I don’t think so.” All
signs of pain are completely lacking, and she is smiling most of the time. She can now be turned
freely in bed for changes of linen and for use of the bed-pan without the slightest pain. She
even turns herself spontaneously to sleep on her side. She is eating well and sleeping soundly.

DISCUSSION

The mechanism by which the relief of pain has been accomplished in
these cases is not clear to the writer. It seems impossible to explain on
purely anatomic or physiologic grounds based on our present concepts of
the structure and function of the brain. A theory of “quantitative isolation”
of the personality from an unpleasant environment is suggested as a plausible
working hypothesis. In the schizophrenic patient, the entire environment is
hostile, and a relatively great isolation of the personality from the environ-
ment is necessary. In such a case, a large number of association pathways
must be interrupted. In the person whose environment is hostile only in
respect to somatic pain, interruption of a small number of association path-
ways may accomplish the degree of isolation required.

Objection to bilateral prefrontal lobotomy for the relief of pain may be
justifiably raised on the grounds that, following that operation, there is some
dulling of the higher intellectual functioning, particularly in the field of
finer discriminations, tact in social relationships, future planning, and ini-
tiative, not to mention the blunting of affect. These losses may be of little
consequence in patients suffering with rapidly progressing malignant dis-
ases, and may even be very welcome. However, in patients with chronic
intractable pain who do not have malignant diseases leading to early death,
the loss of these intellectual faculties may be very serious; in these cases
bilateral lobotomy is unacceptable as a measure for relief of pain.

In our cases of unilateral prefrontal lobotomy, evaluation of changes in
intellect and personality as a result of the operation have been planned.
Before patients (1) and (2) were operated upon, extensive psychometric
studies were made of them. At the present time, it is too soon to make satis-
factory postoperative judgments regarding loss of intellect or personality,
but thorough psychometric appraisals are under way and will be reported at
a later date. However, it is significant that previous studies by Penfield
and Evans, German and Fox, Spurling, Stookey, Scarff and Teitelbaum and
others have shown that removal of one frontal lobe, which is sometimes necessary during operations for tumor of the brain, can be effected without demonstrable loss of intellect or personality as revealed by psychometric, psychiatric, or social evaluations. It is to be hoped that our own studies in these patients who have undergone unilateral prefrontal lobotomies will eventually show that the same holds true for this operation. Should this prove true, the field of usefulness for lobotomy as a means of alleviating intractable pain would be greatly extended.

SUMMARY

1. Three cases are here reported which indicate that unilateral prefrontal lobotomy will relieve ipsilateral, contralateral, and bilateral pain.

2. Symptoms commonly associated with the withdrawal of morphine from patients previously heavily addicted to its use because of pain did not occur following unilateral prefrontal lobotomy in the cases here reported.

REFERENCES