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# The Decision-Making Process in Psychosurgery

O. J. Andy, M. D.\*

## INTRODUCTION

*Decision-making for the good of the individual:* The decision-making process in psychosurgery is basically similar to that in other surgical specialties. Since psychosurgery involves the treatment of behavioral illnesses, the physicians most frequently involved in making these decisions are the pediatrician in the case of a child, the family physician, the psychiatrist and the neurosurgeon. Paramedical personnel, psychologists, sociologists, and electroencephalographers, also play a part by providing supplementary information obtained through specialized interviews and testing techniques. Parents, relatives, and clergy are also vital in assisting the patient in making a decision. Over an extended period of time there is interaction among these physicians, psychologists, sociologists, juvenile delinquency authorities, school teachers, neighbors, relatives, parents, and clergy, and they become extremely concerned and interested in providing the best guidance in the treatment of the patient. Their interaction in the decision-making process for the treatment of behavioral disorders, although loosely structured, is both critical and pragmatic. With a physician at the helm correlating the information, this process represents the acme of providing advice and guidance, because it is derived from maximum medical and sociologic input and is naturally oriented for the good of the individual. Freedom from restrictions of the law, in this process, is a *sine qua non* for the optimum treatment of the individual. The position of the law is to protect the rights of the individuals, both the patient and the physician. However, the judiciary, in attempting to protect the rights of individuals, should avoid decisions which are more rather than less restricting upon those rights.

*Decision-making—case illustration:* The characteristics of the illness in this case, just as in other medical problems, determined the path and mode of the decision-making process for treatment. First,

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it was the parents, relatives, teachers and neighbors who detected behavioral and seizure abnormality in a young child and advised medical, sociologic, and psychologic assistance. Law enforcement authorities and the juvenile court became concerned and advised institutional confinement. The physicians responsible for pediatric, psychologic, and psychiatric treatments also advised institutional confinement since their treatments were not effective for the pathologic aggressive behavior. The parents decided against institutionalization because of their awareness that other children with a similar problem had suffered further mental, physical, and behavioral deterioration subsequent to institutional confinement. The treating physicians and parents then decided to obtain further consultation from a neurosurgeon to determine the feasibility of brain surgery as a treatment of the last resort. After additional studies and careful review of the case, the neurosurgeon concluded that brain surgery, in all probability, would be beneficial. Conferences were held in which the physicians, psychologists, sociologists, electroencephalographers, patient and parents participated. Communication was maintained with the concerned physicians, psychologists, juvenile court authorities, school teachers, minister and parents. After discussing the advantages and disadvantages of the operation, an affirmative decision was reached and the parents made the final decision in signing a legal consent for the brain surgery. The consent of the patient, although a minor and incapable of being fully informed, also was considered in the decision-making process.

*Brain operation for aggression—case report:* This is a brief case report of a patient who underwent brain surgery for the alleviation of pathologic aggressive behavior and has been well for ten years post-operatively. The patient was born in 1952 and was 1 ½ months premature at delivery. He weighed 2 pounds and 2 ounces and was maintained in an incubator for two to three months after birth. Childhood seizures and uncontrollable explosive behavior developed. He molested animals, destroyed property, attacked people, and was suspended from school because of persistent incorrigible behavior and fighting with other children. The patient's anti-social outbursts had the neighborhood in constant turmoil, resulting in the family having to move because of protesting neighbors. His IQ was 64 and psychologic tests poor. Brain waves revealed abnormal activity. A variety of sedatives, tranquilizers, anticonvulsants, and stimulants did not control the psychopathic behavior. Psychiatric, psy-

chologic, pediatric and drug treatments were not effective. The parents refused recommended institutionalization and demanded that surgical treatment be undertaken since they were most unhappy with the lethargy and inactivity occurring from large doses of medication administered to control the aggressive behavior. Neurosurgical studies and brain operations were recommended as a last resort. Informed consent was obtained from the parents and patient, as discussed above. Operations were performed in two stages on each side of the brain in 1962, first on the left and two weeks later on the right. It should be noted that extensive operations are performed in stages, separated by weeks or months, in order to avoid immediate post-operative depression of brain function from simultaneously-placed large lesions.

The patient did well for two months. On the third month, however, his aggressive behavior reappeared. The lesion on the right side was enlarged since it originally was smaller than the left. The patient did well for one year post-operatively. He was re-admitted to the third grade and received all "A's" for the year. In the second year, aggression recurred and he required progressively more medication. In 1965, the patient underwent bilateral thalamotomy and unilateral fornicotomy. These operations were also performed in stages. Following fornicotomy the patient became temporarily hyperactive from the immediate post-operative irritative lesion effects. One month later, the bilateral thalamotomy lesions were enlarged. There was immediate impairment of memory, but this deficit slowly improved over a period of approximately one year.

During the past ten years the patient has been well and has had no recurrent episodes of psychopathic behavior. He has been working six days per week unloading and loading freight and has required no medication. He lives with his parents and provides his own financial support. This premature child, who weighed two pounds, two ounces at birth, is now 23 years old, weighs over 200 pounds, and is over six feet tall. The memory deficit which was present during the first post-operative year is no longer present, and he remains alert and happy with no intellectual deficit.

*Retrospective study of this case (hyperresponsive syndrome):* A retrospective clinical study was conducted on this patient in order to evaluate three categories of behavior. These were aggression, hyperkinesia, and patho-affect. Quantification of the behavioral de-

scriptions was obtained and a problem severity index determined.<sup>1</sup> The patient served as his own control, *i.e.*, the post-operative behavioral index was compared to the pre-operative behavioral index.<sup>2</sup> It should be noted that the patient had over 90 percent improvement in the aggression and hyperkinesia categories, but only 30 percent improvement in the patho-affect.<sup>3</sup>

It should be stressed at this point that the behavior selected for analysis, as well as the method of analysis, were based on a previously published retrospective study of children and adults who were operated on for seizures and various sensory-motor disorders. The behaviors analyzed were classified under the same categories described in the present case. That study revealed that following thalamotomy, behaviors classified under the categories of aggression and hyperkinesia improved reliably more than patho-affect. Furthermore, the improvements obtained were in the same direction, irrespective of the differing pathology for which surgery was performed (*i.e.*, a mixed models design). Each patient in that study served as its own control. This design in behavioral research,

provides complete control of one of the most important sources of variation in education and psychological experiments—namely, differences among individual subjects (inter-subject variations). Furthermore, the underlying assumption of normality of distribution is more likely to be satisfied . . .<sup>4</sup>

than by using other experimental designs for behavioral research. It is this type of retrospective clinical research which led to development of thalamotomy for the treatment of pathologic aggression.

This retrospective study has been misunderstood by the laity, psychologists and some physicians, as surgery being performed for hyperactivity. The behaviors were collectively identified as hyper-responsive syndrome because they had in common the characteristic of being activated or aggravated by a variety of stimuli, environmental and/or internal in origin.<sup>5</sup> It should be stressed that the terms hyperactivity and hyperresponsive are not synonymous. Un-

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1. See Appendix, Figures 1, 2, and 3.

2. *Id.*, Figure 3.

3. *Id.*

4. E. LINDQUIST, DESIGN AND ANALYSIS OF EXPERIMENTS IN PSYCHOLOGY AND EDUCATION (1953).

5. Andy & Turko, *Hyperresponsive Syndrome*, in PSYCHOSURGERY 117-26 (E. Hitchcock, L. Laitinen, K. Vaernet, eds. 1972) [The book will be hereinafter cited as PSYCHOSURGERY].

fortunately, these terms have been confused either through lack of knowledge of medical terminology and/or lack of proper interpretation.

### AGGRESSION

*Anatomic and physiologic substrates of aggression:* The following is a simplified concept of the anatomic and physiologic bases of aggression. Structures from which aggressive attack can be elicited most easily are the amygdala, septum, hypothalamus, thalamus and mesencephalon which together may be called the aggressive brain.<sup>6</sup> Control of aggression emanates from the neocortex which may be considered the thinking brain.<sup>7</sup> A balance exists between the thinking brain and aggressive brain. Stimulation or irritation of the aggressive brain by injury, infection, tumor or birth defects, will disturb the balance and produce aggressive behavior.<sup>8</sup> The neocortex, or thinking brain, provides for controlled aggression and supervenes aggressive behavior, but if it is malfunctioning, uncontrolled aggression may result. It should be noted that the neocortex or thinking brain makes up more than 80 percent of the whole brain in the human. In contrast, it made up less than 22 percent of the brain of the primitive insectivore from which the human is thought to have evolved.<sup>9</sup> This neocortical predominance most likely accounts for the greater degree of controlled aggression in the human in contrast to lower forms. However, the aggressive brain is just as well developed in the human as it is in the lower forms.<sup>10</sup> Consequently, it may be assumed that human aggression can be just as vicious. A human with combined malfunction of the aggression and

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6. Hunsperger & Bucker, *Affective Behavior Produced by Electrical Stimulation in the Forebrain and Brain Stem of the Cat*, 27 *PROG. BRAIN RES.* 103-27 (1967); MacDonnell & Flynn, *Attack Elicited by Stimulation of the Thalamus and Adjacent Structures of Cats*, 31 *BEHAVIOR* 185-202 (1968); Molina & Hunsperger, *Central Representation of Affective Reactions in Forebrain and Brain Stem: Electrical Stimulation of Amygdala Stria Terminalis, and Adjacent Structures*, 145 *J. PHYSIOL.* 251-65 (1959).

7. See Appendix, Figure 4.

8. Mark, Sweet & Ervin, *The Effect of Amygdalotomy on Violent Behavior in Patients with Temporal Lobe Epilepsy*, in *PSYCHOSURGERY*, *supra* note 5, at 139-55.

9. Stephan & Andy, *Quantitative Comparisons of Brain Structures from Insectivores to Primates*, 4 *AM. ZOOLOG.* 59-74 (1964). See also Appendix, Figure 5.

10. O. ANDY & H. STEPHAN, *COMPARATIVE PRIMATE NEUROANATOMY OF STRUCTURES RELATING TO AGGRESSIVE BEHAVIOR, PRIMATE AGGRESSION TERRITORIALITY AND YEMOPHOBIA* (R. Holloway ed. 1974).

thinking parts of the brain can be expected to display the maximum degree of uncontrolled pathologic aggression.

The thalamus is well situated to serve as a modulator of aggression<sup>11</sup> because it is intimately connected with hypothalamic, limbic, basal ganglia and neocortical structures, and is a central switchboard for environmental stimuli which enter the brain. Thalamic modulated aggression can be influenced by activation or inhibition from cognitive neocortical input.<sup>12</sup> Environmental input also may result in activation or inhibition of the thalamic modulated aggression system, depending upon the character of the environmental stimuli and the irritability state of the components in the system.<sup>13</sup> It must be emphasized that these theoretical concepts, although based on scientific animal experimentation, should be used neither as a basis nor justification for performing therapeutic brain surgery. These experimental observations and hypotheses merely serve to provide a better understanding of the physiologic mechanisms which may underlie a clinical illness and its treatment.

*Environmental influence on aggression:* Aggression may be considered as reflecting the moral state of the sociologic environment, first and foremost of which is the family environment.<sup>14</sup> Family disruption, turmoil, and incohesiveness facilitate development of aggressive behavior. Repeated exposure to crime and aggression in television, books, and newspapers provides excellent nourishment for developing increased aggression and violence. The mere exposure to seeing a gun induces a heightened state of aggressiveness.<sup>15</sup> Such environmental stimuli will enhance aggression in both the normal and pathologically aggressive individual. However, even with environmental improvement, the pathologic aggressor will con-

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11. Girgis, *The Role of the Thalamus in the Regulation of Aggressive Behavior*, 8 INT'L J. NEUROL. 327-51 (1971).

12. Andy, Giurintano, Giurintano & McDonald, *Thalamic Modulation of Aggression*, PAVLOVIAN J. BIOL. SCI., 85-101 (April-June 1975). See also Appendix, Figure 6.

13. *Id.*

14. Bandura, Ross & Ross, *Imitation of Film-Mediated Aggressive Models*, 66 J. ABNORM. SOC. PSYCHOL. 3-11 (1963); Bandura, Ross & Ross, *Transmission of Aggression Through Imitation of Aggressive Models*, 63 J. ABNORM. SOC. PSYCHOL. 575-83 (1961).

15. Berkowitz, *The Contagion of Violence; An S-R Meditational Analysis of Some Effects of Observed Aggression*, in NEBRASKA SYMPOSIUM ON MOTIVATION (1970); Berkowitz & Geen, *Film Violence and the Cue Properties of Available Targets*, 3 J. PERS. SOC. PSYCHOL. 525-30 (1966).

16. Berkowitz & LePage, *Weapons as Aggression-Eliciting Stimuli*, 7 J. PERS. SOC. PSYCHOL. 202-07 (1967).

tinue to display irrational and uncontrolled aggressiveness. Abnormal brain function must be medically treated and corrected in order to restore the pathologic aggressor to sociologic acceptance. Environmental improvement, on the other hand, is essential for the reduction of aggression and violence expressed by the individual with normal brain function who manifests controlled aggression. The prescribed treatment for controlled aggression is not medical, it is sociologic. In contrast, the prescribed treatment for pathologic aggression is both medical and sociologic.

*Aggression in relation to the patient:* Patients with pathologic aggression are mentally disturbed and confused over their episodic and uncontrollable behavior. In some instances, medical assistance will be sought during a period of restlessness and agitation, which are recognized as warnings of impending aggression.<sup>17</sup> Even if the precipitating stimulus is recognized, there is an inability to hold back the aggressive explosion. The attack may originate spontaneously from within, with no apparent reason, and is followed by sorrow, leaving the patient apologetic. Adult patients cannot hold a job because of inability to get along with others. Patients depressed by their erratic and uncontrollable behavior become suicidal. When asked if death is really desired, the answer is no. They desire treatment, but psychosurgery only as a last resort.

Children lack insight into the problem—they merely act in response to internal and external environmental stimuli. Brain malfunction of pathologic origin overrides any rational state<sup>18</sup> that may exist and the child behaves automatically, like a robot without control. The abnormal functioning brain disrupts the function of other brain structures, thus retarding the normal psychological, cognitive, and physical development of the child. The behavior invariably results in the ultimate rejection and forced isolation of the child from society, thereby leading to further psychologic and behavioral maladjustment.

*Aggression in relation to society:* Society is by necessity comprised of individuals. This means that equality, respect, and opportunity must prevail in order to provide a harmonious relationship. Since erratic and episodic uncontrollable behavior does not provide for harmony, respect, and equality, the individual with pathologic

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17. R. JOHNSON, *AGGRESSION IN MAN AND ANIMALS* (1972).

18. McNeil, *Psychology and Aggression*, 3 J. CONFLICT RESOLUTION 195-293 (1959).



aggression keeps society in constant turmoil. Destruction of property and lives makes the pathologic aggressor a threat to the moral and economic stability of society. Society develops psychiatric, penal, and law enforcement institutions to isolate the aggressor. Mere isolation of the aggressor, however, does not solve the behavior problem, especially for the individual with the pathologic brain. The moral and ethical duty of society, in order to administer the appropriate corrective measures, is to differentiate the individual expressing normal aggression from the one expressing pathologic aggression. Society must recognize that punitive isolation measures alone are not adequate for controlling pathologic aggression. Medical therapy also is needed for restoring the pathologic aggressor to society as a contributing member with dignity, respect, and acceptance. Consequently, society must seek the assistance and guidance of the medical profession in restoring the pathologic aggressor to the community.

#### PSYCHOSURGERY RESEARCH

*A need for new guidelines:* It is recognized that, "curative medicine and clinical research are so closely related in the best practice of the art of healing that it is in some ways artificial to separate them."<sup>19</sup> Nevertheless, it is necessary to establish new base lines and criteria for clinical research and curative medicine to meet our present day ethical standards in the practice of modern medicine, especially in some of the more advanced fields such as psychosurgery.

Research in psychosurgery may be considered under three headings: (1) Scientific research, (2) Therapeutic research, and (3) Retrospective clinical research.

*Scientific research:* Scientific research is exclusively designed to advance scientific knowledge. It may be regarded as a pure form of research with no immediate benefit to the individual. The patient, in this instance, anticipates no personal benefits. His person and body is being used to prove or disprove a theory or hypothesis. This form of research should not be performed if we are to preserve the dignity, respect, and sanctity of the individual.<sup>20</sup> In other words,

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19. Scoville, *Orbital Undercutting in the Treatment of Psychoneurosis, Depressions and Senile Emotional States*, 15 DIS. NERV. SYST. 11 (1954).

20. Vere, *Why the Preservation of Life?*, in *ETHICAL RESPONSIBILITY IN MEDICINE* (V. Edmunds & C. Scores eds. 1967).

psychosurgery for the pursuit and advancement of science alone should not be permitted on a human being. With respect to ethics, therefore, we must accept the fact that some limits do exist in the search for knowledge.<sup>21</sup>

*Therapeutic research:* Therapeutic research is only for the good of the patient. Therapeutic research is therapy which has not been clinically established and proven, but has sufficient clinical validity and reliability to justify its use and the expectation that the individual will benefit from the procedure. Therapeutic research in psychosurgery should not be based on scientific data obtained from animal experimentation. It should be exclusively based on a critical retrospective analysis of clinical observations and experience. In other words, the procedure has been observed to be therapeutic, but only in conjunction with the primary treatment of some other illnesses. It may be considered as a beneficial by-product from previous treatments of other illnesses. When first applied independently of other illnesses, however, it may be considered therapeutic research. Therapeutic research, therefore, consists of applying a mode of therapy which, according to clinical experience, possesses a relatively high probability of producing the desired clinical results, although it has not previously been used to treat the specific illness alone.

*Retrospective clinical research:* In relation to brain and behavior, retrospective clinical research consists of correlating behavioral changes with various brain lesions which originated prior to and are unrelated to the inception of the research. For example, in the treatment of psychomotor epilepsy it was noted that previously coexisting aggressive behavior was alleviated following the surgery. It has been observed that surgical treatment of temporal lobe tumors, scars, and developmental abnormalities also resulted in the reduction, and in some instances, complete disappearance of a pre-existing pathologic aggressive behavior. Those observations provided the clinical basis for performing amygdalotomy and temporal lobectomy for the sole purpose of treating pathologic aggressive behavior.<sup>22</sup> Similarly, the treatment of aggressive behavior by thalamotomy resulted from the observed behavioral improvement in aggressive individuals who were previously operated on for motor,

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21. Freund, *Ethical Problems in Human Experimentation*, 273 *NEW ENG. J. MED.* 687-92 (1965).

22. V. MARK & W. SWEET, *THE ROLE OF LIMBIC BRAIN DYSFUNCTION IN AGGRESSION* 52 (1974).

pain, and seizure disorders.<sup>23</sup> Since amygdalotomy and thalamotomy were not originally used for the specific purpose of treating aggression, the inception of their use for that primary purpose may be properly designated as the therapeutic research. The term research, in this designation, should not detract from the practical value of the treatment, especially in the cases of effective treatments such as amygdalotomy and thalamotomy for aggression,<sup>24</sup> procedures which have been well established by retrospective clinical observations and experience.

*Psychosurgery research evaluation code:* "The problems of human experimentation involve our motives, opinions, judgments and the evaluation of risks; right and wrong depend upon sincerity, trust, and mutual understanding." "Law can only set a minimum standard. . . ." "To introduce law at this state would lower research standards."<sup>25</sup> The medical profession should assume the decision-making process of establishing a code for the practice of psychosurgery, a code which is not detailed and restrictive. Although a code is needed,<sup>26</sup> the objection to a detailed code is that someone, sooner or later, may try to apply it rigidly as law, and this will lead to endless controversy and obstruct research without really protecting the patient. The following is a code proposed for guidance in the practice of psychosurgery, to be used by three medical evaluation boards representing three different levels of authority. It is meant to be ethical, flexible, reasonable, uncomplicated and medically sound.

*Guidelines for designating procedures for therapeutic research:*

1. The procedure must be advised by one or more accredited and responsible neurosurgeons.
2. The sole purpose of the procedure must be to benefit the individual.
3. The non-therapeutic or pure research benefits anticipated, if

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23. Andy, *Thalamotomy for Psychopathic Behavior, Lesion of the Center Median Nucleus*, 68 S. MED. J. 4 (1975).

24. *Id.*; Andy & Jurko, *Thalamotomy for Hyperresponsive Syndrome, Lesions in the Center Medianum and Intralaminar Nuclei*, in PSYCHOSURGERY, *supra* note 5, at 127-35; Mark, Sweet & Ervin, *The Effect of Amygdalotomy on Violent Behavior in Patients with Temporal Lobe Epilepsy*, in PSYCHOSURGERY, *supra* note 5, at 139-55.

25. Jackson & Douglas, *The Ethics of Clinical Research*, in ETHICAL RESPONSIBILITY IN MEDICINE (A CHRISTIAN APPROACH) 23-42 (V. Edmunds & C. Scores eds. 1967).

26. Cox, *Ethics of Human Experimentation*, 2 BRIT. MED. J. 178 (1963).

any, must be considered secondary and incidental to the anticipated therapeutic benefits.

4. Therapeutic research should be based on clinical experience and not on laboratory experiments, theories or concepts. Clinical experience derived from retrospective clinical research should be emphasized.

5. The benefit/risk ratio must be acceptable to the patient, treating physician, and the Medical Research Evaluation Board.

*Therapeutic research procedures no longer considered research:*

1. Therapeutic benefits from the procedure persisting for five years or longer.
2. The benefit/risk ratio of the procedure exceeds the 50 percent level.

*Psychosurgery research evaluation boards:* Three evaluation boards should be established: (1) A Medical Research Evaluation Board should be established at the local level at the institution of its origin. The review board should be made up of members who are knowledgeable in the given field of therapeutic research being evaluated. (2) A board at the national level, representing the American Society of Neurological Surgery should be established to review unresolved or disputed determinations made at the local level. (3) An International Review Board should be established, representing the International Society of Neurosurgery, for the evaluation of procedures in which experience and knowledge have been primarily acquired by relatively few individuals throughout the world.

*Legal Approval:* Legal approval for conducting therapeutic research should not be required. However, proper documentation of the research evaluation board approval and the patient's or guardian's consent should be a legal requirement.

#### HISTORICAL DEVELOPMENT OF PSYCHOSURGERY

*Lobotomy for psychiatric disorders:* The clinical experience of Egas Moniz in treating brain injured patients led him to believe that operations on the frontal lobe would relieve mental illness. In 1936, Moniz instituted the procedure known as prefrontal lobotomy,<sup>27</sup> following his exposure to the experimental work on the fron-

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27. Moniz, *How I Succeeded in Performing the Prefrontal Leukotomy*, 15 J. CLIN. EXP. PSYCHOPATHOL. & Q. REV. OF PSYCHIAT. 373-79 (1954).

tal lobes by Fulton. Some of the results were encouraging, especially for the less severe psychoses. Consequently, prefrontal lobotomy was adopted by others.<sup>28</sup> It was introduced and developed in the United States by Freeman and Watts in 1936.<sup>29</sup> In some instances, the procedure was accompanied by undesirable side effects, as shall be discussed later. In addition, patients with chronic psychoses did not benefit from standard anterior lobotomy. The standard or classical procedure was, therefore, abandoned and more limited procedures developed, such as confining the lesions to specific frontal lobe areas.<sup>30</sup> The benefit/risk ratio became more acceptable, especially for the less disturbed patients.

*Lobotomy for intractable pain:* Concomitant relief of pain and drug addiction was first observed by Freeman and Watts in 1936,<sup>31</sup> in their second patient who was treated for agitated depression. Although similar observations continued to be made, seven years elapsed before prefrontal lobotomy was used therapeutically for pain alone.<sup>32</sup> The benefit/risk ratio of lobotomy for pain became

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28. See Appendix, Figure 7.

29. Freeman & Watts, *Prefrontal Lobotomy in the Treatment of Mental Disorders*, 30 S. MED. J. 23 (1937).

30. *Selective Frontal Leucotomy*, 2 THE LANCET 571-73 (1964); Hirose, *The Case Selection of Mental Disorder for Orbitoventromedial Undercutting*, in PSYCHOSURGERY, *supra* note 5, at 291-303; Holden, Peterson, Hofstatter & Olson, *Applications for the Inferomedial Lobotomy Operation in Psychiatric Illness*, in PSYCHOSURGERY, *supra* note 5, at 346-56; Kullberg, *Experiences with Small Stereotaxic Lesions in the Frontal Lobes*, in PSYCHOSURGERY, *supra* note 5, at 401-07; Orthner, Müller & Roeder, *Stereotaxic Psychosurgery: Techniques and Results Since 1955*, in PSYCHOSURGERY, *supra* note 5, at 377-90; Scoville, *Selective Cortical Undercutting as a Means of Modifying and Studying Frontal Lobe Function in Man*, 6 J. NEUROSURG. 65-73 (1949); Scoville, *Orbital Undercutting in the Treatment of Psychoneuroses, Depressions, and Senile Emotional States*, 15 DIS. NERV. SYST. 11 (1954); Scoville, *Late Results of Orbital Undercutting, Report of 76 Patients Undergoing Quantitative Selective Lobotomies*, 53 PROCEEDINGS ROYAL SOC. MED. SYMP. ON ORBITAL UNDERCUTTING 721-28 (1960); Scoville, Wilk & Pepe, *Selective Cortical Undercutting, Results in New Method of Fractional Lobotomy*, 107 AM. J. PSYCHIAT. 730-38 (1951).

31. Freeman & Watts, *Prefrontal Lobotomy in the Treatment of Mental Disorders*, 38 S. MED. J. 23 (1937).

32. Falconer, *Relief of Intractable Pain of Organic Origin by Frontal Lobotomy*, 27 RES. PUB. ASS'N RES. NERV. DIS. 706-14 (1947); Freeman & Watts, *Pain of Organic Disease Relieved by Prefrontal Lobotomy*, 250 THE LANCET 953-55 (1946); Freeman & Watts, *Psychosurgery for Pain*, 41 S. MED. J. 1045-49 (1948); Otenacek, *Prefrontal Lobotomy for the Relief of Intractable Pain*, 83 BULL. JOHNS HOPKINS HOSP. 229-36 (1948); Popen, *Prefrontal Lobotomy for Intractable Pain, Case Report*, 4 LAHEY CLIN. BULL. 205-07 (1946); Scarff, *Unilateral Prefrontal Lobotomy for the Relief of Intractable Pain and Termination of Narcotic Addiction*, 89 SURG. GYNECOL. OBSTET. 385-92 (1949).

acceptable as the lesion site became more selective.<sup>33</sup> Bed-ridden and incapacitated patients were returned to productive and happy living.

*Psychosurgery today*: Prefrontal lobotomy remains as a technique of the past, and has been replaced by stereotaxic psychosurgery. The stereotaxic technique was first used in 1889 for brain surface measurements.<sup>34</sup> In 1898 it was developed for animal research,<sup>35</sup> and it wasn't until 1947 that Speigel *et al.* demonstrated its clinical application. The stereotaxic technique provides for precise control of lesion placement and size in brain structures which were previously inaccessible.<sup>36</sup>

Mental illnesses responding best to modern psychosurgery are anxiety and depression. Lesions are stereotaxically placed with little risk in the medial orbital<sup>37</sup> and cingulate areas.<sup>38</sup> Obsessive and compulsive states may be partially relieved by thalamic<sup>39</sup> and orbital

33. See Appendix, Figure 8; Grantham, *Frontal Lobotomy for the Relief of Intractable Pain*, 16 S. SURG. 181-90 (1950); Scarff, *Unilateral Prefrontal Lobotomy for the Relief of Intractable Pain and Termination of Narcotic Addiction*, 89 SURG. GYNECOL. OBSTET. 385-92 (1949); Scoville, *Selective Cortical Undercutting as a Means of Modifying and Studying Frontal Lobe Function in Man*, 6 J. NEUROSURG. 65-73 (1949); Scoville, *Selective Cortical Undercutting, Results in New Method of Fractional Lobotomy*, 107 AM. J. PSYCHIAT. 730-38 (1951); Scoville, *Orbital Undercutting in the Treatment of Psychoneuroses, Depressions and Senile Emotional States*, 15 RES. NERV. SYST. 17 (1954); Scoville, *Late Results of Orbital Undercutting, Report of 76 Patients Undergoing Quantitative Selective Lobotomies*, 63 PRAC. ROYAL SOC. MED. SYMP. ON ORBITAL UNDERCUTTING 721-28 (1960). See also J. WHITE & W. SWEET, *PAIN AND THE NEUROSURGEON* (1969).

34. Kandel & Schavinsky, *Stereotaxic Apparatus and Operations in Russia in the 19th Century*, 37 J. NEUROSURG. 407-11 (1972).

35. Horsley & Clarke, *The Structure and Functions of the Cerebellum Examined by a New Method*, 31 BRAIN 45-124 (1908).

36. See Appendix, Figure 9.

37. Broager & Olesen, *Psychosurgery on Sixty-Three Cases of Open Cingulectomy and Fourteen Cases of Bifrontal Prehypothalamic Cryolesion*, in PSYCHOSURGERY, *supra* note 5, at 253-57; Knight, *Bifrontal Stereotaxic Tractotomy in the Substantia Innominata, an Experience of 450 Cases*, in PSYCHOSURGERY, *supra* note 5, at 267-77; Orthner, Müller & Roeder, *Stereotaxic Psychosurgery Techniques and Results Since 1955*, in PSYCHOSURGERY, *supra* note 5, at 377-90; Strom-Olsen & Carlisle, *Bifrontal Stereotaxic Tractotomy: A Follow-up Study*, in PSYCHOSURGERY, *supra* note 5, at 278-88.

38. Ballantine, Cassidy, Brodeur, & Giriunas, *Frontal Cingulotomy for Mood Disturbance*, in PSYCHOSURGERY, *supra* note 5, at 221-29; Brown & Lighthill, *Selective Anterior Cingulotomy: A Psychosurgical Evaluation*, 29 J. NEUROSURG. 513-19 (1968); Mingrino & Schergna, *Stereotaxic Anterior Cingulotomy in the Treatment of Severe Behavior Disorders*, in PSYCHOSURGERY, *supra* note 5, at 258-63.

39. Laitinen & Vilkki, *Stereotaxis Ventral Anterior Cingulotomy in Some Psychological Disorders*, in PSYCHOSURGERY, *supra* note 5, at 242-52; Vaernet & Madsen, *Lesions in the Amygdala and the Substantia Innominata in Aggressive Psychotic Patients*, in PSYCHOSURGERY, *supra* note 5, at 187-94.

lesions,<sup>40</sup> whereas hallucinations may be improved by more laterally placed orbital lesions.<sup>41</sup> Pain and suffering are relieved, with little risk to the patient, from stereotaxic lesions placed in the thalamus<sup>42</sup> and cingulate areas.<sup>43</sup> Pathologic aggression can be successfully treated, with relatively little risk by stereotaxic lesions placed in the thalamus,<sup>44</sup> hypothalamus,<sup>45</sup> and amygdala.<sup>46</sup>

#### CLINICAL PSYCHOSURGERY

*Psychosurgery is a therapeutic procedure:* Psychosurgery is definitely therapeutic, especially for the treatment of aggression, anxiety, depression and pain. Its therapeutic effects are long lasting. It

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40. Knight, *Bifrontal Stereotaxic Tractotomy in the Substantia Innominata, An Experience of 450 Cases*, in PSYCHOSURGERY, *supra* note 5, at 267-77.

41. Vaernet & Madsen, *Lesions in the Amygdala and the Substantia Innominata in Aggressive Psychotic Patients*, in PSYCHOSURGERY, *supra* note 5, at 187-94.

42. Fairman, *Unilateral Thalamic Tractotomy for the Relief of Bilateral Pain in Malignant Tumors*, 29 CONFIN. NEUROL. 146-52 (1967); Mark, *Stereotaxic Thalamotomy*, 8 ARCH. NEUROL. 528-38 (1963); Mark, Ervin & Hackett, *Clinical Aspects of Stereotaxic Thalamotomy in the Human*, 3 ARCH. NEUROL. 351-67 (1960); Richardson, *Thalamotomy for Intractable Pain*, 29 CONFIN. NEUROL. 139-45 (1967). *See also* E. SPIEGEL & H. WYCIS, STEREOENCEPHALOTOMY PART II, CLINICAL AND PHYSIOLOGICAL APPLICATIONS (1962).

43. Ballantine, Cassidy, Finagan & Marino, *Stereotaxic Anterior Cingulotomy for Neuropsychiatric Illness and Intractable Pain*, 26 J. NEUROSURG. 488-95 (1967); Foltz & White, *Pain "Relief" by Frontal Cingulotomy*, 19 J. NEUROSURG. 89-100 (1962).

44. Andy, *Thalamotomy for Psychopathic Behavior, Lesion of the Center Median Nucleus*, 68 S. MED. J. 4 (1975); Andy & Jurko, *Thalamotomy for Hyperresponsive Syndrome, Lesions in the Center Medianum and Intralaminar Nuclei*, in PSYCHOSURGERY, *supra* note 5, at 127-35; Orthner, Müller, & Roeder, *Stereotaxic Psychosurgery, Techniques and Results Since 1955*, in PSYCHOSURGERY, *supra* note 5, at 377-90; Umbach, Kim & Adler, *Follow-Up Study on Stereotaxically Treated Patients With Abnormal Behavior*, in PSYCHOSURGERY, *supra* note 5, at 210-18.

45. Sano, Sekino & Mayanagi, *Results of Stimulation and Destruction of the Posterior Hypothalamus in Cases with Violent Aggressive or Restless Behavior*, in PSYCHOSURGERY, *supra* note 5, at 57-75.

46. E. SPIEGEL & H. WYCIS, STEREOENCEPHALOTOMY PART II, CLINICAL AND PHYSIOLOGICAL APPLICATIONS (1962); Balasubramaniam, Ramanujam, Kanaka & Ramamurthi, *Stereotaxic Surgery for Behavior Disorders*, in PSYCHOSURGERY, *supra* note 5, at 156-63; Heimburger, Whitlock & Kalsbeck, *Stereotaxic Amygdalotomy for Epilepsy with Aggressive Behavior*, 198 J.A.M.A. 741-45 (1966); Mark, Sweet & Ervin, *The Effect of Amygdalotomy on Violent Behavior in Patients with Temporal Lobe Epilepsy*, in PSYCHOSURGERY, *supra* note 5, at 139-55; Orthner, Müller & Roeder, *Stereotaxic Psychosurgery: Techniques and Results Since 1955*, in PSYCHOSURGERY, *supra* note 5, at 377-90; Siegfried & Ben-Schmuel, *Neurosurgical Treatment of Aggressivity: Stereotaxic Amygdalotomy Versus Leukotomy*, in PSYCHOSURGERY, *supra* note 5, at 214-18; Vaernet & Madsen, *Lesions in the Amygdala and the Substantia Innominata in Aggressive Psychotic Patients*, in PSYCHOSURGERY, *supra* note 5, at 187-94.

abolishes malfunctioning brain circuitry which has been disruptive in other brain parts. Normal or improved brain function is restored with resultant improvement in behavior. Brain surgery for aggression does not mean that the individual no longer can express anger. There exists a greater tolerance for irritating stimuli before aggression is expressed, and when expressed, it is better controlled. Patients treated for pain retain the capacity to feel it, but they no longer suffer from pain. Excessive anxiety can be alleviated without abolishing the capacity to express appropriate emotion. Patients return to productive and happy lives without the necessity of excessive drugs and constant medical attention. In contrast to frontal lobotomy, the beneficial effects of modern psychosurgery are not accompanied by incapacitating side effects. Lobotomy has long been dead and buried as a therapeutic procedure and we must not allow its therapeutic failures to blind us from recognizing the therapeutic successes we are achieving at present.

*Indications for psychosurgery:* Behavioral problems which do not respond adequately to medical, psychiatric, psychologic, and sociologic methods should be treated by surgery, provided the probability of gain outweighs the risks. It should be performed on patients who are a detriment to themselves and to society. It should be used for custodial purposes when a patient requires constant attention, supervision, and an inordinate amount of institutional care. It should be used when patients require so much medication that it makes them non-responsive and non-communicative. Finally, it should be used in the adolescent and pediatric age group in order to allow the developing brain to mature with as normal a reaction as possible to its environment. It must be emphasized that during early development, the interactions between the brain and its environment provide the very important basis and background for the behavior in adult life. Psychosurgery is thus preferable to having a child with abnormal behavior continue under inadequate control during the formative and developmental years of his life.

It finally must be made clear that psychosurgery is proposed irrespective of the patient's color, religion, nationality, and financial status. Psychosurgery is not recommended for individuals who are in control of their aggressive behavior, such as participants in organized riots. It also must be emphasized that psychosurgery is recommended only for patients who previously have undergone medical and psychiatric treatment without success. Psychosurgery thus is a treatment of the last resort.



*Benefits from psychosurgery:* Psychosurgery provides alleviation of suffering associated with chronic intractable pain, anxiety and obsessions and compulsions. Patients whose lives are disrupted by episodic uncontrollable aggression are relieved and no longer require medication and institutionalization. Recurrent depression in which repeated shock therapy becomes ineffective is favorably relieved by psychosurgery. Patients with intractable pain and anxiety may be rehabilitated to a happy and productive life.<sup>47</sup> They become vital and contributing members of society. Inordinate amounts of medication and attention are no longer necessary.

*Complications from psychosurgery:* The legal profession, in the best interest of both the individual and society, should not use the inadequacies, failures and complications of psychosurgery to the patient in the present. Free and candid discussions of complications in medical practice has been essential to the advancement of medical knowledge. Such disclosure and discussion serves to diminish the recurrence of similar complications and to foster continued search for improvement. Legal intrusion would impede rather than facilitate this process. It must be accepted that complications will continue to occur irrespective of the improved techniques, and that patients, rather than the legal profession, should decide whether to accept the risk of complications in preference to illness.

Complications associated with prefrontal lobotomy were more frequent than those presently associated with modern stereotaxic psychosurgery. It must be stressed that lobotomy is no longer performed and thus psychosurgery is no longer confronted with complications resulting from that procedure. The following are comparisons between standard prefrontal lobotomy<sup>48</sup> and selective brain lesion procedures in relation to the frequency of six complications: (1) Mortality from prefrontal lobotomy is 1% to 18%, whereas it is only a fraction of 1% to 4% with limited selective procedures. (2) Convulsion from frontal lobotomy is 12% to 26%, whereas it is infrequent with limited selective procedures and clinically non-existent with thalamotomy. (3) Excessive bleeding was 4% with lobotomy and is less than 1% with thalamotomy. (4) Infection has been less than 1% for all psychosurgery. (5) Undesirable personality changes

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47. Andy, *Successful Treatment of Long-Standing Hysterical Pain and Visceral Disturbance of Unilateral Anterior Thalamotomy*, 39 J. NEUROSURG. 252-54 (1973).

48. W. FREEMAN & J. WATTS, *PSYCHOSURGERY IN THE TREATMENT OF MENTAL DISORDERS AND INTRACTABLE PAIN* (2nd ed. 1950).

have been greater than 5% following lobotomy and less than 5% following selective procedures. (6) Hemiparesis has been less than 1% with lobotomy and much less with limited selective procedures.

*Personality changes from psychosurgery:* Personality changes following lobotomy varied in degree and type, the more incapacitating changes being associated with the more extensive posterior lesions. Changes consisted of flattened affect, blunted emotions, decreased concern, decreased spontaneity, decreased initiative, decreased drive, extroverted personality, euphoria, apathy, inappropriate behavior, tactlessness, and disorganization. In contrast to lobotomy, personality changes following limited procedures, such as stereotaxic psychosurgery, are relatively minimal. If present, they are not sufficient to incapacitate the patient and are preferable to the pre-existing incapacitating symptoms of the illness.

#### LEGAL NUANCES IN PSYCHOSURGERY

*Individual rights to proffered treatment:* The problem of whether a given individual should or should not have psychosurgery for the treatment of a behavioral illness is predominantly medical and not legal. An individual with a behavioral illness should be allowed to receive a desired medical treatment, psychosurgery or otherwise, without requiring legal approval. Establishing laws to control psychosurgery places the decision-making process in the hands of those who are not qualified and eliminates the rights of the individual to seek the proffered treatment.

*Psychosurgery is not a threat to society:* There is a national fear that psychosurgery is a threat to society, a fear which is unfounded and irrationally conceived. That psychosurgery can and would be used to control society is theoretically and pragmatically impossible. First and foremost, it must be recognized that the philosophical, moral and ethical approach in psychosurgery is pragmatically oriented to rectifying and restoring health and happiness to the individual. It is a one-to-one relationship between physician and patient in which there is sympathetic and mutual understanding that the will of the individual comes first. Psychosurgery is not a treatment for society and its sociologic problems. Biologically it would be impossible to use it for the manipulation of society and thus should not be considered a threat. Consequently, there is no need to pass laws protecting society from psychosurgery. Rather

than protecting society, if such laws were enacted, they would further restrict the rights of the individual to proffered treatments.

*Medical vs. judicial control of psychosurgery:* The responsibility of seeing that psychosurgery is properly practiced should be assumed by the medical profession. There should be no fear that psychosurgery will be performed upon individuals who have no demonstrable illness giving origin to the deviant behavior. There are many naturally built-in factors of "checks and balances" in the practice of medicine which prevent the misuse of psychosurgery. For example, in the referral system, patients are evaluated and treated by several physicians before referral to a psychosurgeon. This mechanism serves as an excellent evaluation and screening device for the patient's best interests. Following consultation and treatment, there is a follow-up evaluation of the patient's progress by the treating and referring physicians. Medical reports and exchange of information with critical analysis at medical meetings has been an excellent monitor in providing optimum medical care to the patient. Medical boards in specialty fields have continually supported high standards of medical practice. This system of self-appraisal and monitoring, while loosely structured, has been very effective and at the same time has allowed sufficient freedom for developments in medicine which would otherwise have been impossible through a judicial system of control. However, if greater controls are thought necessary, society should enact laws making the medical profession assume greater responsibility rather than transferring the responsibility to a governmental body.

*Legal leniency in medical experimentation:* The guidelines for psychosurgical therapeutic experimentation upon the institutionalized should be the same as those established for the noninstitutionalized. If thereapeutic research is conducted, it should not be considered or used as a basis for legal leniency or pardon. The medical and punitive measures should go hand in hand for the proper restoration of the individual to society.

*Medical and legal sharing of responsibility:* Since the philosophic purpose of institutionalization is the betterment of the individual, the decision-making process for providing medical therapy should be the same as for the noninstitutionalized. A decision concerning the treatment of illness should not be placed in the hands of the law for legal contest between two attorneys. The decision should be made by authorities in the field of medicine after consideration of

the medical facts. Once the medical authorities have made a decision, the institution in its acquired role as guardian, assumes the responsibility of accepting or rejecting the medically derived decision. Although consultation with the individual is not mandatory, it should be expected on moral and ethical grounds in the making of a final decision. Through this mechanism, the will of the individual is not in conflict with the will of society. The will of both can and should be satisfied simultaneously. The ultimate philosophic objective is to uphold and restore the integrity of the individual. This can best be accomplished by the medical profession assuming responsibility of restoring the individual back to health, and the legal profession assuming the responsibility of restoring the individual back to sociologic conformity. Both professions should work together and neither should attempt to assume the responsibilities of the other. Neither one should take the role of a do-gooder who is least qualified to solve a problem outside of its immediate field of interest, knowledge and experience.

#### THE ETHICS OF PSYCHOSURGERY

*Informed consent for an adult:* Before the intended surgery, the patient and relatives should be informed of the recommended procedure as pertains to benefits, risks, complications and alternative modes of therapy. Other unique or unexpected facets of the problem should be discussed according to the desires and needs of the parties involved. In discussing the intended treatment with the patient and relatives, the physician should remember that their primary interest is pragmatic and not theoretical. Being in a persuasive position, the physician should instill in the patient and relatives neither excessive fear nor excessive optimism in relation to a psychosurgical procedure.

*Informed consent for a minor:* Informed consent for a minor should be obtained from the nearest of kin. Because of the emotional and genetic ties of the parent to a child, the legal responsibilities for the decision-making process should be assumed by the parent and not society. However, it must be noted that a child is not the property of its parent.<sup>49</sup> If the parent is legally established as incompetent, the responsibility for the decision-making process on behalf

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49. Morse, *Legal Implication of Clinical Investigation*, 20 VAND. L. REV. 754 (1967).

of the child should be assumed by the next of kin, whether it be genetically or legally determined. In my practice, I also consider the consent of the minor. Although the consent of the minor will not be as informed as that obtained from the guardian, it will nevertheless be respected as the will of the individual. The operation is performed only if consent is given by both the minor and the guardian. However, if the minor desires psychosurgery without consent of the guardian, the operation is not performed. In this manner, the physician abides by the wishes of the legal protectorate of the minor's rights in accordance with the law.

*Informed consent for the institutionalized:* The voluntarily institutionalized individual should be free to give informed consent for medical therapy without necessitating institutional or legal approval. The ethics in this instance are no different from the noninstitutionalized, whether the patient is an adult or a minor. However, for individuals in legal and involuntary confinement, the existing modus operandi for obtaining consent is based upon the decisions of the institution which has assumed the role of legal guardian, whether the individual is a minor or an adult. Nonetheless, the moral and ethical responsibility of the institution should be to consider the wishes of the individual in the decision-making process. Think and act in terms of the patient's welfare—these are the ethics of medicine. These also should be the ethics of the legal profession, protectorate of the will of the individual.

*Ethics of the physician:* The ethics of a physician are primarily based upon the desire to preserve and restore the health of the patient. It must be remembered that a physician is a pragmatist. The criteria for prescribing treatment are based on pragmatic results and not upon scientific experiments nor theoretical models and concepts. With this ethical and moral orientation, medical therapy such as psychosurgery will be prescribed only if the physician anticipates significant clinical benefits to the patient.

*Ethics between physicians:* Ethics between physicians are also of importance, especially in the field of psychosurgery in which relatively few have interest, knowledge, and experience. The physicians must have a certain amount of trust and faith in the knowledge, background, and experience of each other. It is presently impossible for any one physician to be thoroughly acquainted with all of the medical problems and their respective treatments. Medicine has become so specialized and advanced in various fields that physi-

cians have become increasingly dependent on one another for guidance in diagnosis and treatment of certain illnesses. Under such circumstances, treatment of the individual becomes a cooperative endeavor in which there must be mutual respect and confidence among physicians. Physicians detached and unrelated to the problem should not be emotionally biased against psychosurgery because of the personality change resulting from the surgical treatment of behavioral disorders. It must be accepted that a malfunction of the brain is expressed in the form of a deranged personality which, in order to be restored, must be changed. Restoration may not be complete just as in the treatment of any other malfunctioning body organ. The improved personality is pragmatically and emotionally more acceptable to the patient, however, than the personality disturbance caused by illness.

*Ethics of the patient and relatives:* The patient and relatives must be in accord and have a mutual bond of trust and confidence in the physician requested to care for the patient. Disagreement between patient and relatives regarding the physician's competence and integrity impedes proper medical care. It is impossible for the patient and relatives to become as thoroughly familiar with the medical problem as the physician. Consequently, they must be emotionally ready to accept his recommendations. The final decision to have an operation, however, should be left to the patient and the relatives, and it should not be forced upon them by the physician. I do not operate without their support, consent and ultimate request. It is important for the patient and relatives to recognize that a physician is a human being, fallible and not infallible. He is compassionate and not indifferent, and desires to do good and not bad. He should not be held morally and legally responsible for undesirable complications unless they are intentionally and willfully induced. The patients and relatives have an ethical and moral responsibility to continue with faith and trust in the physician while the patient is entrusted to his care.

*Ethics of society:* The ethics involved in the treatment of behavioral disorders are not different from the ethics involved in the treatment of all medical problems. Although behavioral abnormality may result in legal involvement, it should be the moral and not the legal responsibility of society to determine whether or not medical treatment should be administered. If the individual desires treatment, it is neither the moral nor the legal responsibility of society

to decide what type of treatment should be administered. The ethics of diagnosis and treatment of the behavioral illness should remain in the hands of the physicians who are qualified to treat the illness, and the patient, relatives, and designated friends who are vitally interested in the patient's well-being. With this approach the will of the individual is upheld and respected. It is this philosophy which society should morally and legally support.

*Ethics of the judiciary:* Participants in this symposium were asked to discuss *Kaimowitz v. Department of Mental Health*.<sup>50</sup> The proceedings of this case demonstrate the deplorable ethics which can infiltrate the judicial system in dealing with a medical problem. Gabe Kaimowitz and a medical committee for human rights were permitted to lead the judiciary into making decisions beyond the ethical needs of the case in question. Two issues were framed for decision in a declaratory judgment action. I will concern myself with the first issue, which was framed as follows:

After failure of established therapies, may an adult or legally appointed guardian, if the adult is involuntarily detained, at a facility within the jurisdiction of the State Department of Mental Health give legally adequate consent to an innovative or experimental surgical procedure on the brain, if there is demonstrable physical abnormality of the brain, and the procedure is designed to ameliorate behavior, which is either personally tormenting to the patient, or so profoundly disruptive that the patient cannot safely live, or live with others?<sup>51</sup>

There are two key phrases in this issue containing medical terminology, which need clarification in order to derive a meaningful and ethical judgment on the issue. These phrases contain the following medical terminology, (1) "innovative or experimental surgical procedure on the brain" and (2) "demonstrable physical abnormality of the brain." Who decides what these medical terms mean? Rather than the judiciary, physicians with knowledge and experience in the field of brain surgery should determine what constitutes "innovative or experimental surgical procedures on the brain," and what constitutes, "demonstrable physical abnormality of the brain." For the pursuit of justice it would seem neither proper nor ethical for the judiciary to assume that responsibility, even with expert medical

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50. Civil No. 73-19,434-AW. (Cir. Ct. Wayne Co., Mich., July 10, 1973).

51. *Id.*

testimony and exhibits. The adversary nature of the courtroom procedure does not allow for a thoughtful easy flow and exchange of information, ideas and questions, which are necessary for arriving at an ethical and pragmatic clinical interpretation of these medical phrases. Two contesting attorneys, utilizing medical terminology which they and the court do not adequately understand, can mislead themselves, the court and the jury into making erroneous decisions. In such instances, the eloquent medical rhetoric presented with logic and appealing emotion, unrelated to the medical facts, wins the contest. Once the judiciary has received clarification and definition of these medical phrases from proper authorities in the field, they can ethically proceed with a determination of the declaratory judgement action.

Further unethical and irresponsible administration of justice occurred in *Kaimowitz* when the court allowed the term psychosurgery to be used to identify the procedure and then allowed the term psychosurgery to be maldefined and misused by the legal contestants. The term psychosurgery was defined as follows:

The psychosurgery involved in this litigation is a sub-class, narrower than that defined by Dr. Brown. The proposed psychosurgery we are concerned with encompasses only experimental psychosurgery where there are demonstrable physical abnormalities in the brain.<sup>10</sup> Therefore, temporal lobectomy, an established therapy for relief of clearly diagnosed epilepsy is not involved, nor are accepted neurological surgical procedures, for example, operations for Parkinsonism, or operations for the removal of tumors or the relief of stroke.<sup>52</sup>

The statement made in the first sentence is medically confusing and misleading. It categorizes psychosurgery into sub-classes, a classification artificially derived by an inadequately informed judiciary. In attempts to define the sub-class under discussion, two sentences were utilized, one with a positive and the other with a negative definition. The sentence containing the positive definition reads as follows, "The proposed psychosurgery we are concerned with encompasses only experimental psychosurgery where there are demonstrable physical abnormalities in the brain." The two phrases, "experimental psychosurgery" and "demonstrable physical abnormalities in the brain" are extremely vague, ambiguous, and disput-

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52. *Id.*



able as to exactly what they mean. At this point, subscript ten (10) was entered as Exhibit 4 by Amicus Curiae. This exhibit was admitted on the basis "of great interest," to supplement the positive definition of what constitutes psychosurgery.<sup>53</sup> This exhibit adds confusion! It does not even deal with the definition of psychosurgery, it deals with the subject of physicians having difficulty communicating, digesting, and applying newly acquired medical knowledge.<sup>54</sup> This exhibit in itself reveals why it is folly to think that the judiciary can arbitrarily make decisions on medical issues which are difficult even for the medical profession to resolve.

It should be stressed that the real issues in the present case did not involve the general field of psychosurgery. Furthermore, the specific issue had already been resolved and thus the judiciary had served its purpose. There was no ethical reason to use this case as an excuse to deal with the broader problems of psychosurgery and experimentation. These problems should have been left to the medical profession for resolution.

The second sentence provides the negative component of the definition as follows, "psychosurgery does not involve, accepted neurological surgical procedures." The big question hinges on defining the word "accepted." What determines whether or not a neurosurgical procedure is accepted? Who should have that responsibility, the judiciary or the medical profession? In the same sentence, procedures are listed as being accepted and not being psychosurgery. The

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53. On this point, Amicus Curiae, Exhibit 4 is of great interest. This exhibit is a memo to Dr. Gottlieb from Dr. Rodin, dated August 9, 1972, reporting a visit Dr. Rodin made to Dr. Vernon H. Mark of the Neurological Research Foundation in Boston, one of the country's leading proponents of psychosurgery on noninstitutionalized patients. Dr. Rodin, in his memo, stated:

When I informed Dr. Mark of our project, namely, doing amygdalotomies on patients who do not have epilepsy, he became extremely concerned and stated we had no ethical right in so doing. This, of course, opened Pandora's box, because then I retorted that he was misleading us with his previously cited book and he had no right at all from a scientific point of view to state that in the human, aggression is accompanied by seizure discharges in the amygdala, because he is dealing with only patients who have susceptible brains, namely, temporal lobe epilepsy. . . .

He stated categorically that as far as present evidence is concerned, one has no right to make lesions in a "healthy brain" when the individual suffers from rage attacks only.

*Id.* slip op. n.10.

54. Spiegel, Wycis, Marks & Lee, *Stereotaxic Apparatus for Operations on the Human Brain*, 106 *SCIENCE* 349-50 (1947).

list is incomplete and vague. For example, surgery for the relief of stroke is one of them. What does surgery for the relief of stroke mean? Is it removal of a brain hemorrhage, removal of a cerebrovascular thrombus, or carotid endarterectomy? New developments are taking place in vascular brain surgery for the treatment of strokes that cause motor and behavioral disorders. Does treatment of stroke for behavioral disorder come under the positive or the negative statement of the definition of psychosurgery? Does its newness make it experimental? Brain surgery for pain is not even mentioned. Pain may be treated by altering the emotional response, by abolishing the sensation or by a combination of both. Where does the surgical treatment of pain fit in the definition of psychosurgery?

It is indeed unfortunate that in dealing with this very restricted case our judiciary was led down the path of making decisions with implications that encompass activities in medicine going far beyond the immediate, independently unique and characteristic needs of this one isolated case. A decision was rendered despite the fact that during trial it was learned that John Doe himself had withdrawn his consent. To avoid overextending itself into the generalized field of psychosurgery, the ethical and moral responsibility of the judiciary in this particular case should have been to declare it moot. It could have done so in reliance upon *United States v. Concentrated Phosphate Export Association*.<sup>55</sup> There the United States Supreme Court said: "A case might become moot if subsequent events made it absolutely clear that the allegedly wrongful behavior could not reasonably be expected to recur."<sup>56</sup>

The state court chose not to rely on that statement of the Supreme Court to declare the case moot. Rather, it declared the matter not moot by relying upon the following statement taken from the same Supreme Court decision:

The test for mootness . . . is a stringent one. Mere voluntary cessation of allegedly illegal conduct does not moot a case; if it did, the courts would be compelled to "leave the defendant . . . free to return to his old ways."<sup>57</sup>

The court obviously failed to take into consideration the character of the defendants, even after the defendants withdrew their proposal

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55. 393 U.S. 199 (1968).

56. *Id.* at 201.

57. *Id.* at 199.

to perform the questioned surgery. The court could have declared the case moot on both legal and ethical grounds after that withdrawal, and most likely would have if its motives had been ethical and honorable. Instead, the court decided to reach the merits, relying upon *Milford v. People's Community Hospital Authority*,<sup>58</sup> which held:

The nature of the case is such that we are unlikely to again receive the question in the near future, and doctors and other people dealing with public hospital corporations cannot hope to have an answer to the questions raised unless we proceed to decision. For these reasons, we conclude the case is of sufficient importance to warrant our decision.<sup>59</sup>

In order to justify applying the judgment in one case to that of another involves argument from analogy, which in this instance is not valid. The proposition in the case being relied on for analogy, "we are unlikely to again receive this question in the near future," is not true for the present issue. The present issue and closely related ones are actively being discussed and decisions being rendered, as one can attest from the current social interest and news reports dealing with the problem of research in clinical medicine.

The glaring lack of ethics occurred when the judiciary did not declare the proceeding moot after John Doe withdrew his consent for surgery.<sup>60</sup> In continuing to proceed the judiciary was no longer concerned about this specific case. Rather it was concerned with the general problem of psychosurgery, a matter outside the purview of this case and beyond the scope of judicial competence.

#### CONCLUDING REMARKS

*The judiciary in relation to medicine:* From the foregoing presentation, it is obvious that psychosurgery is a medical and not a sociologic problem. The decision-making process, therefore, should remain between the doctor and the patient. It is recommended that the judicial system protect that process from the advocates of artificial control who are having laws enacted to disrupt it.

In the handling of *Kaimowitz* the judiciary appears to have for-

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58. 380 Mich. 49, 155 N.W.2d 835 (1968).

59. *Id.* at 55, 155 N.W.2d at 838.

60. Civil No. 73-19,434-AW. (Cir. Ct. Wayne Co., Mich., July 10, 1973) slip op. n.10.

saken ethics in the pursuit of establishing a legal "precedent," an attempt extending beyond the inherent limitations of its judicial capabilities. The judiciary must be cognizant of the fact that passing laws in attempt to control, regulate, and police the practice of medicine places progressively more restrictions upon providing the best medical care. Medical errors and misjudgments have been made in the past and will continue to be made in the future, irrespective of whether there are laws which are restricting and monitoring the practice of medicine. Court judgments and proclamations will not reduce those errors. In fact, treating patients according to a "judiciary medical cookbook," would lead to increased errors and irrational medical judgment in the practice of medicine. It must be remembered medicine is dealing with a biologic system which varies from one individual to another and invariably requires different modes of treatment even for the same illness and at times for the same individual. There will never be any judicial system which will outperform the effectiveness of a doctor who is free to think and treat according to the needs of a biologic illness. The practice of law, just as the practice of medicine, is an art with inherent practical limitations to which one must be ethically and morally sensitive.

## APPENDIX

## AGGRESSION (Social)

Group A:  
(Motor)  
(Manifestation)

Group B:  
(Vocal expressions)

Group C:  
(Social defiance)

AGGRESSION (Self)

Weighted  
Value

4	Attack	3	Cursing
4	Destructive	3	Screaming
4	Rage	2	Temper
3	Tantrum	2	Negativism
3	Disruptive	1	Argumentative
4	Maniacal	2	Anger
4	Explosive	9	out of 13
3	Impulsive		
3	Combative		
2	Biting		
28	out of 34		
		4	Suicide
		2	Biting
4	Stealing	2	Scratching
4	Forgery	2	Striking self
2	Deceit	3	Head banging
6	out of 10	0	out of 13

Figure 1: Behavioral descriptions in the aggression category. A weighted value is ascribed to each of the descriptions to derive a percentage value for aggressive behavior. Taken from Andy, *Thalamotomy for Psychopathic Behavior, Lesion of the Center Median Nucleus*, 68 S. MED. J. 4 (1975).

HYPERKINESIA		PATHO-AFFECT	
(Motor Activity)		(Personality Traits)	(Emotional States)
Weighted Value			
4	Hyperactive	2	Passive
2	Mischievous	3	Withdrawn
2	Restless	1	Docile
1	Distractable	1	Sensitive
4	Uncontrollable	4	Aggressive
4	Wild	4	Unpredictable
3	Running	2	Rigid
3	Rhythmia	2	Compulsive
2	Wanders off	1	Flat
1	Paces	8	out of 20
22	out of 27		11 out of 19

Figure 2: Hyperkinesia and patho-affect are categorized according to behavioral descriptions that are given weighted values. Positive descriptions are circled and percentages are derived to obtain a quantitative measure within each of the two categories. Taken from Andy, *Thalamotomy for Psychopathic Behavior, Lesion of the Center Median Nucleus*, 68 S. MED. J. 4 (1975).

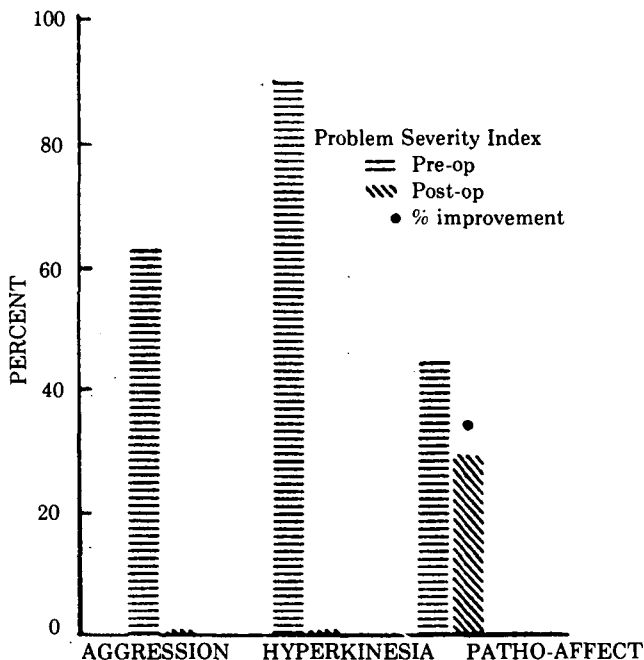


Figure 3: A graph is plotted for the preoperative and postoperative changes in relation to the percentage values obtained for aggression, hyperkinesia, and patho-affect based on the behavioral descriptions given in figures 1 and 2. In contrast to patho-affect, aggression and hyperkinesia categories showed marked improvement. Taken from Andy, *Thalamotomy for Psychopathic Behavior, Lesion of the Center Median Nucleus*, 68 S. MED. J. 4 (1975).

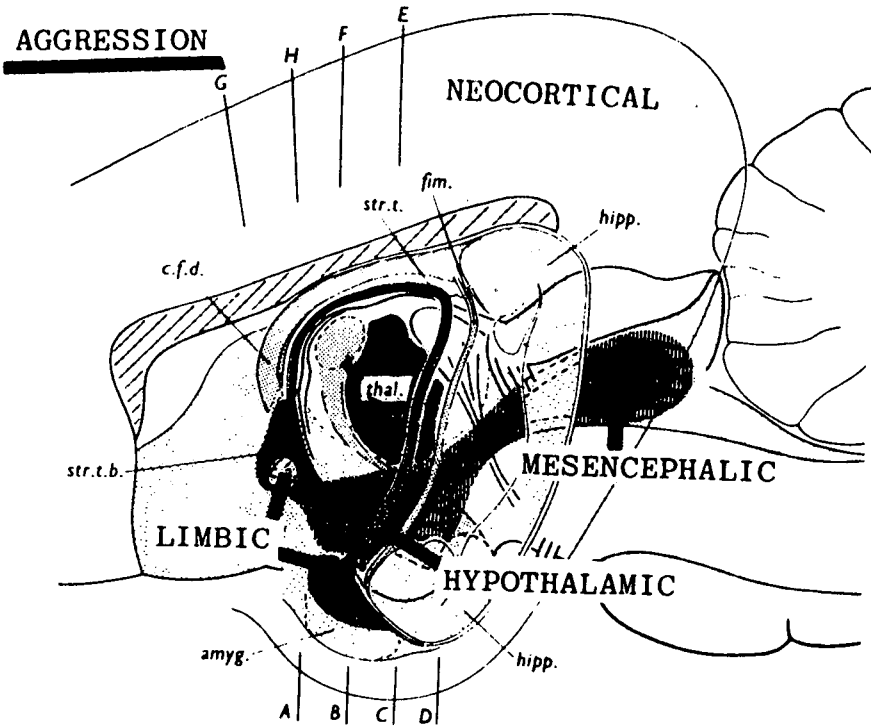


Figure 4: Diagrammatic illustration of structures (solid black) from which aggression is most easily elicited by stimulation. These are limbic; hypothalamic, mesencephalic and thalamic (thal) brain structures. These are collectively identified as the aggressive brain, although they also contribute to other physiologic brain functions. This figure is taken from Molina & Hunsperger, *Central Representation of Affective Reactions in Forebrain and Brain Stem; Electrical Stimulation of Amygdala Stria Terminalis, and Adjacent Structures*, 145 J. PHYSIOL. 251-65 (1959), and modified, by making the thalamus black and by identifying the neocortical "thinking brain" in addition to parts of the aggressive brain as enumerated above.



*Volumes of subdivisions of telencephalon  
in % of total telencephalon*

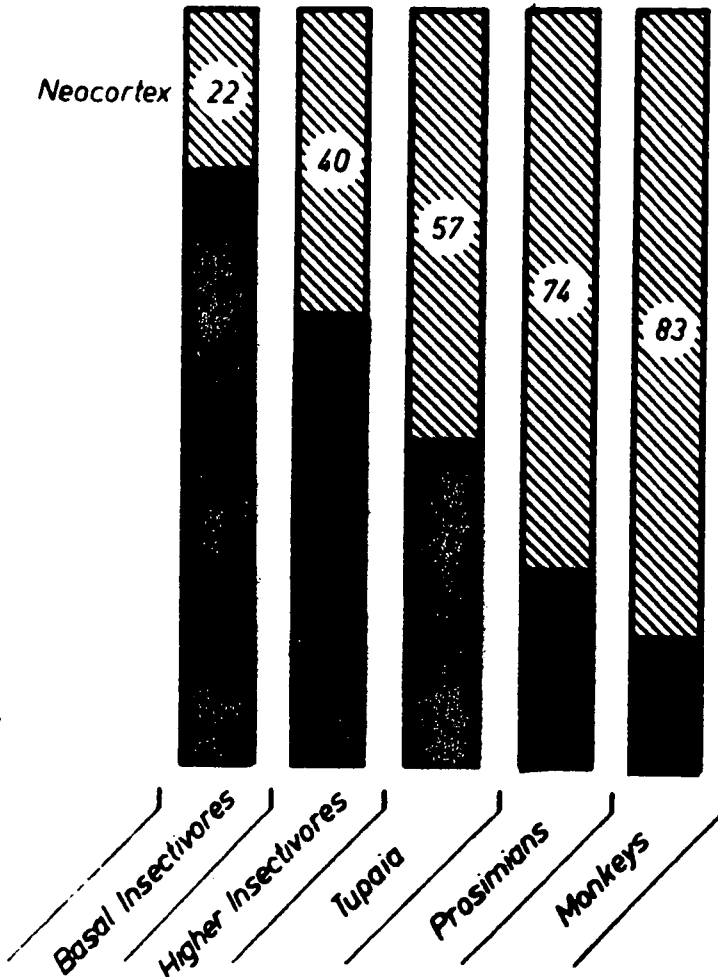


Figure 5: Volume of the neocortex (thinking brain) identified by diagonal lines compared to volume of other brain structures from which aggression can be easily elicited (black). The volumes are related to total telencephalic volume from basal insectivores through monkeys. Taken from Stephan & Andy, *Quantitative Comparisons of Brain Structures from Insectivores to Primates*, 4 AM. ZOOL. 59 (1964).

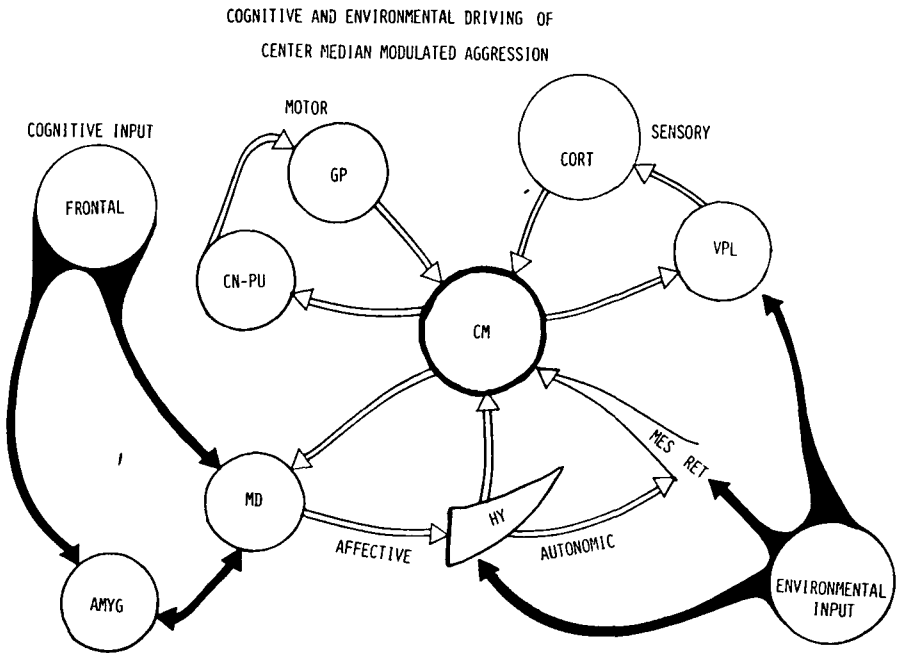


Figure 6: A model of both cognitive and environmental inputs which may exert a significant and critical influence upon the center median modulated aggression system. It must be emphasized that the center median modulated aggression system, as illustrated in this figure, is not independent and self-sufficient.

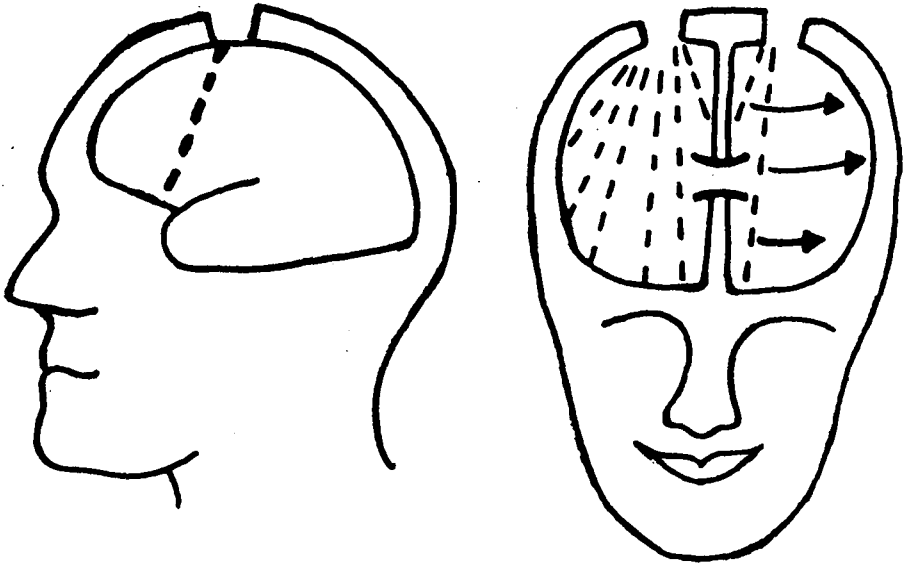


Figure 7: Diagrammatic illustration of standard frontal lobotomy, lateral view (left) and frontal view (right). A trephine opening is made through the skull and a blunt instrument is inserted into the depths of the frontal lobe on each side. Transverse cuts are made bilaterally in the frontal plane as indicated by arrows and dashed lines (frontal view). Frontal lobe connections are interrupted from the rest of the brain as diagrammatically illustrated in lateral view (dashed line indicates plane of section).

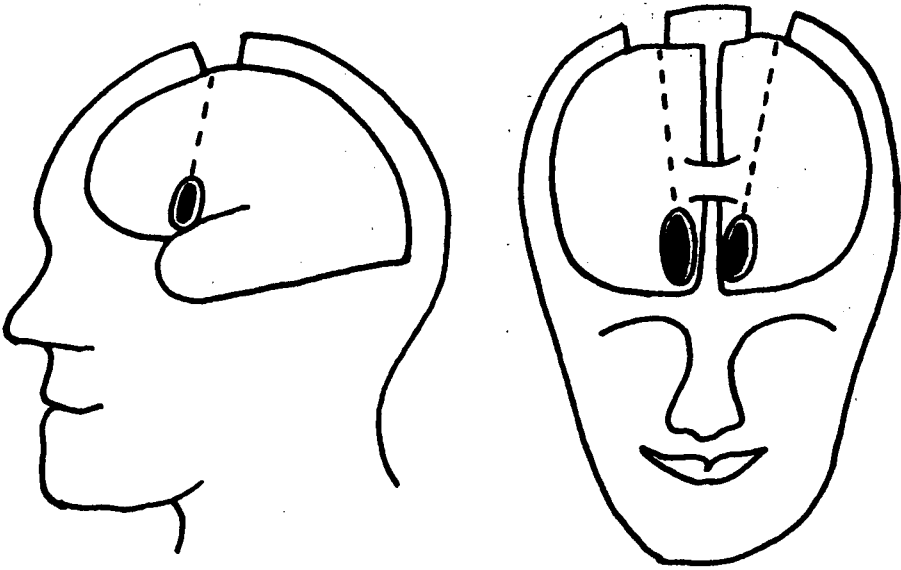


Figure 8: Diagrammatic illustration of selective frontal lobe lesions confined to specific areas such as the medial inferior quadrant of the frontal lobe. Lateral view (left) and frontal view (right) reveal approximate lesion size (en, circled black oval). Compare the extent of this bilateral lesion with that of a standard frontal lobotomy (fig. 7).



Figure 9: Stereotaxic technique for accurate placement of a small lesion in the depths of the brain, confined to the area around the electrode tip (arrow).