

## Five years of the classical neurosurgery for mental disorders in Poland (1947–1951)

Ryszard Kujawski

### Summary

The paper describes the position of the classical neurosurgery for mental disorders in Poland. Lucjan Korzeniowski was an author of the first work (1948) assessing results of the initial nine leucotomies made between 1947 and 1948. There were made about 180 classical psychosurgeries between 1947 and 1951 in Poland. Schizophrenia was the main indication to the lobotomy, but operations were made also in some different disorders. Moniz method was used in Poland. Topischaemia (Stanisław Ziemnowicz, 1951) was the original Polish type of operation, but it appeared occasionally. In Poland a classical psychosurgery was stopped both by politics and medical knowledge. Pavlovian's ideology was against lobotomy considering it as a method with bad psychophysiological basement. The Polish Psychiatric Association recommended to abandon lobotomies in 1951. Extensive work of Ewa Broszkiewicz (1955) showed that the leucotomy was an ineffective and a harmful treatment. The doctoral dissertation by Zuzanna Koniecznyńska (1976) on lobotomized patient confirmed a bad reputation of this method of a treatment.

psychosurgery / leucotomy / history of Polish psychiatry

### INTRODUCTION

#### The historical background on the world classical psychosurgery

Trepanations were practiced in many cultures. There is no evidence that these operations were necessarily instituted for the treatment of mental disorder. The origins of surgical procedures within the skull were found in the stone age, as exemplified by the skull from the grave in Slavic Bergern near Weimar. Posttrepanational skulls from this time were found in Polish territory (Turow skull near Plock, three skulls from Pruszcz near Gdansk). On the B.Z. II skull from Abbekas trepanation was made not by a cutting a hole, but through an attrition. Besides,

left (trepaned) half of the skull was much larger than the right one, which indicates the presence of a tumor [1]. Edward Shorter recalled Polish pioneer of modern surgery Jan Mikulicz-Radecki (1850-1905), who in the 90s of the XIX century in Wroclaw had been investigating the removal of epileptic foci by scarification of the sensory cortex [2]. Swiss psychiatrist Gottlieb Burckhardt (1836-1907) in 1891 reported [3] on six patients, described as 'demented and aggressive', undergoing bilateral cortical excision. Two patients developed epilepsy (one died) and one suffered motor weakness [4]. Burckhardt started his attempts in 1888. He is called father of psychosurgery by historians of medicine, whereas medical community tends to place the beginning of the practice of psychosurgery with Moniz. Burckhardt presented result of his work at the Tenth International Medical Congress in Berlin (August 4-9, 1890). The response was not encouraging, 'his presentation caused a chill in the room'. Burckhardt also published a report

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**Ryszard Kujawski:** Regional Hospital for Nervously and Mentally Ill in Świecie, Poland. Correspondence address: Ryszard Kujawski, Regional Hospital for Nervously and Mentally Ill in Świecie, 18 Sądowa Str., Świecie, Poland. E-mail: rykuj@op.pl

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of his work. He presented detailed case histories, and he comprehensively reviewed the current literature to give theoretical support to his new approach. The monograph would at least have provoked a debate; but the response was poor and Burckhardt was forced to abandon his work. Burckhardt's work remained in 1912 by Bechterev and Puusepp. They wondered how anyone holding a medical diploma could undertake such folly [5]. In 1930, Walter Dandy (1886-1946) performed the first bilateral frontal lobectomy because of brain tumors. Changes in the patient's mental state were assessed by Richard Brickner (1896-1959). This operation had tremendous influence on the development of psychosurgery. Brickner described the inability of synthesis of thoughts and feelings, of recognizing the situation at a glance, and lack of initiative, apathy, easy burst of emotions and instincts, over-emphasizing his own person. Brickner assumed problems boiled down to 'difficult synthetic recognition of the situation' [6]. Studies of this patient were presented at the Second International Congress of Neurology in London (July 29 - August 2, 1935). The conference was attended by Egas Moniz (1874-1955), who introduced a work on cerebral angiography. Moniz was impressed by the papers that describe the behavior of the Dandy's patient Joe A. after bilateral frontal lobectomy, and a description of Fulton and Jacobsen chimpanzee behavior after a similar operation. Both of these lectures have contributed to the idea of implementing a lobotomy in mental disorders in humans, which Almeida Lima (1903-1985) and Moniz performed for the first time on November 12, 1935. At the London Congress in 1935, Moniz met with Walter Freeman. Some authors believe that the idea of frontal lobotomy in Moniz was born before attending the London Congress in 1935. Just a three-month interval between the London conference and the first psychosurgery treatment, may suggest that the lectures at the Congress could assert rather Moniz in his counsels, than to be their inspiration. Moniz and Lima first operated on four patients (two with chronic depression and two with paranoid schizophrenia) using alcohol injections into the depths of the frontal white matter on each side. Later they used instrument, 'a leucotome'. In the first year they treated 20 patients with intractable severe men-

tal disorder with anxiety, obsessional behaviour and irrational fears. Moniz was the first to use the term 'psychosurgery'. In 1949 Moniz was awarded the Nobel Prize for Physiology and Medicine [7]. In 1936 neurologist Walter Freeman (1895-1972) and neurosurgeon James Watts (1904-1994) began to treat patients with depression in the USA, using bilateral frontal leucotomy. In this operation a burr hole was made in each temporal region through which a leucotomy knife was swept up and down in an arc, severing the frontal cortical-subcortical connecting white matter and making large lesions of variable size. The blind 'freehand' operation and its many modifications were used over the next 20 years. The transorbital leucotomy technique developed by Freeman was widely used and particularly controversial. 'Ice pick lobotomy' involved inserting an instrument under the eyelids, through the roof of the orbit and into the orbito-frontal cortex. A quick sweeping motion cut the cortical tissue and related fronto-thalamic tracts. It was essentially a non-sterile procedure, could be performed with minimal anesthesia (often two electroconvulsive treatments were used) and was widely adopted [7]. There were modifications of the prefrontal lobotomy, among them procedures under visual control - Lyster (1939), Poppen (1948), Yegorov (1949). In 1946 the first operation of a limited cut-outs of the cerebral cortex (topectomia prefrontalis, Heath-Pool) was performed. Since 1947, work began on the different types of topectomy and „less radical” treatments (gyrectomia prefrontalis - Panfield; thalamotomia - Spiegel). Operations which didn't remove the cerebral cortex, such as topischaemia praefrontalis (1950-1951, Ziemnowicz) constituted progress.

#### **THE CONNECTIONS BETWEEN POLISH PSYCHIATRY AND NEUROSURGERY IN THE FIRST HALF OF THE TWENTIETH CENTURY**

In the twentieth century the first Polish relationship between psychiatry and neurosurgery had begun. Between 1911-1912 Polish psychiatrist and neurologist Józef Handelsman (1883-1964) together with Victor Horsley (1857-1916) performed experiments with a range of operations within the pituitary gland in animals. They

gained fame in literature. In 1911 Handelsman published the article 'Preliminary note of Experimental Investigation of the pituitary body' in the 'British Medical Journal'. In 1912 appeared the work 'Experimental studies on the pituitary gland' in the "Polish Neurology." Handelsman gave two lectures on research on the pituitary gland at The Physiological Society in Oxford. Horsley and Handelsman (1912) studied the effects on the animal organism causes partial or total removal of the pituitary gland. Horsley and Handelsman said, contrary to the Cushing, that the removal of the anterior pituitary gland did not cause the death of the animal. Also, separating the pituitary from the funnel did not cause death [8]. Aleksander Domaszewicz (1887-1948), a Polish psychiatrist and neurologist, was also involved in neurosurgery [9]. Scientific activities of Aleksander Domaszewicz as psychiatrist included works on shock treatment of schizophrenia ('Results of treatment of schizophrenia with insulin' „Zeitschrift für die Psychiatrie und Neurologie Gesamt", 1932, 'A combined treatment of insulin-cardiazol' „Zeitschrift für die Psychiatrie und Neurologie Gesamt" 1933, On the possibility of distinguishing correct insulin from spontaneous improvement in schizophrenia', „Rocznik Psychiatryczny, 1938). Lvov before The Second World War was in the Polish borders. In 1930 in Lvov Domaszewicz organized a neurosurgery ward, which was part of neurological and psychiatric unit. Domaszewicz conducted neurosurgical operations. Since the mid-thirties of the twentieth century in Poland, there were only two centers of neurosurgery: neurosurgery department in Lvov led by Aleksander Domaszewicz (20 beds), and Department of Neurology and Neurosurgery at Warsaw University led by Jerzy Choróbski (25 beds). At the turn of 1944/45 was created Department of Neurosurgery of the Medical Faculty of Warsaw University organized by Domaszewicz. He taught psychiatry at the same time. Domaszewicz as a psychiatrist and neurologist was the first professor of neurosurgery in Poland. Since 1947 development of the Department of Neurosurgery in Warsaw, "having a decisive influence on the shape of Polish neurosurgery" was associated with Jerzy Choróbski. In Krakow, in February 1946 was launched on the neurosurgery ward, organized by Adam Kunicki at the Department

of Neurology-Psychiatry at the Jagiellonian University. In 1950, the department obtained the rank of an independent Chair and Department of Medical University in Krakow [10].

#### **THE POLISH EXPERIENCES ON A LEUCOTOMY – HOPES, A CRITICISM AND A LONG-TERM EVALUATION**

Before The Second World War psychosurgery operations were not performed on Polish territory [11]. Jerzy Bidziński in article concerning Jerzy Choróbski wrote, that operation of the prefrontal leucotomy, especially in schizophrenia, was then widely applied in the world. "Performing of these operations began [Choróbski] in 1942 „[12]. The author did not recall in the article about the cooperation of Choróbski with Korzeniowski and about their publication on the leucotomy (1949). Topics on psychosurgery did not appeared in the published discussions of Polish psychiatrists until 1948. "Leukotomia przedczołowa i jej znaczenie dla leczenia chorob psychicznych" (Prefrontal leucotomy and its implications for the treatment of mental illness), was published by psychiatrist Lucjan Korzeniowski (1897-1984) in 1948, discussing the results of the first nine operations, which opened a history of psychosurgery in Poland. They were made at the Department of Neurosurgery in Warsaw in the period from October 25, 1947 to November 8, 1948. Treatments were carried out by neurosurgeon Jerzy Choróbski (1902-1986). Korzeniowski, has evaluated the results of treatments in terms of mental disorders. First patient was lobotomized on October 25, 1947. After three weeks, two more operations were performed (November 17, 1947). In 1948 Choróbski made six leucotomies. The operations were performed by Moniz method. Among the nine patients, eight were surgically treated for schizophrenia, with one diagnosed as "epilepsy, obsessive state." Korzeniowski in preparing the results evaluated 33 parameters [12]: age, „constitution", the duration of the disease, „light-headedness (after the operation)," „attitude to the family" (before and after surgery), autism (before and after surgery), negativism (before and after surgery), aggressiveness (before and after surgery), excitement (before and

after surgery), stupor (before and after surgery), hallucinations (before and after surgery), delusions (before and after surgery), dissociation (before and after surgery), decreased attention (after surgery), impaired planning (after surgery), lack of initiative (after surgery), the defects of intelligence (after surgery), sexual arousal (before and after surgery), puerilism (before and after surgery), abnormal eating (after surgery), pollution in the urine (before and after surgery), bedsores, neurological complications, the ability to discharge home after surgery, a big improvement, mean improvement, little improvement, with no improvement, deterioration, death due to surgery, death of distant.

The article reviewed the contemporary knowledge of the neurophysiological studies, anatomic-psychopathology relations of individual parts of the brain. According to Korzeniowski, there was not known theory of the psychosurgery treatment. He believed that the sympathetic nervous system disturbances were associated with the pathogenesis of schizophrenia. Korzeniowski referred to the work of Polish psychiatrist Adolf Falkowski (1886-1965), 'Schizophrenia' (1929), in which the author of the sympathetic nervous system disorder saw the essence of schizophrenia. Korzeniowski believed that leucotomy 'seems to be an experience that can resolve many issues and concerns relating to schizophrenia'. Korzeniowski wrote about the three big improvements, two medium improvements, one lack of improvement, one worsening. Leucotomy was, according Korzeniowski, 'a major step forward in the treatment of mental illnesses'. It allowed for significant improvement, even in those cases where all other methods of treatment had failed. Leucotomy applied to patients who were considered incurable and stayed in the hospital for years. He postulated the careful selection of patients: not with the blunting affect and for whom other treatments had not helped. Korzeniowski believed that 'lobotomy seemed retune personality towards syntony'. Efforts should be made for a comparative study of personality in the pre-psychotic period and after the psychosurgery [13].

On the meeting of the Warsaw Branch of The Polish Psychiatric Association in April 1951 Polish psychiatrist Maurycy Bornsztajn (1874-1952) gave a lecture "Psychochirurgia, jej

wartość lecznicza i teoretyczna dla psychiatrii" (Psychosurgery, its therapeutic and theoretical value in psychiatry), which was published later on [14]. Bornsztajn "could not explain why Moniz repeated the monkey experiment on the human brain". He summarized two major lectures on prefrontal leucotomy that delivered at the International Congress of Psychiatry in Paris in September 1950 João Henrique de Barahona Fernandes (1907-1992) and Walter Freeman (1895-1972). Fernandes spoke about the patient's personality changes after neurosurgical procedures which depend on the location and extent of surgery, pre-morbid personality and the type of psychosis. He cited a psychopathological and functioning figure of patients undergoing leucotomy. By the coined term "early syntonisation" Freeman emphasized "social adjustment", adaptation after the operation environment. Proper location of the cut was to remove abnormal mental activity and so change the personality to achieve a satisfactory return to effective social existence. The personality change is needed to achieve further improvement. Bornsztajn criticized psychosurgery, especially in the treatment of neuroses. These are patients "with a subtle sensitivity, of great moral conscientiousness, often endowed with artistic and literary talents". Bornsztajn asked whether there were only putting them under the surgeon's knife? This can result in improved, less feeling of anxiety or "obsessive passion," but leads to a change "valuable, often outstanding personality." By leucotomy - believed Bornsztajn - evaluates the individual subtle, sensitive, "full of delicacy of feeling" in "robots, human puppets", similar to patients with schizophrenia "in the final stages." "The hour when the practice will be able to rely on the theory and with it agree, to our mental clock have been, unfortunately, not struck," Psychosurgery resulted from faulty theoretical premises (materialistic-mechanistic direction), "which echoed". Leucotomy violates medical guiding principle "primum non nocere". Psychosurgery should be abandoned as a therapeutic procedure in psychiatry.

In 1955 Ewa Broszkiewicz published "Ocena wyników leukotomii przedczołowej w chorobach psychicznych na podstawie badań klinicznych i patofizjologicznych" ("Evaluation of the prefrontal leucotomy in mental illness based on

clinical and pathophysiological studies"). Broszkiewicz referred to the procedures performed in Poland, conducting a clinical evaluation of patients undergoing leucotomy, also under observation in a psychiatric ward. In Poland in the period from 1947 to 1951, 176 patients have been subjected to the prefrontal leucotomies (113 women and 63 men) aged from 20 to 69 years. Operations were conducted in six centers: Sanatorium for Mentally Ill in Kościan (101 patients), the Department of Neurosurgery in Warsaw (29 patients), the Department of Neurosurgery in Krakow (24 patients), Department of Neurosurgery in Wroclaw (12 patients), the Department of Psychiatry in Radom (9 patients), the National Psychoneurological Institute in Pruszków (1 patient). In 166 patients with available medical records, surgery was performed in 124 patients with schizophrenia. From the 166 patients died 22 people (no data on the immediate causes of death). Broszkiewicz criticized the optimistic conclusions from the Korzeniowski's work (1948). She re-examined the medical history of one patient, who according to Korzeniowski, got a big improvement. Broszkiewicz could not see "big improvement", but alleviation of some symptoms and the occurrence of others. She evaluated in the period from February 1952 to April 1953, the state of mind and functioning of the 54 patients who underwent leucotomy. She observed 27 patients at the psychiatric ward in the Psychoneurological Institute in Pruszków. The terms "cure", "improvement" in the assessment Broszkiewicz, "can't be maintained" in relation to leucotomy. "We have not met a single case <cured> a few <improvements> rely on the ease of one - the more troubling signs for the environment at the cost of other - less troublesome for the environment". Patients undergoing surgery were bad-prepared and observed. There were patients subjected to the leucotomy in Poland "not being suitable for an operation even from the point of view of more careful Western authors" (short course of the disease, "7-10 months", insufficient treatment before surgery). She criticized the handling of patients with different diagnoses. The operating center was not interested in the fate of the patient. In case of postoperative death the medical record of the disease often lack the protocol of the autopsy. 20% of patients after surgery worked pro-

professionally, and 1 patient studied. 2 patients performed the work at a lower level. From the 27 patients studied, the prefrontal leucotomy was performed in 22 patients with schizophrenia. In 14 patients the procedure changed the image of the illness, but it brought no benefits, and even worse state. In 5 patients, the change has benefited the image of illness, in the case of 3 patients, positive change was temporary. The psychosurgery treatment in all patients resulted in organic symptoms. Changes in personality and behavior occurred after surgery in almost all patients "in a stronger or weaker intensity." The symptoms of schizophrenia, depending on the stage and extent of damage to brain tissue, have evolved in different directions. The symptoms of schizophrenia, which, as mentioned by the author, disappeared or decreased, were the "restlessness, anxiety reaction, aggressive and escape." In several cases resolved depressive delusions and suicidal tendencies. The neurological symptoms after the treatment have been reported in two cases of seizures (in one case 3 years after surgery), and in another two patients, left hand paresis. In the patients studied pathophysiological higher nervous functions. Broszkiewicz tentatively assess the possibility of this diagnosis, because "to this methodology, we began to get acquainted, made mistakes, we could not exploit all the methodological (..) and the conclusions that we draw (..) to be scrutinized with extreme caution." Broszkiewicz concluded that the prefrontal leucotomy: (1) is not a method of treatment (does not remove the cause, "does not affect healing of disturbed physiological processes, and does not increase the body's defense mechanisms"); (2) Is not an effective method (even if some core symptoms disappear or become weakened, accompanied by other symptoms); (3) is a harmful treatment (severe organic brain damage, leading to degenerative changes and atrophy, "closes the road in front pathophysiological legitimate therapeutic methods"); (4) is due to erroneous theoretical assumptions – psychomorphological direction, "contrary to the actual experimental data in the field of physiology of higher nervous activity." [15] Since 1952 classical psychosurgery treatments were practically not performed in Poland.

Zuzanna Koniecznyńska in the doctoral dissertation „Badania katamnesticzne chorych lec-

zonych metodą leucotomii przedczołowej” (Follow-up study of patients treated with prefrontal leucotomy, 1976), according to research conducted in the years 1972–1973, estimated long-term consequences in psychosurgery patients operated in the years 1947–1951. The aim of this work has been a clinical evaluation and determination of the fate of the group of patients studied by Ewa Broszkiewicz in the fifties. It reviewed the literature, paying attention to the longer follow-up studies. She analyzed the course of the disease mainly in cases with schizophrenia before and after surgery (including symptoms of psychopathology at the time that has elapsed since the implementation of treatment and social adaptation) investigated the level of intellectual performance, taking into account the characteristics of organic brain damage. Among the 176 patients treated in Poland by the prefrontal leucotomy in the period from 1947 to 1951, 70% of patients were operated due to schizophrenia. Konieczńska determined the fate of 92 patients, of whom 36 have died since the surgery to the time of examination. From the living 56 patients, 50 of them are patients with schizophrenia. In none of the history of the disease has she found any specific reasons for the decision to qualify for leucotomy. Scarce notes reported a strong periods of anxiety with aggression and periods of inhibition, lack of improvement after treatment with „typical”, which could not be determined. According to Konieczńska leucotomy has not been beneficial on the course of schizophrenia. In more than 87% of patients psychotic symptoms persisted after 25 years, 12% had relief of acute psychotic symptoms, although without proven impact on improving treatment (possible spontaneous remission). One patient remained „socially adjusted”. Deep defect that prevents independent life was found in 70% of patients, and others were in need of care. Almost all patients had data indicating organic damage of central nervous system, although it was not possible to prove their direct causal link with leucotomy. Konieczńska tried to assess the clinical courses of disease in patients with schizophrenia after leucotomy. She pointed-out the beneficial course in 12%, the remitting course in 16%, a continuous process in 61% of patients, and 10% of the course has not been established. In the group with a favorable course psychotic symptoms dis-

appeared and did not return (although a direct relationship between leucotomy and improvement is doubtful, because the symptoms disappeared at different times after surgery). After resolution of acute psychotic symptoms, dominated, as described by the authors, personality and behavior disorders after leucotomy, of varying severity. One patient in this group was active and independent, the other needed care. In 16% of patients with remitting course, during periods of relapse in principle there was no change compared with the period before leucotomy, though in some there was a tendency to lengthen and deepen recurrence of psychotic symptoms and deficits during periods of remission. All patients in this group have required care; none of them led an independent life. In 61% of patients the course was of a continuous type, which after a few years led to the isolation and loss of activity. The only favorable changes in psychopathological image after surgery (except the group with a favorable course) was an improvement of depression symptoms (depressed mood, thoughts, and suicidal tendencies). Permanent improvement (in about 10%) should be considered in the context of spontaneous remission, as the factors considered to be prognostic favorable in schizophrenia have the same value in patients undergoing leucotomy. Neither the psychological tests, nor additional clinical trials did not allow a distinction which would have an impact on results indicating organic brain damage: chronic schizophrenia, leucotomy, prolonged hospitalization, previous treatments, or lack of training in problem solving [16].

#### **AN UNIQUE CHARACTER OF THE REFLECTIONS ON THE PSYCHOSURGERY IN POLAND**

The reflections on the psychosurgery treatment had its own unique character in Poland. They were dominated by discussion on the pathophysiological basis of therapeutic effect of leucotomy. On one hand, it was evaluated in terms of the most outstanding Polish pre-war thinking psychiatrist Jan Mazurkiewicz (1871–1947). On the other hand, the post-war trend of Soviet psychiatry brought Pavlovian psychophysiology with its theoretical and practical considerations. Lucjan Korzeniowski in his article “Leu-

kotomia przedczołowa i jej znaczenie dla leczenia chorób psychicznych" (Prefrontal leucotomy and its implications for the treatment of mental illness, 1948), quoted Jan Mazurkiewicz, who believed that a number of schizophrenic symptoms were associated with the sympathetic system. 'Schizophrenia is a disease only issue directly and selectively disabling affective-mnesic life [...]. The brain receives two types of stimuli: sensory impressions from the outside and affective irritation of the sympathetic system through the viscera, by subcortical nodes'. XXII Congress of the Polish Psychiatrists was held on 17-20 September 1949 in Gdansk. On September 18, 1949 during the discussion that took place after the paper of Mieczysław Kaczynski (1906-1985) 'Wstęp psychofizjologiczny Mazurkiewicza do teorii Jacksona' („A Psychophysiological Mazurkiewicz's introduction to the theory of Jackson"), reference was made to the psychophysiological mechanisms of therapeutic action of a leucotomy. Lucjan Korzeniowski was unable to explain the therapeutic effect of leucotomy in accordance with the views of Mazurkiewicz. Leukotomia damages fronto-logical organ but still removes the delusions and hallucinations. Mazurkiewicz thought that delusions and hallucinations are the result of disinhibition of prelogical layer which results from the damage to the fronto-logical sphere. According to Henryk Zajązkowski (1898-1963) leucotomy results in the relief of positive symptoms of schizophrenia and on the one hand undermine the concept dyssolution. But on the other hand disturbances in the top layer of personality observed as a result of a leucotomy (impairment of abstract thinking) are consistent with the dissolution hypothesis. „The whole issue is so complex that it does not fit the neo-jackson theory". Bolesław Ałapin (1913–1985) disagreed with Korzeniewski that positive symptoms disappear after a leucotomy which contradicts the Mazurkiewicz's hypothesis. The intersection of thalamo-frontal pathway not only inhibitory interferes with frontal correlations. Władysław Chłopicki (1894-1980) postulated to examine whether all the fibers are broken and degenerated after the interrupt communications between optic thalamus and frontal cortex as a result of a leucotomy. Andrzej Jus (1914–1992) argued that after a leucotomy changes are not only in the cerebral cor-

tex, but also in the thalamus. „Prefrontal lobotomy cannot serve as an argument against the theory of Jackson." The discussion concluded Lucjan Korzeniowski. He said that leucotomy works by removing excess incoming stimuli to the cortex from subcortical ganglions. An operation destroys a connection with the rest of the frontal lobes of the cortex, and it weakens the influence of the rest of the frontal cortex. This should lead to dissolution, the emergence of symptoms. But it gives the opposite, therapeutic effect. On October 24, 1953 during the National Deliberation of Psychiatrists in Branice, Franciszka Zakrzewska gave a lecture, „Rozwój i postęp pawłowizmu w nauce psychiatrycznej polskiej od września 1952 roku" (The development and progress of psychiatric Pavlovian learning Polish from September 1952). Zakrzewska, discussing treatment „patophysiological justified" and the therapeutic action of protective inhibition, spoke out against the methods "incompatible with the teachings of Pavlov", which include the leucotomy [16]. In September 1954 Andrzej Jus at a conference of senior researchers in psychiatry delivered paper "Kierunek jacksonowski w polskiej psychiatrii" (Jackson's direction in Polish psychiatry). He estimated that views of Mazurkiewicz lead to similar ideas to those of psychomorphological directions in American psychiatry, which are the theoretical foundations of prefrontal leucotomy [17].

### Episode with topectomy

On May 29, 1950 Tadeusz Bilikiewicz (1901-1980) at the XXIII Congress of Polish Psychiatrists in Wrocław gave the lecture "Pierwsze doświadczenia z topektomią przedczołową" (The first experiences with prefrontal topectomy). Co-authored reports were of Stanisław Nowicki and Ludomir Sedlaczek-Komorowski (1903-1972). Bilikiewicz pointed to greater security and less post-operative changes in higher mental functions in relation to the classical lobotomy. Observations of minor changes in personality are reliable, because topectomy was performed in patients without mental illness (such as indications of pain). Bilikiewicz feels the pain as an unpleasant feeling which disappears after the surgery, but pain remains a sensual impres-

sion. Such "split" refers to psychotic symptoms such as hallucinations and delusions, which do not disappear, but lose the emotional tone; cease to be a hard thing. The same goes for obsessive thinking. Bilikiewicz, citing Pool, indicated the amount of cortex that was removed (up to 30 grams of schizophrenia and psychosis, and 20 grams of healthy persons) and the area of application (areas 9 and 10). Bilikiewicz reported on two cases of children operated on April 4, 1950 and April 13, 1950 (14 years old girl with symptoms of hebephrenic schizophrenia, 8 years old boy with mental retardation "at the level of idiocy and agitation after encephalitis"). Bilikiewicz has not seen significant improvement in the case of a girl with schizophrenia, and only modest improvement in mentally retarded boy. 'Prefrontal topectomy is not such a miracle, as in the first burst of enthusiasm you might expect'. In psychosurgery, he said, it was "too early to stick to one type of operation." Psychosurgery 'deserves the highest support', offers the possibility of 'mitigating the fate of these enormous masses of patients whom psychiatrists are standing in an attitude of fatalistic helplessness'.

#### **The Polish original idea: topischemia (Ziemnowicz, 1950-51)**

Polish neurosurgeon, Stanisław Ziemnowicz, performed surgery novel, which was called 'topischaemia praefrontalis' (1950-51). This treatment was based on the induction of necrosis of the four upper layers of the cortex for permanent or temporary deprivation of blood flow within the superficial cortical areas (9, 10 and 46). Topischemia left intact the two lower layers of the cortex and not damaged cortico-thalamic, cortico-hypothalamic and cortico-cortical connections. Ziemnowicz perfected his method. Operations, which ultimately deprived of blood supply surface layers of the cerebral cortex, called 'topischaemia definitiva'. Operations temporarily deprived of blood supply, lasting 20-25 minutes with pressure, defined as 'topischaemia e compressione temporali'. Topischaemia praefrontalis reduced the risk of early (bleeding) and late (epilepsy) postoperative complications. Personality of the patients did not change as negative as after the lobotomy. According to Ziemnowicz,

psychosurgery operations, as a last resort therapeutic, can be performed in cases of severe mental illness recognized as incurable, after noting the ineffectiveness of other treatments. Psychosis should be chronic and last for at least one year. Ziemnowicz also wrote about topischemia in the context of the fight against severe pain. The indications for psychiatric patients felt pain were: the risk of suicide due to the duration of severe pain and "coexistence with the state of mental abnormalities express pain." Ziemnowicz thought that topischemia causes no adverse changes in personality. 'Prefrontal topischemia performed in mentally healthy person did not give personality changes and had no bad psychosomatic consequences'. Ziemnowicz described the behavior of a patient during topischemia compression method. 'After 1.5 minutes from the start of oppression within the prefrontal lobes patient stated that there is no pain (..) after 7 minutes agitation started with verbosity and perseverations spoke more German than Polish and used vulgar words'. Some patients operated by Ziemnowicz were consulted by psychiatrists (Ludomir Sedlaczek-Komorowski) and psychologist (Schwarz). Ziemnowicz described the frontal lobe syndrome ("Patients who have lost their soul") to other than topischemia types of treatments: lack of initiative, indifference, baby bliss (infantilis euphoria), forgetfulness (distractio), anger outbursts, tantrums, lack of tact and affective control. Memory processes were generally unaffected, although sometimes there were states of amnesia. Ziemnowicz regarded as justified "not a significant change in personality" after operation performed because of a severe and incurable mental illness. However, he does not accept that in the subjects psychosurgery treated because of pains [18, 19].

#### **CONCLUSIONS**

Classical psychosurgery operations were done in the period 1947-1951 in Poland. There were made about 176 leucotomy, mainly by Moniz method, and a small amount of topischemy and several topectomy. There was no prefrontal leucotomy performed in Poland, particularly popular in the United States. Topischemia was Polish original idea to modernize the clas-

sic psychosurgery treatment (Ziemnowicz). In Poland since the late forties of the twentieth century, there had been carried out a lively discussion on psychosurgery treatments that due to the socio-political conditions have, in addition to clinical, also an ideological dimension. Polish studies in the late forties of the twentieth century expressed optimism in relation to the prefrontal leucotomy. In the fifties of the twentieth century psychosurgery was evaluated negatively and its implementation was abandoned. Leucotomy was stopped both by politics and medical knowledge. Pavlovian's ideology was against lobotomy considering it as a method with bad

psychophysiological basement. In 1951 the Polish Psychiatric Association recommended to abandon lobotomies. A distant follow-up confirmed the negative assessment of the results of conventional psychosurgery treatments. The doctoral dissertation by Konieczńska (1976) on lobotomized patient confirmed bad reputation of this method of treatment. The end of the classical psychosurgery in Poland was connected from one side with the negative ideological and medical evaluation of this method, on the other with the appearance modern pharmacotherapy (chlorpromazine, Zajączkowski, 1954).

**Table 1.** The most important facts about the classical psychosurgery in Poland.

Date (Y/M/D)	Event	Importance
1947/10/25	The first psychosurgery operation in Poland	Neurosurgeon Jerzy Choróbski
1948	Korzeniowski Lucjan: "Prefrontal leucotomy and its implications for the treatment of mental illness"	The first article on psychosurgery in Polish psychiatric press, discussing the results of the first nine leucotomies.
1949/09/18	<u>XXII Congress of Polish Psychiatrists – Gdańsk.</u> Mieczysław Kaczynski: "Psychophysiological Mazurkiewicz's Introduction to the theory of Jackson."	Reference was made to the psychophysiological mechanisms of leucotomy action. Discussion after the lecture.
1950/05/29	<u>XXIII Congress of Polish Psychiatrists – Wrocław.</u> Tadeusz Bilikiewicz: "The first experience with prefrontal topectomy".	Bilikiewicz pointed to a more secure and less postoperative changes in higher mental functions in relation to the classical lobotomy. Discussion after lecture on lobotomy and topectomy.
1951	Stanisław Ziemnowicz "Psychosurgery, its development and significance"	The article on Polish method: topischaemia praefrontalis (1950-1951, Ziemnowicz).
1951/04	<u>Warsaw branch of the Polish Psychiatric Association</u> Maurycy Borsztajn: "Psychosurgery, its therapeutic value and theoretical in psychiatry"	Borsztajn criticized psychosurgery in general, and particularly in the treatment of neuroses. Leucotomy violates medical guiding principle "primum non nocere". Psychosurgery should be abandoned as a therapeutic procedure in psychiatry.
1951/09/29-30	<u>XXVI General Assembly of the Polish Psychiatric Association.</u> The proposal submitted by Władysław Stryjeński and Zdzisław Falkowski	"The General Assembly of the Polish Psychiatric Association believes that the use of prefrontal leucotomy and other psychosurgery treatments by hospitals (...) should be stopped. In cases where it is proposed to use a lobotomy (...) the consent of the provincial mental health specialist or a psychiatric clinic is required"
	Since 1952 classical psychosurgery treatments were not performed in Poland	

*table continued on next pages*

1952/09/13-14	<u>The National Psychiatrists Meeting - Tworki</u> Discussion between Ewa Broszkiewicz and Lucjan Korzeniowski on a lobotomy.	Broszkiewicz responded critically to the "method" leucotomy. She said that the article by Korzeniowski of 1948 was "an incentive for neurosurgeons".
1952/11/14-16	<u>II Congress of Polish Neurologists</u> Zygmunt Kuligowski: "The state of Polish neurology"	Kuligowski criticized the work of Stanisław Ziemnowicz on topis-chemia. Ziemnowicz using Pavlovian vocabulary tried to pass the "old content in a new look". Separation of vascularization of the upper and lower layers of the cortex is speculation, without justification, physiological and anatomical.
1952/11/30	<u>The Conference on active methods of treatment in psychiatry - Tworki.</u> Andrzej Jus - a summary of the conference.	Jus referred to the "lack of support for psychiatric treatment methods on scientific grounds", which was characterized by the U.S. and Western European psychiatry. Jus mentioned Psychiatric Congress in Paris in 1950, where touted "antypathological and dehumanizing method of treatment - leucotomy". Jus stressed the importance of linking leucotomy with the American social order, not caring about the human.
1953/10/24	<u>The National Psychiatrists Meeting – Branice</u> Franciszka Zakrzewska: "Development and progress in science psychiatric Pavlovian Polish from September 1952".	Zakrzewska, discussing "patophysiologically reasonable" treatment and the therapeutic effect protective inhibition, speaks out against the methods incompatible with the teachings of Pavlov, (leucotomy).
1954/09	<u>The conference of senior researchers in psychiatry - Tworki</u> Andrzej Jus: "Jackson's direction in Polish psychiatry".	Jus estimated that psychomorphological views of Mazurkiewicz lead to the concept of American psychiatry, which are the theoretical foundations prefrontal leucotomy.
1955	Ewa Broszkiewicz: "Evaluation of the prefrontal leucotomy in mental illness based on clinical and pathophysiological studies".	Broszkiewicz referred to the procedures performed in Poland, conducting a clinical evaluation of patients undergoing leucotomy, also under observation in a psychiatric ward. In Poland in the period from 1947 to 1951, 176 patients have been subjected to the prefrontal leucotomies. Broszkiewicz concluded that the prefrontal leucotomy: (1) is not a method of treatment (does not remove the cause, "does not affect healing of disturbed physiological processes, does not increase the body's defense mechanisms"), (2) is not an effective method (even if some core symptoms disappear or become weakened, accompanied by other symptoms), (3) is a harmful treatment (severe organic brain damage, leading to degenerative changes and atrophy, (4) is due to erroneous theoretical assumptions – psychomorphological direction, "contrary to the actual experimental data in the field of physiology of higher nervous activity."

1976	<p>Zuzanna Konieczńska doctoral dissertation "Follow-up study of patients treated with prefrontal leucotomy". Konieczńska, according to research conducted in the years 1972-1973, estimated long-term consequences patients operated on in the years 1947-1951.</p> <p>Aim of this work has made a clinical evaluation and determine the fate of the group of patients which Ewa Broszkiewicz examined in the fiftieth years of the 20th century.</p>	<p>Among the 176 patients treated in Poland by the prefrontal leucotomy in the period from 1947 to 1951, 70% of patients operated on due to schizophrenia. Konieczńska determined the fate of 92 patients, of whom 36 have died since the surgery to the time of examination. From the living 56 patients, 50 of them are patients with schizophrenia.</p> <p>Leucotomy not been beneficial on the course of schizophrenia. More than 87% of patients persisted after 25 years of psychotic symptoms, 12% had relief of acute psychotic symptoms. Deep defect that prevents independent life was found in 70% of patients, and others in need of care.</p> <p>Almost all patients had data in favor of organic damage of central nervous system, although it was not possible to prove their direct causal link with leucotomy.</p> <p>Konieczńska tried to assess the clinical courses of disease in patients with schizophrenia after leucotomy: the beneficial course in 12%, the remitting course in 16%, a continuous process in 61% of patients.</p>
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