

The History of Psychosurgery in Turkey

Türkiye’de Psikoşirürjinin Tarihi

ABSTRACT

The modern age of psychosurgery can be said to have started with Moniz and Lima. Freeman and Watts subsequently revised and popularised the lobotomy procedure. Moniz shared the 1949 Nobel Prize for medicine or physiology for his discovery of the therapeutic value of leucotomy in certain psychoses, which accelerated the worldwide popularisation of lobotomy, particularly during the years from 1948 to 1953. In Turkey, psychosurgical interventions were first performed in the early 1950s, and were applied in almost 400 cases. These operations gradually ceased after the discovery and worldwide clinic applications of a modern antipsychotic drug named Chlorpromazine in 1950s, paralleling a similar trend in other countries. Our paper reviews the clinical, psychometric and histopathological results of psychosurgery performed in Turkey in the 1950s.

KEY WORDS: History, Lobotomy, Psychosurgery, Turkey

ÖZ

Modern psikoşirürjinin Moniz ve Lima'nın çalışmaları ile başladığı varsayılmaktadır. Freeman ve Watts ise uygulamaları yenilemiş, dünya çapında yaygınlaşmasına ön ayak olmuşlardır. Bazı psikotik hastalıklarda lökotominin terapötik etkileri üzerine yapmış olduğu çalışmalardan dolayı Moniz, 1949 yılında Nobel ile ödüllendirilmiştir. Bu saygın ödül sayesinde tekniğin popülerleşme süreci özellikle 1948-1953 yılları arasında daha da hızlanmıştır. 1950'lerin ilk yarısında bu teknik ülkemizde de uygulanmaya başlanmış, yaklaşık 400 olgunun varlığı kayıtlara geçmiştir. 1950'lerde Klorpromazin adlı modern antipsikotik ilacın keşfi ve kliniklerde yaygın kullanımı ile psikoşirürji yavaş yavaş gündemden düşmüştür. Bu çalışmanın amacı, 1950'li yıllarda ülkemizde yapılan psikoşirürji uygulamalarının klinik, psikometrik ve histopatolojik sonuçlarını gözden geçirmektir.

ANAHTAR SOZCÜKLER: Tarihçe, Lobotomi, Psikoşirürji, Türkiye

Oğuzhan ZAHMACIOĞLU¹

Gülten DİNÇ²

Sait NADERİ³

- 1 Yeditepe University Hospital, Pediatric Psychiatry Department, Istanbul, Turkey
- 2 Istanbul University, Cerrahpaşa School of Medicine, Deontology and History of Medicine Department, Istanbul, Turkey
- 3 Ümraniye Training and Research Hospital, Neurosurgery Department, Istanbul, Turkey

Received : 08.01.2009

Accepted : 13.04.2009

Correspondence address:

Oğuzhan ZAHMACIOĞLU

E-mail : ozahmacioglu@yahoo.com

INTRODUCTION

Humankind has left few methods untried in attempts to treat mental illnesses. Various treatments have been documented, ranging from trepanation and pouring humour into the brain in prehistoric times to the injection of blood infected with malaria into the brain in the first quarter of the twentieth century. After the development of modern surgery in the nineteenth century, more sophisticated interventions were attempted with the same goal. Burckhardt's topectomy procedure is one of the earliest and was performed in the 1880s (27). However, given the difficulty of the technique involved at a time when neurosurgery was poorly developed, methods like his did not gain popularity.

Modern psychosurgery is generally accepted to have been pioneered in 1935 by the Portuguese neurologist Antonio Egas Moniz and his associate, the surgeon Almeida Lima, with the performance of a 'prefrontal leucotomy' (14,15). Previous application of this surgery in apes contributed to the development of the technique. Moniz and Lima reported successful results in 22 cases comprising manic depression, schizophrenia, anxiety neurosis, melancholia and involuntional anxious psychosis (16). This surgery, which was performed against a background of failure in treating many psychological illnesses and before the use of antipsychotic drugs, was well received professionally, largely due to the respectability Moniz gained in the field of neurological sciences for his description of cerebral angiography. His surgical technique was later modified by Walter Freeman and James W. Watts, who questioned the rationale of Moniz's technique and contributed to the worldwide recognition of their new method of prefrontal lobotomy (14,27)

Prefrontal lobotomy, or sectioning of the thalamofrontal neural fibres in the white matter to terminate the dynamic exchange between the thalamus and frontal lobe, was performed on thousands of patients worldwide within a short period, and had very adverse results, as well as beneficial ones. Moniz shared the 1949 Nobel Prize for medicine or physiology with Walter Rudolf Hess? Moniz for his contributions to psychosurgery despite the controversy regarding the operation (14). According to Feldman and Goodrich, the refinements in the technique and target selection, in addition to the stamp of approval provided for

psychosurgery by the Nobel Committee in 1949, were most likely responsible for the significant increase in the number of procedures performed between 1948 and 1953. This approach was dropped from practice after the discovery of chlorpromazine in the mid-1950s.

As in other countries, prefrontal lobotomy initially gained popularity in Turkey, but was then also dropped. The first was performed in 1950 and the last in the second half of the 1950s. Many studies reported either beneficial or adverse effects of the operation, whilst others addressed the psychometric and histopathological results. This paper reviews the practice of psychosurgery in Turkey. It is based on published papers, and assesses the results of psychosurgery testing, as well as setting out the histopathological findings in those patients who died after the procedure.

Practice of Psychosurgery in Turkey

Modern surgery commenced in Turkey in the 1890s after the return of Dr. Cemil Topuzlu (1866–1958) to Turkey from France (17,21). Between then and the establishment of the Turkish Republic in 1923, many neurosurgical procedures were performed by general surgeons and ear, nose and throat (ENT) specialists. Dr. Abdulkadir Cahit Tüner (1892–1980), who was sent to Germany for training in 1923 by the celebrated psychiatrist Mazhar Osman (1884–1955), was the first qualified neurosurgeon in Turkey (18). He performed many novel operations in his neurosurgery clinic at Zeynep Kamil Hospital in Istanbul (20). The practice of neurosurgery was continued in the 1930s by Dr. Hami Dilek, Dr. Cemil Şerif Baydur and Dr. Cafer Tayyar Kankat. Dr. Dilek was the first founder of a neurosurgery specialty program in Turkey in 1949(13).

However, no psychosurgery was performed in Turkey until the 1950s (19,21). Only three articles were retrieved from the pre-1950 literature on the subject in Turkey (11,22,23).

The first of these articles is actually a translation of the celebrated manuscript "Prefrontal Leucotomy: Surgical Treatment of Certain Psychoses" by Moniz, in which all the original data were quoted without any comments by the author (23). The publication of this article in Turkish reflected the interest of the neuroscientists of the 1930s in the subject. The second article is a review with the heading "Psychosurgery in Chronic Schizophrenia", based on

the original work by Kazım Dağyolu (10). The third article is a translation of Wertheimer's original paper published in 1948 titled "Prefrontal Lobotomy" by Dr. Muharrem Özsan (22).

As the subject of psychosurgery was of contemporary interest, a review of the world literature on this field was published under the title "Psychological Illnesses and Psychoses" by the psychiatrist Rasim Adasal in 1955 (1).

Psychosurgical Applications in Turkey

In Turkey, the first attempts at psychosurgery date to the early 1950s, just after the popularisation of the technique with the Nobel award. The first modern psychosurgery was performed in Turkey on 3 November 1950 by Dr. Ertuğrul Saltuk (1914–1980) (Figure 1,2) at the Istanbul Hospital for Neurological and Psychological Disorders (3,24-26).

In his 1952 article, "Lobotomy, the Technique", Dr. Saltuk provided clinical information on a series of 70 cases. He had performed the transorbital approach only on seven patients, transorbital followed by transcortical surgery on three patients and the transcortical approach on the remaining 60 patients. In accordance with the contemporary diagnostic criteria, the patients included 49 with

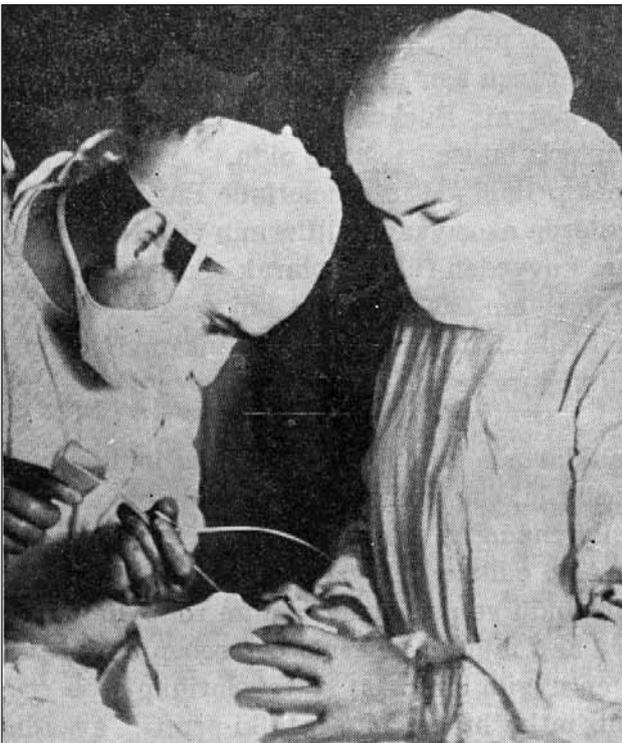


Figure 1: Dr. Saltuk on surgical application

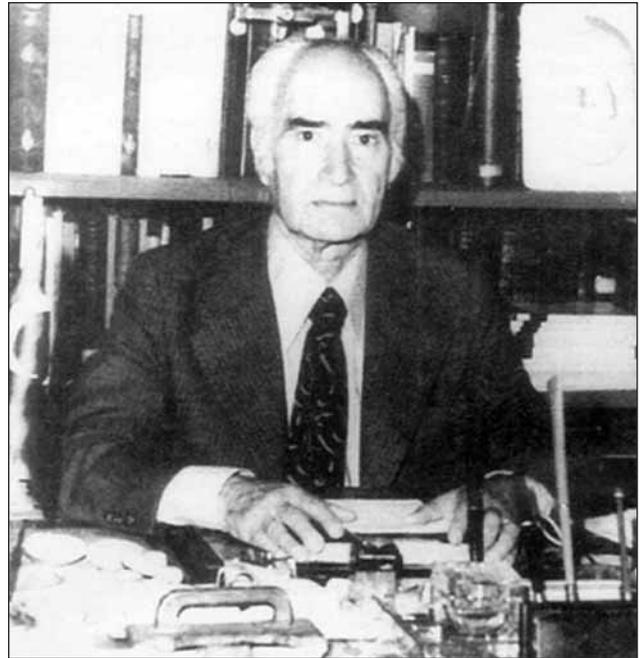


Figure 2: Dr. Ertuğrul Saltuk

schizophrenia, three with mania, three with depression, two cases each of dementia paranoia, mild apathy, psychogenic movement disorder (PMD) and agitated epilepsy, and one case of each of hebephrenic schizophrenia, epileptic-schizophrenia, homicidal paranoia, catatonic schizophrenia, syphilitic schizophrenia, aggressive homicidal leprosy and Parkinson's disease. Of the ten patients treated with the transorbital procedure, none died, but three required a transcortical leucotomy to treat recurrent symptoms, whilst five of the remaining patients were discharged with full recovery. One of those undergoing repeat surgery for recurrent symptoms died from a diapedesis-associated haemorrhage, whilst another died from tuberculosis, albeit with improved sleep habits and a decreased incidence of delirium. The third patient, although no longer subject to aggressive fits, remained hospitalised for other psychopathic symptoms. Twelve patients who underwent the transcortical surgery died from causes such as venous-sinus thrombosis, brain oedema, malaria and thrombopaenia. The rest were discharged on recovery. In her paper on the biography and clinical practice of Dr. Saltuk, Dr. Aysima Altınok mentions that he performed surgery with instruments made in the local market because of funding shortages (3). When disputes arose, the hospital directorate intervened in his practice.

Another surgeon involved in psychosurgery in Turkey in those years was Dr. Feyyaz Berkay (Figure 3) (1915–1993), who stressed the significance of psychosurgery not only from the therapeutic and research perspectives, but also for its effectiveness in reducing the patient load of mental institutions, which were often in danger of closure. Dr. Berkay preferred performing lobotomies for emotional disturbances, rather than for reduced intellectual capacity (6). His publications also show the lack of scientific agreement in 1952 on the optimal localisation of the surgical incision. He criticised the lack of adherence to the principles of asepsis during transorbital leucotomies, which often necessitated reoperating on the patients. His own series of surgeries reported in 1952 included 28 patients (7). This low number was attributable to the lack of cooperation with psychiatrists. Seventeen of his patients were diagnosed with schizophrenia, five with involuntional psychosis, two with obsessive compulsive neurosis, two with agitated depression, one with psychosomatic pain and one with intractable pain. With the exception of two patients with schizophrenia, all of the patients had returned to their homes and occupations after 1 year of observation. One-session unilateral or bilateral or two-session bifrontal lobotomies were performed in 17, six and five patients, respectively. Two of the



Figure 3: Dr. Feyyaz Berkay

patients undergoing single-session operations died of tuberculosis bacillaemia (in 21 days) or a pleuropulmonary infection (in 30 days). A postoperative fever was observed in one patient only. Most of the patients who underwent a unilateral lobotomy were ambulatory on the third postoperative day. In addition, Dr. Berkay stressed the importance of concentrated psychiatric rehabilitation and family support over an average of 2 months post surgery. In 1956, in a congressional address, he claimed that lobotomy had not lost of its importance despite the introduction of the drugs chlorpromazine and reserpine for psychotherapy (8). He reported that he had performed 108 lobotomies up to that date. In a retrospective report in 1980, he wrote that he had completed 200 successful lobotomies, although he did not give any clinical information on the cases (9).

Opposing Opinions

In the early 1950s, despite the popularity of psychosurgery, some psychiatrists criticised the benefits of these approaches. Dr. Dağyolu, who drew attention to the practice of psychosurgery in an article published in 1945, took a critical stance in 1952 after evaluating a series of cases that emphasised the unsuccessful outcomes of psychosurgery performed in Turkey and elsewhere (11). In this article, Dağyolu complained of the indifference of his colleagues to the frequency of postoperative epilepsy, high mortality rates and cases referred to coroners. He also stressed that in cases of mania, melancholia, hysteria or psychasthenia, which in time were expected to show improvements although they were untreatable, performing a lobotomy was inappropriate because the procedure only yielded a symptomatic improvement, or in some of the patients, simply an improvement in coping with the symptoms. He reported that in nine patients who underwent transcortical lobotomies, clinical improvement was observed in three, with relapse in four, and death in two of the cases (12).

Dr. Faruk Bayülkem, who was responsible for many modernising measures in psychiatry, such as the opening of a 50-bed neurological ward for children, workshops, consultation clinics, a day hospital, a parent-training school and a centre for anonymous alcoholics, also published a paper in 1952 in *Acta Neuro-Psychiatrica Turcica*. In his article, "On the Clinical Aspects of Lobotomy", he criticised the general view of the indications for

prefrontal lobotomies, which enjoyed high popularity at the time (5). He supported the view accepted much later that a certain psychological function is not necessarily attributable to any strict anatomic localisation in the brain; moreover, despite many proposals regarding the mechanism at the basis of the effects of lobotomies, he felt that the facts were little understood and associative neural paths needed to be investigated. He argued that in cases of melancholia, the observed rapid clinical improvement, independent of the operating technique and location of the incision, could only be attributable to the effect of shock. He drew attention to the sharp differences in the current scientific literature between the presentations of the indications for psychosurgery and the evaluation of patient functionality after surgery, pointing out the indifference of most patients to their main illness and that the best results in psychosurgery were obtained in cases of extreme agitation and anxiety psychosis. He presented many details of the psychiatric observations of patients in the early postsurgical period. For the first time in Turkey, he presented the results of psychometric (Rorschach) tests on 17 patients before and after lobotomy.

Dr. Bayülkem stressed the usefulness of lobotomy in cases like obsessional neurosis, suicidal melancholia, hypochondria that impeded all social functions, hysteric conversions and hallucinatory psychosis not responsive to other methods of treatment. However, he argued that psychosurgery was only partially effective in epilepsy and deep personality disorders, and completely useless for the treatment of alcoholism. He summarised his views on lobotomy and schizophrenia with the words "Nobody can argue on the benefit or the adverse effect of this surgery on the schizophrenic patient. However, it is a definite gain to be able to send a patient, not benefiting from any other treatment and needing continuous hospitalisation, to his family and home".

This article published a few years before the discovery of antipsychotic drugs illustrates the helplessness of patients with schizophrenia, which is now significantly reduced by drug therapy. Bayülkem observed that the lobotomised patient developed symptoms that were generally opposite to those seen before the surgical intervention. For example, euphoria replaced fear and restlessness, indifference developed in place of anxiety or

extroversion was replaced by introversion. Therefore, he opposed the early discharge of patients on the grounds of the immediate behavioural results of the surgery as these often went the wrong way and reiterated the use of the Rorschach ink blot tests as important tools in assessing the surgical process.

Histopathological Findings of Prefrontal Lobotomy

One definite advantage associated with the practice of psychosurgery in Turkey is the recording of postmortem histopathological data on the patients who died after the procedure. In the article "Post-mortem Histopathological Study of the Brains of Cases Who Underwent Lobotomy", the scientific gains from lobotomies were outlined with the words "lobotomy today is as useful in treatment as in its contribution to scientific knowledge since many brain functions unknown hitherto have come to open and the importance of associative pathways have been recognised" (2).

In 1951, İhsan Şükrü Aksel and Yener reported the first histopathological postmortem study of the brain of a 37-year-old male patient who died 1 year after surgery from a sudden-onset epileptic crisis (Figure 4). The findings included brain oedema and small haemorrhages, advanced oedema and hyperaemia in the renal capillaries. They concluded that the destruction of the neurovegetative system by the lobotomy had resulted in haemorrhages in the brain and the capillaries of other tissues. The same authors subsequently reported histopathology results on four patients with schizophrenia and two with cyclophrenic paranoia (bipolar disorder).

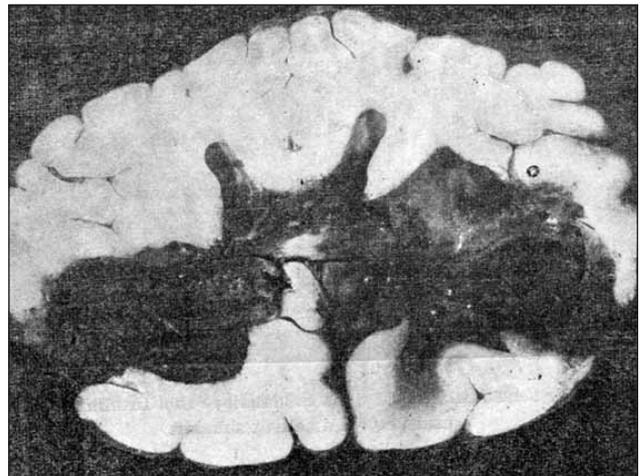


Figure 4: The histopathological appearance of a case who underwent lobotomy

Cellular atrophy in the frontal areas, vasodilatation, diapedesis (the extravasation of leucocytes), cisternal enlargement in the pons and vascular dilatation in the horn of Ammon were common findings. In the cases of death within 10 days of surgery, fresh haemorrhages, hyperaemia and slight glial expansion were noted. Death within 6 to 11 months after surgery was defined as death in chronic cases, and the histopathological results included cystic destruction, neuroglial and fibroblastic scar formation, the spread of capillary haemorrhages and vascular dilatation within the same hemisphere.

DISCUSSION

How can one explain physical intervention involving the brain for psychological disturbances starting in prehistoric times until the first half of the twentieth century and its evolution into 'psychosurgery' in the technical sense? For centuries, those with mental afflictions had played a litmus role in accordance with the geographical, religious, cultural and sociological characteristics of the times in which they had lived. The most tragic examples of this were demonstrated in Europe during the Middle Ages, with the identification of numerous hysterical women as witches, melancholy perceived as anti-religion and schizophrenia viewed as co-operating with the devil. After the French Revolution of 1789, rationalism opened new doors in science and expedited research, especially in physiology and histology during the nineteenth century, which contributed to the recognition of psychological illnesses.

In the nineteenth and early twentieth centuries, neuropsychiatric practice consisted of Freudian psychoanalysis, which is still used today, and the biological and organic investigative approaches founded by Kraepelin and Bleuler, which were especially useful for the investigation and treatment of schizophrenia and other psychological disorders.

In Turkey, Mazhar Osman (1884–1951), recognised as the pioneer of Turkish neurological sciences, had elected to take part in 'organic investigation' in psychiatry, which might have been the outcome of his association with renowned German psychologists and psychiatrists such as Alzheimer, Kraepelin and Spielmeier. However, he might have made a pragmatic choice in expecting this approach to facilitate mass treatment in a poor,

war-weary country like Turkey (19). At the time, electroconvulsive therapy and insulin shock therapy were being used in mental hospitals as newly found measures for treating schizophrenia, severe mental retardation, suicidal depression, manic excitation and persistent obsessive-compulsive disorders. The traumatic and destructive effects of World War I on the survivors filled the hospitals with patients having such conditions in Turkey, as in the rest of Europe, making these institutions "depots" rather than centres for treatment. Although the costs were phenomenal, no practicable measure other than psychosurgery was available to prevent the risks of self and environmental damage by the patients. Therefore, the continued use of somatic therapies in hospitals was not merely accidental. One must comprehend the significance of Moniz's publications to scientific circles promising an effective treatment for psychiatric disorders in the first quarter of the twentieth century. The practice of prefrontal lobotomy had spread so widely that despite major controversy, it won Moniz a share in the 1949 Nobel Prize.

The respected Turkish surgeons, neuro-psychiatrists and pathologists mentioned in this paper made significant contributions to the scientific literature despite very limited facilities and funding available to them (4). Most of the articles on the subject were published in the *Istanbul Seririyati*, a journal edited by Mazhar Osman, and in the *Acta Neuro-Psychiatrica Turcica*, a neurosciences journal edited by İhsan Şükrü Aksel. The articles revealed that neuropsychiatrists of the time looked on psychosurgery positively, but had reasons to argue with each other on this topic.

The debate over psychosurgery constituted a healthy approach in principle, and indicates that psychotherapy was kept at a satisfactory level in Turkey, especially with the adoption of psychometry and postmortem histopathological investigations of the cases. However, in parallel with medicine worldwide, psychosurgery was dropped rapidly with the discovery of the antipsychotic agent chlorpromazine in 1955, which ushered in a new era in the treatment of psychological disorders.

In conclusion, psychosurgery was performed in Turkey with mixed results, as in the rest of the world. The continuing arguments over the creation of "zombies" by psychosurgery delayed the initiation of this operation in Turkey and might have limited

the number of operations performed to around 400, which resulted in a much smaller number of victims compared to elsewhere in the West.

REFERENCES

- Adasal R: Ruh hastalıkları: Psikozlar bölümü içinde Psikosirurji. Psychosurgery. In: Adasal R: Mental disorders: Psychosis Ankara: Ankara University Press, 1955; 423-433
- Aksel İŞ, Yener B: Lobotomiden sonra ölenlerin beyinlerinin histo-patolojik tetkiki. Acta Neuro-Psychiatrica 4: 239-249, 1951
- Altınok A: Dr. Ertugrul Saltuk 1914-1980. Türk Nöroşirürji Dergisi 8: 131-132,1988
- Aral Ö: Psiko-Şirurji. Vakıf Gureba Hastanesi Dergisi 11: 9-13, 1984
- Bayülkem F: Lobotomilerin klinigi hakkında. On the clinical aspects of lobotomies. Acta Neuro-Psychiatrica Turcica 4: 213-238, 1952
- Berkay F: Mental hastalıklar ve sinir cerrahisi. Mental disorders and neurosurgery. Türkiye Tıp Encümeni Arşivi 12: 47-66, 1952
- Berkay F: Prefrontal lobotomi. Prefrontal lobotomy. Istanbul Klinik Dersleri. 6(4), 1952
- Berkay F: Bizim prefrontal lobotomi vak'a serimizle ilgili bir derleme. A review of our prefrontal lobotomy case series 14. Milli Türk Tıp Kongresi Kitabı, İzmir, 28 Eylül.-2 Ekim 1956), İsmail Akgün Matbaası: 1958; 412-435
- Berkay F: Perspectives in international neurosurgery: Neurosurgery in Turkey. Neurosurgery 4: 419-422, 1980
- Dağyolu K: Kronik şizofrenide psikoşirürji. İstanbul Seririyati 27: 1-4, 1980
- Dağyolu K: Psikoşirürji üzerine münakaşalar. Acta Neuro-Psychiatrica Turcica 4: 257-258, 1952
- Dağyolu K: Klinik bakımından lobotomi neticeleri. Türkiye Tıp Encümeni Arşivi 12: 41-44, 1952
- Elmacı İ: Hami Dilek. Nöroşirürjide bir öncü. İstanbul: Marmara Üniversitesi Nörolojik Bilimler Enstitüsü Yayınları. 2001
- Feldman RP, Goodrich JT: Psychosurgery: A historical overview. Neurosurgery 48: 647-659, 2001
- Mashour GA, Walker EE, Martuza RL: Psychosurgery: Past, present, and future. Brain Research Rev 48: 409-419, 2005
- Moniz E: Tentatives operatoires dans le traitement de certaines psychoses. Paris; Masson et Cie, 1936
- Mut M, Dinç G, Naderi S: On the report of the first successful surgical treatment of brain abscess in the Ottoman Empire by Dr. Cemil Topuzlu in 1891. Neurosurgery 61: 869-872, 2007
- Naderi S: Dr.Abdulkadir Cahit Tuner'in yaşamı hakkında (1892-1980). Tıp Tarihi Araştırmaları 11: 131-137, 2003
- Naderi S: Mazhar Osman ve Türkiye'de nöroşirürjinin doğuşu. İzmir: Dokuz Eylül Üniversitesi Yayınları, 2004
- Naderi S: Türkiye'de ilk norosirürji kursusu Zeynep Kamil Hastanesi'nde kuruldu. The first neurosurgery department of Turkey was established in Zeynep Kamil Hospital. Tıp Tarihi Araştırmaları 13: 101-106, 2005
- Naderi S, Erbeni A: History of neurosurgery and neurosurgical applications in Turkey. Surg Neurol 64: 115-122, 2005
- Özsan M: Prefrontal lobotomi. Ankara Üniversitesi Tıp Fakültesi Mecmuası 1-2: 303-319, 1950
- Receb R: Bazı psikozların ameliyatla tedavisi hususunda ilk tecrübeler. İstanbul Seririyati 8: 137-146, 1937
- Saltuk E: Psikoşirürjikal müdalaleye tabi tutulmuş vak'alar. Tıp Dünyası 279: 6993-7000, 1951
- Saltuk E: Lobotomies. Acta Neuro-Psychiatrica Turcica 4: 2-7, 1952
- Saltuk E: Lobotomi-Teknik. Acta Neuro-Psychiatrica Turcica 4: 196-211, 1952
- Valenstein ES: History of Psychosurgery. In: Greenblatt S, Dangi T, Epstein M (Eds): A History of Neurosurgery. Park Ridge-Illinois: American Association of Neurological Surgery, 499-517, 1997