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SURGICAL REPAIR OF SELF-INFLICTED SKIN ULCERATION, CRANIAL AND DURAL DEFECT CREATED BY A CHRONIC SCHIZOPHRENIC PATIENT

KRONİK ŞİZOFRENİ OLGUSU TARAFINDAN OLUŞTURULAN CİLT ÜLSERASYONU, KRANYAL VE DURAL DEFEKTİN CERRAHİ ONARIMI

Hakan SEYİTHANOĞLU*, Erhan EMEL*, İbrahim ALATAŞ*, Selma SÖNMEZ ERGUN, Ulviye ATILGANOĞLU***, Işıl UĞURAD****, Meltem ARIKAN*******

ABSTRACT

Stereotyped behaviour is primarily seen in patients with chronic schizophrenia. Sometimes, it may take a motoric form and may be expressed in a repetitive pattern of walking or pacing. It may also be demonstrated in repetitive strong gestures, which may or may not have a magical meaning to the patient. These behaviours may also take the form of self-mutilation. Although major self-mutilative behaviours are basically thought to occur in psychotic disorders, severe mental retardation, personality disorders, and eating disorders should also be taken into consideration.

The patient presented here believed that he had a bad soul on top of his head and in order to release this soul, he scratched his head continuously leading to recurrent trauma. Then, his scalp got infected due to this trauma which resulted in osteomyelitis of the cranial bone and infection of the dura mater with the exposure of the brain tissue. This case represents one of the most severe examples of self-mutilation in the literature. The patient was treated medically for his psychiatric illness and for his wound infection according to culture-antibiogram results, and surgically with a two-step operation in order to repair the dural, cranial, and scalp defect.

Key words: Chronic schizophrenia, cranial and dural defect

ÖZET

Kronik şizofrenide stereotipik hareketler sıklıkla görülür. Zamanla bu hareketler yürüme veya izleme gibi yineleyici bir hareket biçimi olarak görülebildiği gibi, hasta için anlamlı veya anlamsız yineleyici davranışlara da dönüşebilir. Bu davranışlar kişinin kendine zarar verici, yaralama davranışlarına da dönüşebilir. Major kendini yaralama davranışında temel etkenin psikotik bozukluklar olduğu düşünülse de, ağır zeka gerilikleri, kişilik bozuklukları ve yeme bozukluklarını da gözardı etmemek gerekir.

Bu sunumda, başında kötü bir ruhun yerleştiğine inanan ve ondan kurtulmak amacıyla başını sürekli olarak kaşıyarak saçlı deride, kranyumda ve durada defekt oluşturan, defektleri 2 aşamalı operasyonla onarılan ve kendine zarar vermenin en uç örneklerinden biri olan kronik şizofrenili bir olgu sunulmaktadır.

Anahtar kelimeler: Kronik şizofreni, kranyal-dural defekt

INTRODUCTION

Schizophrenia is defined by a series of characteristic positive or negative symptoms, including deterioration in social, occupational, or interpersonal relationships, and continuous signs of the disturbance for at least 6 months (1,3,11). Psychotic symptoms of schizophrenia are marked by abnormalities in the form of thought, content of thought, perceptual disturbances, and alternations in emotions and behaviour. Behavioural disorders include stereotyped behaviours, which are repetitive actions, often symbolic, that have some contextual meaning to the patient (3,11). The psychotic dimension refers to two classic "psychotic" symptoms that ref-

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* Vakıf Gureba Hospital, Department of Neurosurgery, Istanbul
(Correspondence to: selmasonmezergun@yahoo.com)
** Vakıf Gureba Hospital, Department of Plastic and Reconstructive Surgery, Istanbul
*** Vakıf Gureba Hospital, Department of Dermatology, Istanbul
**** Vakıf Gureba Hospital, Department of Psychiatry, Istanbul
***** Yalova State Hospital, Department of Psychiatry, Yalova

lect a patient's confusion about the loss of boundaries between himself or herself and the external world: hallucinations and delusions. Hallucinations are perceptions experienced without an external stimulus to the sense organs and have a quality similiar to a true perception. Schizophrenic patients commonly report auditory, visual, tactile, gustatory, or olfactory hallucinations or a combination of these hallucinations. Delusions involve disturbance in thought rather than perception; they are firmly held beliefs that are untrue and contrary to the person's educational and cultural background. Delusions occurring in a schizophrenic patient may have somatic, grandiose, religous, nihilistic, sexual, persecutory or bizzarre themes like our patient who believed to have a bad soul on top of his head (1).

The patient presented here was treated for chronic schizophrenia for about 20 years. He had been scratching his head in order to release the bad soul and a 10x10 cm wide cranial defect was formed on the left frontoparietal region. After consulting the patient with a dermatologist, plastic surgeon and psychiatrist, he was hospitalized in the neurosurgery clinic for further intervention.

CASE REPORT

A 60 year-old male patient treated for chronic schizophrenia for about 20 years was admitted to our emergency room with the complaints of a cranial defect, fever, lethargy, and involuntary movements for the last 1 month.

He believed in the presence of a bad soul on top of his head and scratched his head repeatedly (in order to release this bad soul), traumatizing the scalp, cranial bone, and dura mater and creating a crater-like infected defect in the left frontoparietal area.

Psychiatric examination: The patient was conscious; however, he was not cooperating sufficiently. He seemed to be a negativist. He was unwilling to communicate. He generally leaved questions unanswered or sometimes gave meaningless answers. He showed marked disturbances of formal thinking. His affect was restricted and he was sometimes furious. He had delusions of persecution about his family intending to harm and eradicate him and he also had bizarre delusions that he had bad souls in his brain. The patient was talking to himself, laughing, and seemed to be hallucinating. According to the history taken from his family, the patient had been followed up with the diagnosis of schizophrenia for about 20 years, hospitalized for a couple of times, and had not been following therapeutic directions well, and had not been taking medication for a long time.

Physical examination: A cranial defect of 10x10 cm in diameter on the left frontoparietal region near the midline through which dura mater and brain tissue was seen and purulent material was leaking, was present (Figure 1).

He had a body temperature of 39 ^{0}C and a cachectic appearance. His vital signs were stable. He opened his eyes upon verbal stimuli, uttered meaningful words and sentences and localized the painful stimuli. He had horizontal nystagmus and involuntary movements in his left arm on neurological

Figure 1. Preoperative appearance of the patient

Figure 2. Direct craniography showing radioluscent bony defect

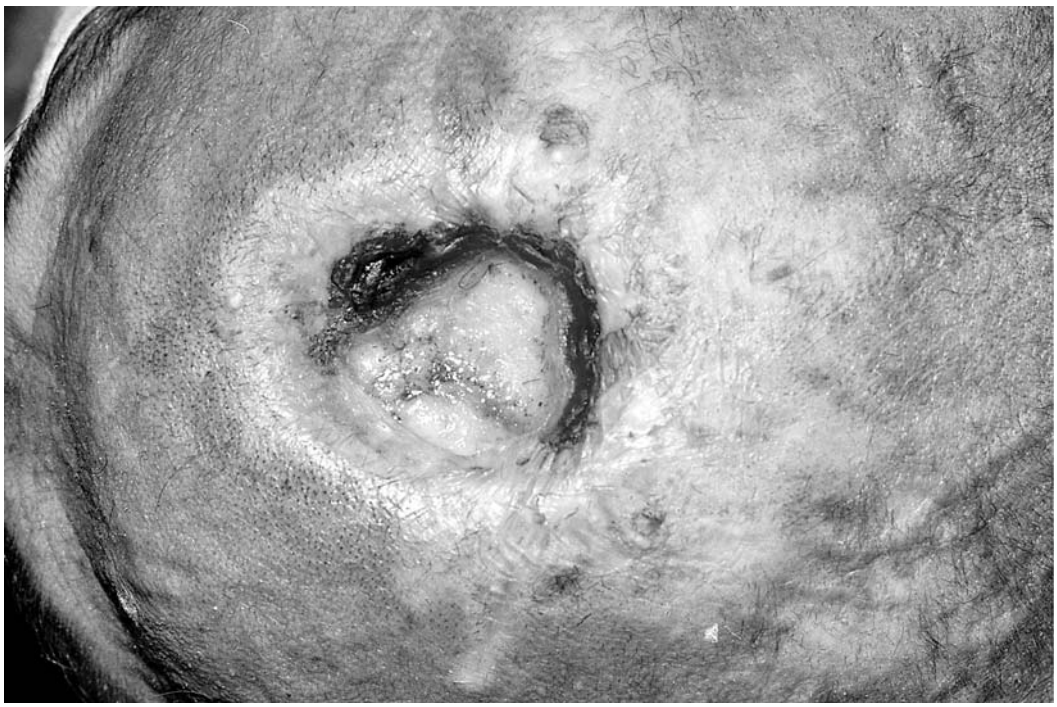

Figure 3. Postoperative appearance of the patient after the first session

exam. He was only mobilized in bed.

Laboratory exams were unrevealing except for high liver function tests and low haematocrit levels. Direct craniography revealed a radioluscent bony defect 10x10 cm in diameter on the left frontoparietal area (Figure 2). Cranial CT, in addition to verifying direct radiography, revealed pneumocephaly 1x2 cm in diameter in the subdural area, and collection to the left lateral of it. Cranial MRI revealed par-

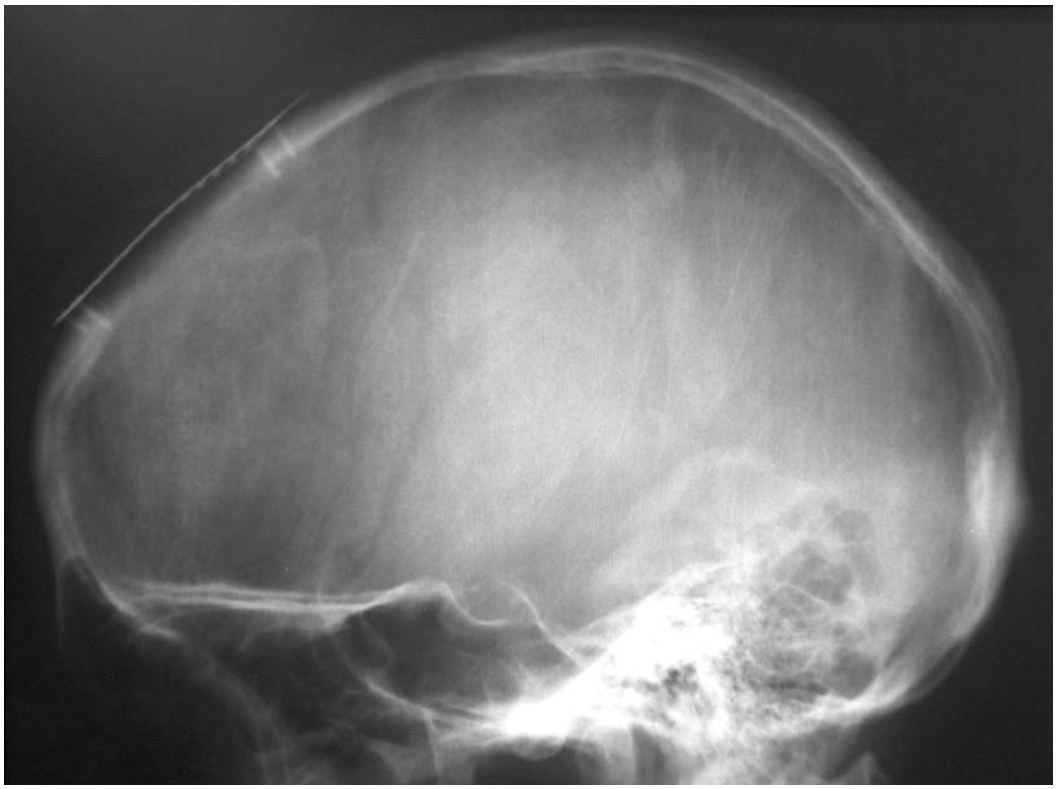

Figure 4. Direct craniography showing bony defect reconstructed with titanium mesh

tial obliteration in sagittal sinus, additionally.
Pneumocephaly and subdural effusion in the left frontal area seen on cranial MRI was thought to result from air leakage through CSF fistula which was in direct contact with the air. Approximately 10 cc of purulent material was drained along with air in the pneumocephalitic area by angiocatheterization parallel to the sagittal sinus.
Culturing the purulent material revealed staphylococcus aureus and the patient was started on cephazoline Na 3 g/day and clindamycin 2.4 g/day according to the results of culture- antibiogram.
The patient was administered haloperidol 10 mg/day and biperiden 4 mg/day after psychiatric consultation. In dermatologic differential diagnosis, vasculitides like temporal arteritis, Wegener's granulomatosis, primary or metastatic malignancies like squamous cell carcinoma, T-B cell lenfomas, and primary specific infections like syphylitic or tuberculous gummas were considered and a skin biopsy was performed. However, histopathologic examination revealed nonspesific inflammatory infiltration. For this reason, taking the psychiatric history of the patient into consideration, dermatitis artefacta gained importance in the diagnosis.
Medical treatment by antibiotherapy and local wound care for 2 weeks made infection in the lesion recede. Surgical treatment was performed in two steps:

1-Necrotic scalp and osteomyelitic bony areas were debrided. Dura mater was repaired by pericranial flaps (Figure 3). CSF fistula was closed during the postoperative period. Antibiotherapy and local wound care was continued for 2 more weeks.
2-Bony defect was reconstructed using titanium mesh, and scalp defect was repaired using local rotational flaps (Figures 4, 5).
The antibiotics based on the results of culture- antibiogram have been used over a total of 8 weeks (Cephazoline Na 3 g/day and clindamycin 2.4 g/day).
Postoperative period was uneventful and 2 weeks after the operation, the patient was discharged without any problem in the operated area.

Figure 5. Postoperative appearance of the patient after the second session

DISCUSSION

Cranium is extremely resistant to osteomyelitis and haemotogenic infections are rarely seen. Infections mostly come from neighbouring tissues (e.g., infected air sinus, folliculitis, or as a result of penetrating trauma) (5, 9). As scalp lesions get infected, defects in the bone and dura mater are formed due to continuing trauma in addition to infection. Our patient who believed to have a bad soul on top of his head had an infected lesion affecting scalp, cranium, and dura mater due to continuous trauma by scratching.

Staphylococcus aureus is the mostly isolated pathogen (5) and antibiotherapy for a total of 6-12 weeks should be applied. However, this is frequently not enough for osteomyelitis and surgical treatment is a must to remove the infected bony tissue. Debridement of devitalized tissue may be necessary to control infection, to improve healing, or to prepare for reconstruction (5,8,13).

Repair of cranial defects, especially when infected, presents generally an apparent difficulty. If infection accompanies exposure of the brain tissue, both combating infection and obliterating the contact of brain tissue with the air should be the primary concern in the treatment and only after this is achieved, repair of cranial defect and scalp defect can be performed (5,9,13). Because of this, we applied surgical treatment in two different sessions. In the first step of our surgical treatment, we first debrided necrotic tissues and then elevated pericranial flaps. Therefore, dura mater was repaired obliterating exposure of the brain tissue to the air. We preferred to perform dural repair by using autogenic tissues but not allogenic materials, because of the presence of the infection in the defective area.

Cranioplasty is required to protect the underlying brain. Ideal material for this purpose is autogenous bone, but in many cases, like our patient, its use is impractical owing to lack of availability in substantial amounts and proper shape (2,5,8). When autogenous bone graft is not available, alloplastic or artificial materials may be used. Methyl methacrylate is the cranioplasty material of choice in adults with good soft tissue quality who have not had previous infection. Hydroxyapatite cement cranioplasties revealed a high infection rate, especially in large construction. The titanium mesh afforded satisfactory contour and could be applied simultaneously with the local flaps to the infected cranial wound (4,6,8,10). The best alternative of all was titanium mesh. For that reason, in the second step, we preferred to perform cranioplasty by using titanium mesh, because metallic cranioplasty materials lead to less tissue reaction even in the infected media.

In addition to debridement, operative procedures should be performed by bringing well-vascularized tissue to the infected area in order to potentiate the host's ability to resist or overcome infection by bringing well-vascularized tissue to the infected area (13). Because of the fact that local flaps are generally simpler to perform and are preferred when available (14), we preferred to repair the defect by local scalp flaps, too.

Cranial defects are rarely formed by patients in the progress of chronic psychotic illnesses, and necessitate multi-diciplinary approach in the treatment (7,12). In such cases like our patient, treatment of psychosis is necessary in order to make use and maintanence of surgical treatment.

In conclusion, surgical treatment in particular should be performed in two seperate sessions. In the first step, wound debridement and duraplasty, and in the second step cranioplasty and repairment of the scalp defect are performed.

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