



Traumatic Memory: A Cause for Postoperative Delirium – A Diagnostic Dilemma

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The frequent occurrence of delirium after surgical procedures, particularly heart surgery, is well recognized [1–2]. Patients experiencing this complication may be extremely agitated, similar to patients with trauma-related dissociative state. Whereas postoperative delirium is usually reversible without long-term sequelae and is not related to personality traits, the post-traumatic dissociative state indicates the patient's vulnerability and a tendency to dissociate under stress. This tendency should be taken into account for facing future challenges. Agitation immediately after surgical trauma may result either from delirium or from psychological stress related to the trauma. We describe a case that presented a unique diagnostic dilemma between the two options.

Patient Description

A 77 year old man was admitted for coronary artery bypass grafting after deterioration of his anginal symptoms. His medical history included paroxysmal atrial fibrillation and arterial hypertension. No documented mental illness or psychiatric diagnosis was recorded prior to heart surgery, but the patient had been treated with 5 mg oxazepam for several weeks after the decision was made to undertake cardiac surgery.

Physical examination revealed a normal appearing, oriented and coherent man with no physical abnormalities. Single coronary artery bypass grafting was performed to the left anterior descending artery. The operative course was uneventful. Coagulopathy, resulting

in the drainage of large amounts of mediastinal blood, was treated successfully with blood and blood products. About 2 hours after arrival at the intensive care unit the patient showed signs of awakening: responding to verbal orders, opening his eyes and moving his extremities. He was treated with low doses of morphine and midazolam for pain control and sedation while on the respirator. Stable hemodynamic and respiratory parameters were recorded during the first night after the operation with successful weaning from the respirator. A maintenance low dose of morphine was used as an analgesic. No unusual events occurred during the first postoperative day.

During the second night after the operation, shortly after the nursing staff shift-change, the patient developed severe confusion characterized by marked agitation, restlessness and disorientation. He attempted to detach the monitoring lines and cables and to leave the ICU. Since no organic causes such as hypoxia or electrolyte disturbances were found and no neurologic deficit was detected, the patient was diagnosed as having postoperative delirium. Intravenous haloperidol (5 mg) had a minimal effect. Since his ongoing aggression towards the nursing staff made medical treatment impossible, the patient's wife and son were summoned to the ICU in an attempt to lessen his unfamiliarity with the surroundings. The presence of the patient's family led to a dramatic

improvement. During the second postoperative day he exhibited only minimal signs of confusion and no aggression. He was oriented, coherent and cooperative. On the sixth day postsurgery he was discharged in good condition and with no residual signs. In the predischARGE interview, the patient could remember most of the details of the episode of confusion and was able to explain his aggressive behavior.

The patient was a resident of the West Bank of the Jordan River, living in close proximity to Arab villages. Four years before surgery, while driving his car through an Arab village, he fell victim to a terrorist attack that resulted in a head injury and a transient loss of consciousness. He received first aid and was rescued from the crashed car by local Arab residents who spoke Arabic among themselves during that rescue operation. The short interval between the terrorist attack and hearing Arabic spoken by the rescue team while the patient's consciousness was borderline remained as a traumatic long-term memory. He reported that hearing two Arab nurses talking Arabic among themselves at the present admission triggered the resurgence of his traumatic memory and provoked his fearful behavior.

Comment

The tendency of certain individuals to react to stress or trauma with psychic dissociation is a well-known and well-documented condition. Dissociation is considered to be a state of disrupted

ICU = intensive care unit

consciousness, memory, identity or perception of the environment [3]. Under a dissociative state the individual's understanding of the situation is impaired and "tendencies" or "forces" from the unconscious predominate. The subject may relive past situations (usually painful ones) or react according to patterns long forgotten. Even one's identity may be excluded from consciousness as in fugue states.

In general, the tendency to psychic dissociation under stress is closely related to the personality structure and "ego strength." This tendency can be traced if attention is focused on it while obtaining the medical history. This tendency is not related to organic factors, pre- or postoperative, but rather to affect laden situations.

The syndrome of postoperative delirium is well documented after general surgery especially cardiac surgery [1]. The incidence of delirium after cardiac surgery is as high as 33% [2] and is denoted by a new term: postcardiotomy delirium. Multiple factors have been associated with delirium after the operation [Table]. These factors may be related to the pre-operative physical state or originate from operative or postoperative changes. Delirium is defined as a disturbance of consciousness. Neurologic practice employs the term delirium to refer to the agitated, tremulous, hallucinatory state [4]. Wolff and Curran [5] postulated that delirium is a syndrome characterized by a disturbance of consciousness and cognitive impairment. In delirium the threshold of consciousness is lowered by the pathological process quantitatively and qualitatively [7]. Underlying painful themes, which are usually excluded from conscious attention (repressed), gain primacy and are expressed without conscious control. As with other neurologic and psychiatric disorders, the diagnosis of postoperative delirium is established by means of diagnostic criteria. The determination of whether a given clinical state meets any set of diagnostic criteria depends on close observation of the patient and the measurement and recording of signs

and symptoms, preferably with the use of modern standardized procedures. Such measurements are difficult to perform early after major surgery, with its inherent physiological derangements and even more so in an intubated patient. As cognitive impairment is very common after cardiac surgery using extracorporeal circulation (with an incidence of up to 80%), the diagnosis of postcardiotomy delirium still rests primarily on clinical observation. The finding of bilateral diffuse slowing on electroencephalogram may support the diagnosis. Our patient was at risk for developing postoperative delirium, a priori, because of his age and the type of surgery. He received an opiate (morphine) intermittently but had a long period of normality before the acute onset of delirium. Being in the immediate postoperative state and hearing the nurses speak in Arabic, the patient experienced a very similar perception to that of the previous stressful event. He exhibited aggression and restlessness in an attempt to protect himself from the perceived life hazard, actually a fight-or-flight reaction. It is debatable whether his condition should have been attributed to a postoperative delirious state, or to a trauma-induced dissociative condition.

There are numerous stories, unpublished, of Holocaust survivors showing signs of restlessness and agitation after surgery when treated by nurses talking Yiddish among themselves. Hearing Yiddish aroused past memories from the Holocaust in association with a related language. Emotionally laden memories and mental background may predispose patients to postoperative delirium, as well as to dissociative situations. A similar dilemma exists when treating stress-induced delirium among veterans and/or prisoners of war with post-traumatic stress disorder.

Postoperative delirium should be differentiated from trauma-induced dissociative states. Both conditions can become obstacles in medical treatment and can prolong hospitalization. The

Predisposing factors to postoperative delirium

Pre-operative factors	Post-operative factors
Mental/Neurologic	Anesthesia related
Psychosis	Duration of anesthesia
Dementia	Type of anesthesia
Epilepsy	
Organic	Surgery related
Electrolyte imbalance	Hypoxemia/hypercapnia
Hypoxemia	Hypervolemia
Anemia	Hypotension
Other	Other
Age	Electrolyte imbalance
Addiction	Low cardiac output
	Hypoglycemia
	Fever
	Drug induced (lidocaine)

treatment of postoperative delirium should focus on its potential cause. Whenever postoperative delirium is suspected, any treatable cause should be recognized immediately. In the absence of a clear organic explanation for delirious behavior, a history of traumatic experiences and personality traits must be clarified. Such memories along with understanding the patient's personality are pertinent for the understanding and proper management of the patient.

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