Rare Suicide Case of Penetrating Head Trauma

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Abstract
An observation of the open penetrating brain injury with a 120-mm-long nail, which was lodged parasagittally from the parietal bone down to the base of the middle cranial fossa through the third ventricle, has been described. Despite the condition, the patient remained conscious for almost 24 hours with attributes characteristic of moderate brain injury on the Glasgow Coma Scale (GCS) with a reading of 12.

Patient K was managed surgically with a series of additional diagnostic procedures: a craniography, computed tomography of the brain pre- and post-operation, standard clinical-lab tests.

Keywords: cranial-basilar head trauma, foreign object, brain, parietal

1. Introduction
An open penetrating cranial-basilar brain injury still remains one of the most complicated types of skull and brain trauma. Complications may arise not only during a surgical management stage but in the post-operation period as well with a high probability of occurrence. Despite the plethora of available scientific materials regarding penetrating head trauma, it is not that often that one is able to come across data on injuries by foreign objects, namely: pencils, metallic strips, knives, hardware tools. We are faced with an issue of tactics and surgical management techniques, which is primarily tackled by an operating surgeon’s professionalism and experience. An extraordinary case of penetrating cranial-basilar head injury with a rare topographic-anatomic localization of the foreign object is presented.

Patient K, aged 65, brought in by ambulance (BIBA), Chernivtsi, Ukraine, diagnosed with a penetrating head injury by a foreign object in the extra- and intra-cranial locations.

2. Anamnesis Vitae
The patient suffers from a mental disorder - schizophrenia. There were noted a number of suicide attempts. From the medical history, it is known that the patient had suffered from headaches for a lengthy period of time. Patient K decided to resolve the issue by means of a 120-mm-long roof nail.

3. Status Nevrologicus
On hospital admission, the overall patient’s condition was at a moderate stage of severity. The patient remained conscious for almost 24 hours with attributes characteristic of moderate brain injury on the GCS with a reading of 12. There was no pathology detected in the cranial nerves. Her pupils were at S=D and with an active photoreaction. There were no meningeal signs detected. There was no pathology detected in the extrapyramidal system. The volume of active limb movements was at its full capacity. Tendon and periosteal reflexes from arms (S=D) were low, from legs (S=D) were torpid. Muscle strength in limbs (S=D) was at 4. Higher cortical functions were marked by cognitive-mnestic disorders. The patient did not try to perform movements requiring coordination. She did not maintain a standing position during a Romberg’s test. She demonstrated a pathological Babinski’s sign.

4. Status Localis
The top of the nail, elevated over the skin surface by 5mm, was discovered in the parietal lobe.

5. Additional Examination Methods
Cranigraphy in two projections; computed tomography of the cranial bones and the brain in the pre- and post-operative periods
Fig. 1: Pre-operation X-ray

Fig. 2: Pre-operation X-ray

Fig. 3: CT scan prior to surgery
Patient K. underwent surgery on the following day after the injury or 2 hours after having been brought in by ambulance. Technically, the surgical invasion was limited to liberating the distal tip of the nail from the surrounding parietal bone and a gradual slow removal of the foreign object while maintaining the nail’s penetration vector. The procedure was followed by a meticulous wound toilette and a drainage installation. There were no apparent complications, such as bleeding or brain edema, observed.

The post-operative period was characterized by a hyperthermia, secondary complications in the form of pneumonia, cardio-pulmonary decompensation. The patient’s consciousness remained at a level of sopor (10-8 points on GCS). The patient had died on the 18th day after surgery.

6. Conclusion

Penetrating cranial-basilar trauma has been and still remains one of the most complicated and unpredictable, in terms of development, brain injury.

Fig. 4: Post-operation CT scan