Art of Neurosurgery

Nöroşirürji Sanatı

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The first definition of art encountered in the Oxford English Dictionary is skill and its display or application, or skill in doing anything as a result of knowledge and practice. Art as a term meaning "skill in applying the principles of a special science; technical or professional skill", it is used in specific situations (4). Wikipedia describes art as "a diverse range of human activities and the products of those activities". This article discusses whether neurosurgery can be perceived as a form of visual arts such as painting, sculpture, printmaking, photography and many other areas of human endeavor. Art was not separated from crafts or sciences until the 17th century but became distinguished from acquired skills afterwards (6).

The word "neurosurgery" consists of the union of the words "neuro" and "surgery", while the word is formed by the union of "kheir", which means "hand", and "ergon", which means "work". Neurosurgery therefore becomes "neuro handwork" as in performing art (1).

The primary tools of the artists are the same as those of neurosurgeons. Just like an artist, *the eyes* and *the hands* are the most important instruments for a neurosurgeon (Figure 1).

Based on this assumption, one could argue that neurosurgery is a form of performing art. Neurosurgeons inspect the patients and their laboratory tests and images and then decide how to excise the pathological tissue. In order to perform this, they have to see the normal anatomy clearly when they are looking at the pathology and then excise the pathology without damaging the normal tissue.

Michelangelo, the genius Italian artist and scientist, once famously stated that "In every block of marble I see a statue as plain as though it stood before me, shaped and perfect in attitude and action. I have only to hew away the rough walls that imprison the lovely apparition to reveal it to the other eyes as mine see it". Thus, the neurosurgeons in their own way also perform surgical operations as Michelangelo describes.

When a neurosurgeon looks at an image s/he is obliged to see every single detail, as the life of a human being is at stake. Neurosurgeons therefore need to not only look at the pathologies but also see them, understand them and feel them as a painter painting a scene or a sculptor sculpting a block of marble. Furthermore, almost all the actions of a neurosurgeon are irreversible, making the stakes even higher. A neurosurgeon has to perform his/her operation step by step in a constant sequence just like a musician plays a musical score; no step may be skipped, avoided or the order changed as desired. If one of the steps is skipped or failed, the result will be worrisome.

Figure 1: Picture showing a work by senior author (EE) who favors an impressionist approach as the artistic style. "*Portrait of a woman*". Oil on canvas, 20x30 cm. Painted in 2002.

When asked his reasons for starting sculpting, Prof. Dennis Spencer, M.D., the Head of Neurosurgery Department at

Yale University, answered that *sculpting art is similar to neurosurgery art* (3).

The study of the brain for medical science and as a subject of art is not (or at least was not) as distant as one would imagine. The brain, as a mysterious part, often found itself a place in some form of classical art. For instance, when an untrained eye takes a look at the Da Vinci's "**Saint Jerome in the Wilderness**" painting, one sees only an impressive painting but to a specialist, the painting hides a skull hidden in an arc represented as a lion's tail. The image is of a hemicranium (midline sagittal view) showing the intracranial dura, including the falx and tentorium, and the venous system with the sinuses and major deep veins (5). This is the neurosurgeon's viewpoint. Also the renowned painting in the ceiling of the Sistine Chapel by Michelangelo, Creation of Adam, has been the subject of discussion on whether it has a hidden but accurate depiction of the human brain (2).

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