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Plastination: ethical and medico-legal considerations

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Abstract: The international plastination phenomenon has proved to be immensely popular with audiences worldwide. Never before has the human body been exposed to public gaze in such an accessible manner. The exhibitions have perplexed many, included anatomists, some of whom find the display of human bodies unethical. The objective of this study is to review the attention on the use of plastination and exhibition of entire human bodies for non-educational or commercial purposes. The nature of these exhibitions and the uneasy balance between entertainment and education has caused heated debate. The possible legitimacy of the expression of one's will as far as exhibition purposes isn't considered sufficient for the indiscriminate use of a corpse despite the ethical necessity of respecting the wishes of individuals based on respect for the deceased. The informed consent of an individual represents only the most basic and minimal prerequisite for the use of the deceased's body for exhibition purposes, and is absolutely not enough on its own to justify its use in entertainment exhibitions or for the commercialization of the death

1 Introduction

Modern anatomy is a subject that is now a long way from the traditional view of aseptically treating the human body and the corpse. It is nowadays considered a multifaceted discipline based on surprisingly different components that ranges from academic investigations such as cadaveric dissection, organ dissection, and research on embryos, to preparation for exhibitions that variously aim to strike a balance between public education and commercial profit. Due to the variety of this science it is steeped in strong ethical dilemmas whose origins all have a common substrate: the use of human matter.

The relevance of this ethical debate can be explained by the creation and distribution of demonstrative displays of the plastinated corpses that have gained worldwide public attention in recent years.

The fundamental mission spelled out by the organisers of demonstrative corpse exhibitions is the health education, particularly directed at a "lay" audience, so that the expositions may play a part in obtaining a better understanding of the human body and its functions. The declared objectives are linked to the improvement of knowledge of medical issues, in particular among the general public, as well as to the distribution and to the development of plastination techniques [1].

Regarding plastination techniques, the expressed aims invite only agreement and understanding when considered from a purely scientific perspective, while disregarding the entertainment/demonstrative factors that form the basis of its widespread appeal.

The value of plastination as a fixative technique has become increasingly appreciated. This method's potential resides in its capacity to preserve the most delicate struc-

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tures as well as their interconnections, allowing for even microscopic traceability. [2]

The possibility of obtaining ultra thin dissections of plastinated organs has allowed them to be used for building three-dimensional models of computable anatomical structures. [3]

Without disregarding the legitimate scientific applications of plastination as a fixative technique for corpses or their parts, this study concentrates on the use of partial or entire bodies for exhibition in non-educational for-profit settings. Exhibitions of plastinated corpses have recently provoked major ethical, moral and legal debates over the wisdom of displaying corpses, mainly due to varying interpretations of the validity of its scientific pretext. Even when a voluntary cadaver donation has a scientific, teaching and research purpose, debates break out about ethical considerations on what the moral state of the deceased may be and how it may be evaluated. This study reviewed current Italian and international debates on this topic in order to identify the ethical and legal ramifications on the use of plastination and the exhibitions of corpses. Key search terms used in both the medical literature database (PubMed) and the Italian legal database included “Plastination” and “Body Worlds”.

2 Discussion

The preservation technique known as plastination was developed by Gunther von Hagens beginning in 1977. With the aim of improving the quality of renal samples, von Hagens experimented with a variety of plastic materials until he developed the technique that today is used as the basis of touring displays of plastinated bodies. [4]

In recent years, ethical considerations were highlighted by the appearance of displays of plastinated corpses whose purpose has been claimed to be scientifically limited while straying into art and the commodification of death.

In addition to intellectual and philosophical concerns, concerns for the use of deceased human bodies has constantly been addressed by archaeologists, anatomists, physicians and transplant surgeons, and even more so by people who decide how their bodies and those of their loved ones should be handled.

Despite a bare bones legislation with regard to the voluntary donation of corpses to science and research, the latter is justified and legitimized in Italy by the constitutionally recognized and protected principle of public health protection [5].

However, the public display of plastinated corpses in poses resembling daily life does not seem to be legitimated by principles such as those explicitly stated in public health teaching and education.

The opinion expressed in 2013 by the Italian National Bioethics Committee regarding a point of order on the voluntary donation of a post-mortem body for scientific purposes did not address body donation for plastination and public display, nor did it address the possibility of considering the consent expressed in one's will valid when it comes to this matter. [6]

Moreover, even if by analogy public plastination displays would acquire legitimacy based the deceased's will and written consent given while living, ethical debates would still continue.

Notwithstanding the possible legitimacy of the expression of one's will as far as exhibition purposes, assuming that it can be recognized, and despite the ethical necessity of respecting the wishes of individuals based on respect for the deceased, this might not be considered sufficient for the indiscriminate use of a corpse. In the absence of explicit legislation, it is necessary to always consider the interests of third parties, such as public health requirements concerning hygienic disposal, public ethics and morality, not to mention the desires and beliefs of family experiencing emotional difficulties. [7]

At the centre of the ethical debate over exhibitions of plastinated corpses is whether the donors were able to express a free and fully informed consent to the use of their bodies for such exhibition purposes. If such consent has not been absolutely and unambiguously clarified, any further debate or extrapolations regarding any other use of the human body is necessarily invalidated. [8]

In the presence of a clear consent in life (necessary to be part of the Body Worlds exhibitions project) it is possible to rule that the individual was not violated. However, even while acknowledging this kind of respect for individual freedom, the debate has been focused on the morality and ethics of the exhibition use. It is also important to note that prior to the popularization of human body exhibitions, the key consideration involved with donating one's body to science was that of community health protection. In comparison with recent plastination exhibits, it is clear that the ethical, legal, and social developments have not kept pace with those of technology.

Anatomists from different countries have reacted with varying degrees of uncertainty toward this phenomenon. The German Anatomical Society initially tried to prevent the show in 1997 because it violated its principles. Representatives of the British Association of Anatomy expressed their concern due to the fact that an exhibition of corpses

could emphasize a kind of sensationalism and trivialize cadaveric dissection as a mere spectacle, at the expense of medical education. Their point of view focused on the fact that the display of bodies or sections thereof is generally and suitably limited by law to certain educational areas and especially only to those which follow certain educational programs. [1]

In 2008, the American Association of Anatomists officially supported the exhibitions based on the fact that donors had expressed an informed consent. [9] It has been alleged that the mission of corpse exhibitions is based on health education with the objective of providing laymen with an opportunity to better understand the human body and its functions. However, as they are set up to show the naturalness, individuality and anatomical beauty of the human body, a purely artistic aspiration seems to be at play, possibly only combined with scientific purposes.

Whether the plastic display of the entire human body corresponds to a real desire for a greater understanding of it is a matter over which the debate has yet to be resolved.

Though it is true that the display of detailed cross sections of organs, muscles, bones and vessels can be educational, such as by demonstrating the effects of certain diseases, for example in the case of lung sections of smokers, the familiar poses in which the entire plastinated bodies are modelled seem to be more for entertainment than educational purposes.

The merchandising purpose seems to emerge also from the progressive evolution over time of these exhibitions, starting from static elements and moving recently to dynamic representations and poses. One can observe an attempt to keep up with the times in a continuing attempt to reach the widest possible audience through interaction, getting away from displaying informative static conditions of corpses to exploiting the attraction and dismay of the audience brought on by their lifelikeness. [1]

This type of façade anatomy definitely attracts the public but at the same time brings us face to face with radically innovative uses of corpses.

3 Conclusion

The history of anatomy is far from pristine, filled with anatomists who have always participated in what was considered immoral.

However, an ethical debate is currently emerging that should not hinge as much on informed consent (however essential), procedures, the cadaveric material or the tech-

niques used as the actual exhibition of corpses for entrepreneurial rather than scientific purposes.

Good practice recommendations for the donation of human bodies and tissues for anatomical examination have been produced by the International Federation of Associations of Anatomists (IFAA) in 2014. The ethical values underlying the recommendation regarded, in addition to the informed consent, the non-commercial nature in relation to bequest of human remains. They expressed the concept that “payment for human material per se is not acceptable”. [10]

But what about the acceptability of the entertainment marketing of death through the use of human bodies?

Thus, this theme should motivate anatomists to debate and take on an active role in determining what the acceptable uses of human dissection and plastination are and what aren't, therefore affecting society in the debate over the purposes for which these methods are undertaken.

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