

## Letter to the Editor

## Reproductive implications of human head transplantation

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Sir,

I read with enthusiasm the manuscript by neurosurgeons Ren and Canavero on his progress toward the first human head transplantation procedure.<sup>[1]</sup> Certainly, history has demonstrated that many “quantum leaps” in medicine challenged the accepted norms at the time. However, I would suggest that no prior “quantum leap” in medicine (e.g., “antiseptic handwashing, balloon angioplasty”) compares to the ethical concerns that are coupled with human head transplantation.<sup>[1]</sup> Head transplantation may 1 day serve as a last resort treatment option when traditional medicine fails; however, I contend that this procedure also opens the door for numerous quandaries pertaining to reproductive ethics. It would be beneficial for the neurosurgical community to discuss human head transplantation in the context of reproductive ethics such that certain inquiries about the procedure may be realized, discussed, and deciphered prior to making the first incision.

The surgical procedure of resecting a living head and relocating it onto a cadaveric donor body will provide the recipient with the donor’s body including their reproductive organs. To be clear, I will consider the head as the definition of human identification or personhood. Therefore, I will define the “recipient” as the individual whose head is being transplanted and the “donor” as the individual who is donating their body. First, recipients can never truly reproduce; rather, the donor body will reproduce the action of the recipient. This begs the question – is it ethical for the recipient to use the donor’s reproductive organs to have a child when the donor is technically deceased? Assuredly, it would be challenging for the recipient to inform the “child” that the child’s natural mother or father died prior to their conception or that the child’s biological parent donated their body to the “recipient.” This may (understandably) cause the child psychological distress. Nevertheless, prior to the first human head transplantation surgery, the neurosurgical community ought to provide the

living donor with a comprehensive understanding of the reproductive implications that are coupled with donating one’s body including the familial ramifications of “recipient reproduction.”

Second, biologic differences (e.g., age, fertility) between the recipient and donor of the same-sex should be addressed. It is unknown whether head transplantation surgery would be successful if there were a substantial age difference between the recipient and donor such as 10, 25, or 50 years? Moreover, consider the ramifications of a fertile individual receiving an infertile body or an infertile individual receiving a fertile body. Sterilizing a fertile donor body, before head transplantation, may help to solve some of these predicaments; however, guidelines should be implemented on age and fertility to appropriately match a recipient to a donor.

Third, we ought to consider the reproductive implications of human head transplantation when subject to slippery slope argumentation. Canavero suggests this protocol as a lifesaving procedure; however, such surgery may 1 day be viewed as a life enhancement procedure. Currently, same-sex human head transplantation surgery appears

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to be quite a challenging task in and of itself. Although years from now, if this surgery becomes common practice, wouldn't the next innovative thinker suggest the first opposite-sex human head transplantation procedure? Gender reassignment head transplantation surgery may currently sound preposterous but it does beg the question – does the medical community have the authority to deny this procedure to transgender individuals in the future? Transplantation ethics encourage the medical community to do the best with the limited number of donated organs, yet gender reassignment head transplantation surgery, as well as general head transplantation, may be disregarding this utilitarian approach to organ donation. Indeed, these quandaries pertaining to the reproductive implications

of human head transplantation are difficult to ponder; nevertheless, discussing these ethical predicaments and creating guidelines for them may benefit the neurosurgical community before we decide to transplant the first human head.

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There are no conflicts of interest.

#### **REFERENCE**

1. Ren X, Canavero S. Human head transplantation. Where do we stand and a call to arms. *Surg Neurol Int* 2016;7:11.